



January 17, 2018

1358.001.01

Mr. Harry Grant
Fox Rothschild L.L.P.
1001 Fourth Avenue, Suite 4500
Seattle, Washington 98154

Mr. Kenneth Bloch
Keller Rohrback L.L.P.
1201 Third Avenue, Suite 3200
Seattle, Washington 98101

**STATUS REPORT – MAY 2017 THROUGH OCTOBER 2017
MANHATTAN VILLAGE SHOPPING CENTER AND HARRIS PROPERTIES
NORMANDY PARK, WASHINGTON**

Dear Mr. Grant and Mr. Bloch:

PES Environmental, Inc. (PES) has prepared this letter to summarize the remediation system operation and maintenance (O&M) activities through October 2017, and groundwater monitoring and sampling events conducted in May and October 2017 for the Manhattan Village Shopping Center (MVSC) property located at 17835 First Avenue South (the “MVSC property”) and the Harris property located at 17817 – 17825 First Avenue South in Normandy Park, Washington (the “Harris property”), collectively referred to as the “Property.” The location and current features of the Property are shown on Figures 1 and 2. This work was conducted in accordance the Remedial Action Work Plan (RAWP¹) and the Operations and Maintenance Plan (O&M Plan)². A Sampling and Analysis Plan (SAP) was included as Appendix H to the RAWP.

REMEDIATION SYSTEM O&M

Air Sparging and Soil Vapor Extraction System Description

The AS/SVE system includes 22 SVE wells, 31 AS wells, and a remediation equipment enclosure containing the AS and SVE mechanical equipment and controls (Figure 3). The AS/SVE system was started up in October 2016. The SVE system consists of a well manifold, positive displacement blower, inline silencers, moisture knockout, condensate storage and

¹ PES Environmental, Inc. 2016. *Remedial Action Work Plan, Manhattan Village Shopping Center and Harris Properties, VCP NW1873, Normandy Park, Washington*. October.

² PES Environmental, Inc. 2016. *Operations and Maintenance Plan, Manhattan Village Shopping Center and Harris Properties, VCP NW1873, Normandy Park, Washington*. December.

transfer pumps, and discharge stack. The SVE manifold includes a vacuum gauge, and each leg of the manifold includes a balancing valve, sampling port, and flow and vacuum monitoring port. The discharge stack includes a temperature gauge, flow meter, sampling port, and an inline silencer. The AS system consists of a well manifold, positive displacement blower, inline silencers, and a heat exchanger. Each leg of the manifold includes a pressure gauge, flow meter, and balancing valve. The AS blower and heat exchanger include pressure and temperature gauges. The SVE blower, AS blower, and heat exchanger are mounted inside insulated enclosures to dampen the equipment noise.

The AS wells are designed to target the sand and silty sand aquifer directly above the silt and clay layer that has been encountered at depths of 46.5 to 50 feet (ft) below ground surface (bgs) on the Harris property and 55 to 56 ft bgs on the MVSC property. The SVE wells are installed at two levels within the vadose zone. Shallow screened wells (5 to 20 ft bgs) target the upper vadose zone, and deeper screened wells (20 to 30 ft bgs on Harris property and 20 to 35 ft bgs on MVSC property) target the lower vadose zone. Detailed descriptions of the AS/SVE system, remediation wells, as-built drawings, and O&M procedures are included in the O&M Plan.

Air Sparging and Soil Vapor Extraction System O&M

O&M activities during the reporting period included field inspections, testing, and O&M of AS/SVE components monthly. Specific work included documenting and maintaining the operational status of the AS/SVE equipment, general operating conditions (leaks, breakage, alarms), monitoring water levels and dissolved oxygen (DO) concentrations within the AS ZOI, monitoring and balancing AS wells (flow rate, pressure), monitoring and balancing SVE wells (flow rate, vacuum), monitoring field volatile organic compound (VOC) concentrations from SVE wells and the discharge stack, and responding to system alarms. Annual brush cutting on Harris property to maintain access to remediation and monitoring wells was conducted in October 2017.

Performance vapor samples were collected each month from the SVE discharge stack, and the samples were analyzed by ALS Environmental (an accredited laboratory) for VOCs by Environmental Protection Agency (EPA) Method TO-15 to evaluate mass removed and to verify compliance with Puget Sound Clean Air Agency (PSCAA) and Washington State Department of Ecology (Ecology) discharge criteria. A total of six monthly performance stack samples were collected. Annual performance samples in individual SVE wells were collected during the prior reporting period, in December 2016.

The system operated with an uptime of approximately 92% during this reporting period with most of the down time due to the shut downs for routine performance groundwater sampling events in July and October 2017. The system was shut down on June 20, 2017 for oil changes and belt adjustments, and the remaining down time was due to power outages. Air sparging wells AS-10 through AS-26 and SVE wells SVE-13A and SVE-14 were shut off on May 29 to evaluate potential for rebound of tetrachloroethene (PCE) in nearby groundwater monitoring wells MW-3, MW-4, and MW-12 on the MVSC property. The SVE system operating data is summarized in Table 1, and the AS system operating data is summarized in Table 2.

The AS system operated at pressures between approximately 6 and 10 pounds per square inch (psi) and average flow rates of 13 to 15 standard cubic feet per minute (scfm) per AS well, which is a roughly 50 percent increase in flow per well over the prior reporting period. The increase is largely due to shutting down AS-10 through AS-26 for rebound testing. The SVE system operated at vacuums of 30 to 32 inches of water column (in.w.c.), flow rates of approximately 20 to 58 scfm per SVE leg and average flow of 42 scfm per leg. The total SVE flow rate was between 830 and 860 scfm, with an average of approximately 840 scfm.

SVE Sampling. The PCE concentrations in the SVE effluent varied from 137 to 910 $\mu\text{g}/\text{m}^3$. The PCE removal rates ranged from 0.010 pounds per day (lbs/day) to 0.068 lbs/day. A total of 6.8 pounds of PCE were removed from April 20, 2017 through October 17, 2017. A total of 111.2 pounds of PCE have been removed throughout the lifetimes of the SVE systems that operated from September 2009 through October 17, 2017. Charts showing SVE effluent PCE concentrations and cumulative PCE mass removal are included as Attachments A1 and A2. Historical SVE leg monitoring and analytical data is included in Attachment A3

On average, PCE made up approximately 94 percent of the total VOCs by weight in SVE stack samples. Breakdown products of PCE including trichloroethene (TCE) and cis-1,2-dichloroethene (cDCE) were typically detected at insignificant concentrations of less than 1 to 2 percent of the total VOC concentration. Vinyl chloride has never been detected. Other VOCs are a minor component of the discharge and include: 1-propene, 1,4-dichlorobenzene, 1,4-dioxane, acetone, acetonitrile, bromodichloromethane, carbon disulfide, chloroform, cyclohexane, d-limonene, dichlorodifluoromethane (CFC-12), ethylbenzene, hexane, isopropyl alcohol, xylenes, naphthalene, styrene, tetrahydrofuran, toluene, trichlorofluoromethane (CFC-11), 1,3,5-trimethylbenzene, and 1,2,4-trimethylbenzene. The total VOC concentration in the SVE discharge stack varied from approximately 149 to 927 $\mu\text{g}/\text{m}^3$ with total VOC removal rates ranging from 0.011 to 0.069 lbs/day. Copies of the laboratory analytical reports and data validation memorandum are included in Attachment B.

The SVE system discharge is in compliance with the PSCAA exemption limits (e.g., less than 500 lb/year of total VOCs), and is below the Ecology small quantity emission rate of 32.4 lb/year of PCE.

SVE System Capture Zone Evaluation. The capture zone (CZ) was evaluated in SVE-3, SVE-6, SVE-7, and SVE-16 in July 2017 during restart of the AS/SVE system following completion of the July performance groundwater sampling event. The evaluation was performed with the SVE system operating and the AS system offline. Prior to starting the evaluation, the operating vacuums were measured at the SVE wells, nearby monitoring wells, and vapor probes to develop a baseline condition. For each SVE wells to be evaluated, the test well and surrounding SVE wells were shut down, and zero vacuum was confirmed in the in the off-line SVE wells. The SVE test well was then restarted at its typical operating flow rate, and a single round of vacuum measurements were collected from surrounding monitoring wells, vapor probes, and off-line SVE wells. Test well flow rate and vacuum were monitored in the test well at the beginning and end of each test to confirm stable operation. After the four tests were completed, AS and SVE wells were placed back on-line and wellfields were rebalanced.

The following is a summary of the individual capture zone tests:

- SVE-3. Well screen interval is 10 – 30 ft bgs. The test was performed at approximately 6.5 in.w.c vacuum and 43 scfm flow. Monitoring points were between 33 and 121 feet from SVE-3, and normalized vacuums were between 6.2 and 10.8 percent of the test vacuum.
- SVE-6. Well screen interval is 5 – 10 ft bgs. The test was performed at approximately 18 in.w.c. vacuum and 43 scfm flow. Monitoring points were between 23 and 126 from SVE-6, and normalized vacuums were between 1.1 to 3.9 percent of the test vacuum.
- SVE-7. Well screen interval is 10 – 30 ft bgs. The test was performed at approximately 3 in.w.c. vacuum and 42 scfm flow. Monitoring points were between 23 and 138 from SVE-7, and normalized vacuums were between 7 to 17 percent of the test vacuum. Vacuum monitoring at the closest monitoring point, SVE-6, did not indicate any vacuum. It is possible that the concrete retaining wall along the property affected vacuum influence in the shallow screened SVE-6, and it should be noted that vacuum was measured at SVE-7 during the earlier test in SVE-6.
- SVE-16. Well screen interval is 20.5 – 34.8 ft bgs. The test was performed at approximately 5 in.w.c. vacuum and 45 scfm flow. Monitoring points were between 8 and 171 ft from SVE-16, and normalized vacuums were between 4 to 20 percent of the test vacuum.

Vacuum influence during testing was observed more than 100 feet from the test wells. The vacuum influence measurements from each test were normalized to the test well vacuum and plotted on a semi-log chart for purposes of estimating a capture zone. Normalized vacuums in were between 1.1 and 20 percent of the test well vacuums at monitoring points located between 8 and 171 feet from the test well. Common practice considers normalized vacuum between 1 and 10 percent to be adequate for designing SVE well CZ. Based on experience, however, a CZ of more than 100 feet is generally not practical, and a CZ of between 50 and 60 feet is likely to be more representative of site conditions. Normalized vacuum curves, and site maps showing vacuums measured before, during, and after the CZ evaluation is included in Attachment C.

Dissolved Oxygen Monitoring. The DO concentrations have increased since startup of the AS system in October 2016, and the average DO concentration during the reporting period was approximately 11.1 milligrams per liter (mg/L). Routine DO and associated water level monitoring data are summarized in Attachment A4.

Residuals Management and Disposal

Residuals accumulated during the reporting period included SVE system condensate and groundwater sampling purge and decontamination water. SVE system condensate is managed within the operating SVE system until sufficient volume can be generated for disposal. PES collected a sample for waste profiling in November 2017. Groundwater sampling purge and

decontamination water is temporarily stored in 55-gallon poly drums near the remediation system enclosure and is sampled at the end of each performance groundwater sampling event. PES anticipates scheduling off-site disposal of both waste streams as non-hazardous waste in December 2017.

PERFORMANCE GROUNDWATER MONITORING AND SAMPLING

Two rounds of groundwater performance monitoring and sampling were conducted during the reporting period. The scope included water level monitoring in all shallow wells (40 total) and select deep wells, and sampling shallow wells, per the RAWP:

- July 2017 performance sampling, conducted approximately nine months after AS/SVE system startup, consisted of sixteen monitoring wells on the Property including nine wells to evaluate conditions within and adjacent to the AS ZOI including MW-2, MW-10, MW-11, MW-13, MW-16, DC-3, DC-4, DC-10A, and KMW-2; three wells to evaluate rebound testing including MW-3, MW-4, MW-12; and MW-7, DC-8, DC-14, and KMW-8 to provide plume definition near the downgradient edge of the Harris property and off-property per Ecology's request;
- October 2017 performance sampling, conducted approximately twelve months after AS/SVE system startup consisted of thirty monitoring wells on the properties including the sixteen wells sampled in July 2017; eleven wells on Harris property including MW-14, MW-15, DC-7, DC-11, DC-12, DC-13, DC-15, DC-17, DC-20, DC-18, and KMW-9; and three off-property downgradient wells including MW-9, KMW-3, and KMW-7.

The AS/SVE system was shut down approximately two days prior to collecting groundwater samples within the AS influence area during the July 2017 event and approximately three days prior to the October 2017 event. A summary of the well completion details is included as Attachment D1.

Groundwater Level Monitoring

Groundwater level monitoring was conducted on July 17, 2017 and October 20, 2017 in all shallow monitoring wells and select deep wells. Depth to water was measured from the surveyed top of casing (TOC) to the nearest 0.01 foot using an electronic water level probe. DC-17 was not located in July due presence of a wood and brush pile covering the well.

Groundwater Sampling

Groundwater samples were collected from July 18 to July 19, 2017 and from October 23 to October 27, 2017, using low-flow sampling techniques. For each sampling event, a bladder pump with dedicated bladders was lowered into each well. Groundwater was purged prior to sample collection until parameters stabilized. Field parameters measured during sampling consisted of temperature, pH, specific conductance, DO, and oxidation reduction potential (ORP). The pump intake was set at approximately two to three feet below the static water level,

generally consistent with previous sampling events. For wells with completed submerged screened intervals, the pump intake was set within approximately 1.5 feet below the top of the screen.

Samples were collected into preserved 40-ml VOA sampling containers and submitted to ESC Lab Sciences (ESC) in Mt. Juliet, TN (an Ecology accredited laboratory) for analysis of VOCs by EPA Method 8260B.

Quality Assurance/Quality Control

One equipment blank sample was collected per sampling event following decontamination of the bladder pump. The equipment blank samples were collected by pumping de-ionized water through the bladder pump with a new bladder and into laboratory prepared sample containers. Trip blanks were included in the coolers and were returned to the ESC for VOC analysis. One field duplicate sample for the July 2017 event and two field duplicate samples for the October 2017 event were collected and submitted for VOC analysis. A duplicate sample was taken from MW-11 in July 2017. Duplicate samples were taken from DC-7 and DC-10A in October 2017.

GROUNDWATER MONITORING RESULTS

Groundwater Monitoring

Water level measurements and groundwater elevations for the July 2017 and October 2017 sampling events are summarized in Tables 3 and 4, respectively, and field parameter measurements from the July 2017 and October 2017 sampling events are summarized in Tables 5 and 6, respectively. Groundwater elevations in the shallow wells on both properties ranged from 255.38 to 275.42 feet above North American Vertical Datum of 1988 (NAVD 88) in July 2017 and from 254.22 to 273.80 feet NAVD 88 in October 2017. Groundwater elevations in July remained at the highest elevations since 1999 and were roughly 1.5 to 2.0 feet higher than they during AS/SVE system startup period in October and November 2016. Groundwater declined in October consistent with typical seasonal trends, although the average water level remained approximately 0.5 feet higher compared to water levels measured in October 2016 (during AS/SVE system startup).

Groundwater gradients during both sampling events were in the northerly direction and generally consistent with historical results. The gradient across the two properties varied between approximately 0.003 and 0.004 ft/ft, and the off-property gradient was approximately 0.027 ft/ft (estimated from KMW-7/KMW-8 to MW-9). Groundwater elevations in DC-13 in July and DC-15 in October were not used for contouring because they were inconsistent with surrounding water levels. The July and October 2017 groundwater elevations and elevation contours are shown on Figures 4 and 5. A complete summary of historical groundwater elevations is included as Attachment D2.

Groundwater Analytical Results

The laboratory analytical results from the July 2017 and October 2017 sampling events for PCE are summarized in Tables 7 and 8, respectively, and on Figures 4 and 5, respectively. A complete summary of historical PCE concentrations in groundwater monitoring wells is included as Attachment D3.

The results from the July 2017 sampling event (16 wells) are summarized as follows:

- PCE was not detected at or above the method reporting limit of 1.0 micrograms per liter ($\mu\text{g/L}$) in wells MW-10, MW-12, MW-13, MW-16, DC-3, DC-4, and KMW-2;
- PCE was detected in wells MW-2, MW-3, MW-4, MW-11, DC-10A, DC-14, and KMW-8 at concentrations at or below Ecology's Model Toxics Control Act (MTCA) Method A cleanup level ($5 \mu\text{g/L}$);
- PCE was detected above the cleanup level in wells MW-7 and DC-8 with concentrations of 7.20 and $8.94 \mu\text{g/L}$, respectively; and
- PCE was not detected at or above the method reporting limits (MRLs) in any of the equipment blank and trip blank samples.

The results from the October 2017 sampling event (30 wells) are summarized as follows:

- PCE was not detected at or above the method reporting limit of $0.50 \mu\text{g/L}$ in wells MW-9, MW-10, MW-12, MW-13, DC-4, KMW-2, and KMW-7. Note that the laboratory lowered the reporting limit from $1.0 \mu\text{g/L}$ in July to $0.5 \mu\text{g/L}$ in October;
- PCE was detected in wells MW-2, MW-3, MW-4, MW-11, MW-14, MW-15, MW-16, DC-3, DC-10A, DC-11, DC-12, DC-13, DC-18, DC-20, KMW-8 and KMW-9 at concentrations below Ecology's MTCA Method A cleanup level ($5 \mu\text{g/L}$);
- PCE was detected above the cleanup level in wells MW-7 ($7.47 \mu\text{g/L}$), DC-7 ($6.67 \mu\text{g/L}$), DC-8 ($14.8 \mu\text{g/L}$), DC-14 ($5.40 \mu\text{g/L}$), DC-15 ($7.42 \mu\text{g/L}$), DC-17 ($8.06 \mu\text{g/L}$), and KMW-3 ($5.78 \mu\text{g/L}$); and
- PCE was not detected at or above the MRLs in any of the equipment blank and trip blank samples.

PCE concentrations in the monitoring wells within the air sparging rebound evaluation area (MW-3, MW-4, MW-12) slightly increased but remained below the CUL in MW-3 ($1.76 \mu\text{g/L}$ in July, $4.21 \mu\text{g/L}$ in October) and MW-4 ($1.4 \mu\text{g/L}$ in July, $3.23 \mu\text{g/L}$ in October), and remained below the laboratory reporting limit in MW-12. The MW-12 result is consistent with results since this well was first sampled in 2012.

Time trend plots showing the PCE concentration and water table elevation over time for wells MW-2, MW-7, DC-3, DC-4, DC-7, DC-8, DC-13, DC-14, DC-15, DC-17, and KMW-8 are presented in Attachment E. The time trend plots indicate the following:

- A correlation between PCE concentrations and water elevations (with increasing concentrations with higher water table elevations) is evident in most of the time trend plots;
- PCE concentrations in the western portion of the Harris property maintained all-time low concentrations. DC-3 and DC-4, within the AS ZOI, remained near or below the laboratory reporting limit. PCE concentrations continue to decline in DC-7 and DC-17 located downgradient of the AS ZOI;
- PCE concentrations in the central portion of the Harris property maintained their overall declining trends. MW-2 (2.43 µg/L in July, 1.55 µg/L in October) dropped back below the CUL, DC-15 declined slightly but remained relatively consistent with results since 2014, and DC-8 varied between the two events;
- PCE concentrations within and slightly downgradient of the eastern portion of the Harris property decreased since March 2017. DC-13 (2.79 µg/L) and KMW-8 (4.99 µg/L) remained below the CUL, and DC-14 varied slightly above and below CUL; and
- PCE concentrations in downgradient well MW-7 continued to decline and were at or near historical low concentrations.

Laboratory Data Validation

The laboratory analytical reports were validated in accordance with the USEPA guidelines for organic data review³. PCE results for DC-7 and its field duplicate (MW-101) were not within a relative percent difference (RPD) of less than 20%, so the results for DC-7 and MW-101 are qualified as estimates (“J” flag). All of the data were judged to be acceptable for their intended use. Copies of the laboratory analytical reports and data validation memoranda are included in Attachment B.

SUMMARY AND CONCLUSIONS

The groundwater PCE concentrations within and near the AS ZOI have declined over the first 12 months of the AS/SVE system operations. In areas outside the ZOI, PCE concentrations in several wells near the southern Harris property line continue to decline and others fluctuated near the CUL. PCE in the offsite downgradient plume is decreasing. Notable results include:

- PCE concentrations in southern half of the Harris property and in all wells on MVSC property are below the 5 µg/L PCE CUL;

³ *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review*. OSWER 9240.1-05A-P PB99-963506 EPA540/R-99/008, October.

- PCE concentrations in all wells within the AS ZOI have been below the PCE CUL for two consecutive quarters, and wells downgradient of the AS ZOI (DC-7, DC-17, MW-14) have been stable and/or are declining;
- MW-7 on Dunn Lumber property and KMW-3 in SW 178th Street were the only wells off the Property which were above the cleanup level. MW-7 has an overall downward trend, and KMW-3 was above the cleanup level for the first time since 2012. The rest of the off-Property wells remained below the cleanup level, including KMW-7 and KMW-8 in SW 178th Street and MW-9, which is downgradient of Dunn Lumber;
- Rebound evaluation in MW-3 and MW-4 on the MVSC property showed PCE concentrations slightly increasing over a period of approximately five months, but remaining below the CUL. Monitoring well MW-12 remained below the CUL, consistent with the long-term trend in this well;
- Groundwater elevations were at or near all-time high elevations in March and July 2017. The PCE concentrations in DC-8 and KMW-3 observed in October may be related to the elevated groundwater elevations earlier in the year;
- Elevated DO concentrations have been present in wells within and downgradient of the AS ZOI and have extended as far east as MW-16. Dissolved oxygen concentrations in monitoring wells within the AS ZOI have increased from an average of 6.4 mg/L prior to AS/SVE system startup in October 2016 to an average of 11.1 mg/L during this reporting period. The elevated DO concentrations outside of the AS ZOI are an indication that treated water from the AS/SVE system is moving through the western portion of the Property; and
- Stack sampling indicated variability in PCE concentrations over the reporting period, from 137 to 910 $\mu\text{g}/\text{m}^3$ and an overall declining trend since AS/SVE system startup in October 2016.

PES appreciates the opportunity to conduct these groundwater monitoring activities. If you have any questions regarding this report, or need any additional information, please feel free to contact either of us at (206) 529-3980.

Sincerely,
PES ENVIRONMENTAL, INC.


for Shannon E. McKernan
Staff Geologist


Matthew V. Dahl, P.E.
Senior Engineer

Attachments:

Figure 1 – Site Location Map

Figure 2 – Site Plan

Figure 3 – Remediation Well Locations

Figure 4 – Groundwater Elevations and PCE Concentrations – July 2017

Figure 5 – Groundwater Elevations and PCE Concentrations – October 2017

Table 1 – SVE System Operation and Maintenance Data

Table 2 – AS System Operation and Maintenance Data

Table 3 – Groundwater Elevations – July 2017

Table 4 – Groundwater Elevations – October 2017

Table 5 – Groundwater Field Parameters – July 2017

Table 6 – Groundwater Field Parameters – October 2017

Table 7 – Tetrachloroethene Concentrations in Groundwater – July 2017

Table 8 – Tetrachloroethene Concentrations in Groundwater – October 2017

Attachment A – O&M Charts and Summary Tables

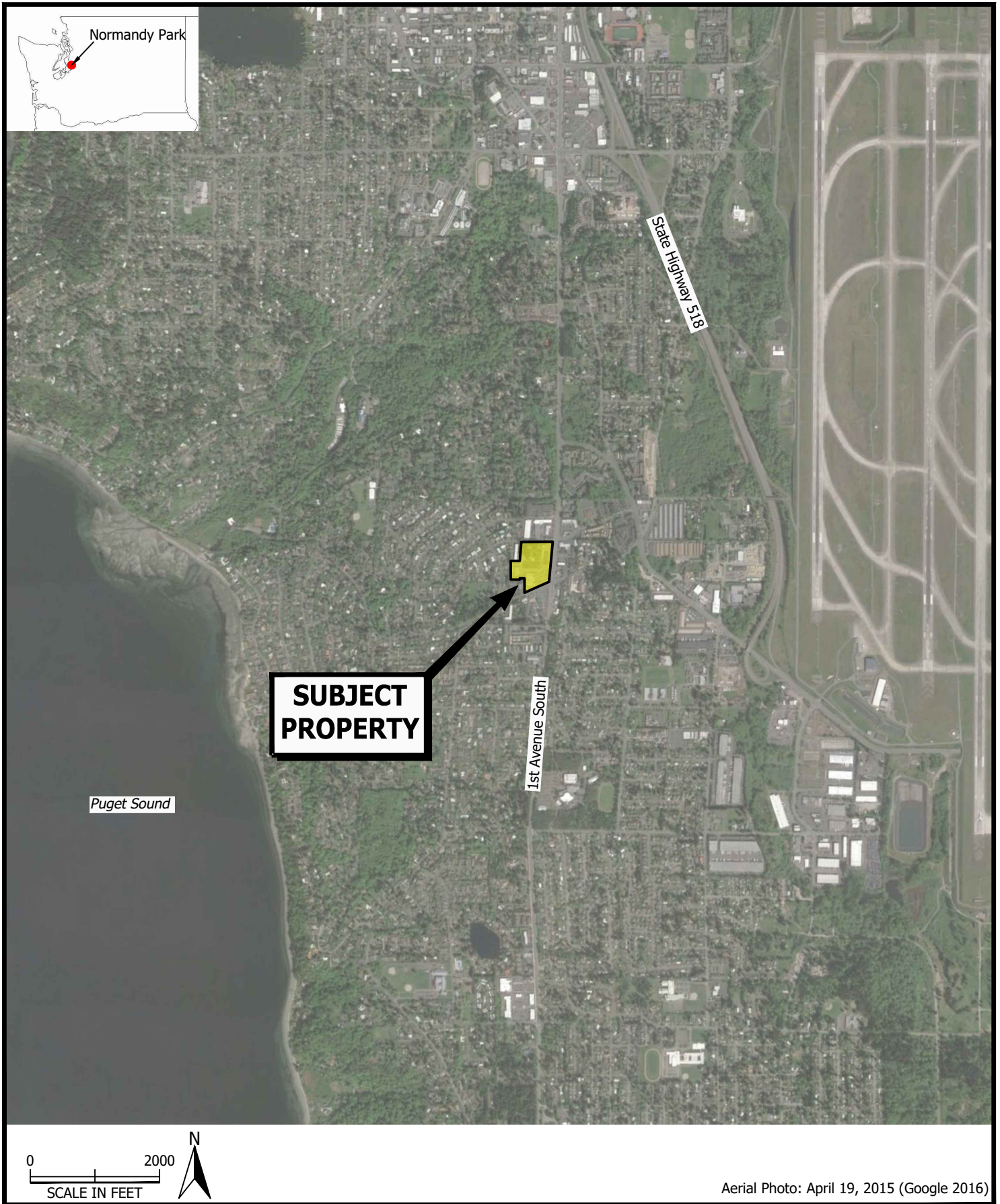
Attachment B – Laboratory Analytical Reports and Data Validation Memoranda

Attachment C – SVE Capture Zone Evaluation Data

Attachment D – Well Completion Details, Historical Groundwater Data Summaries

Attachment E – Time Trend Plots

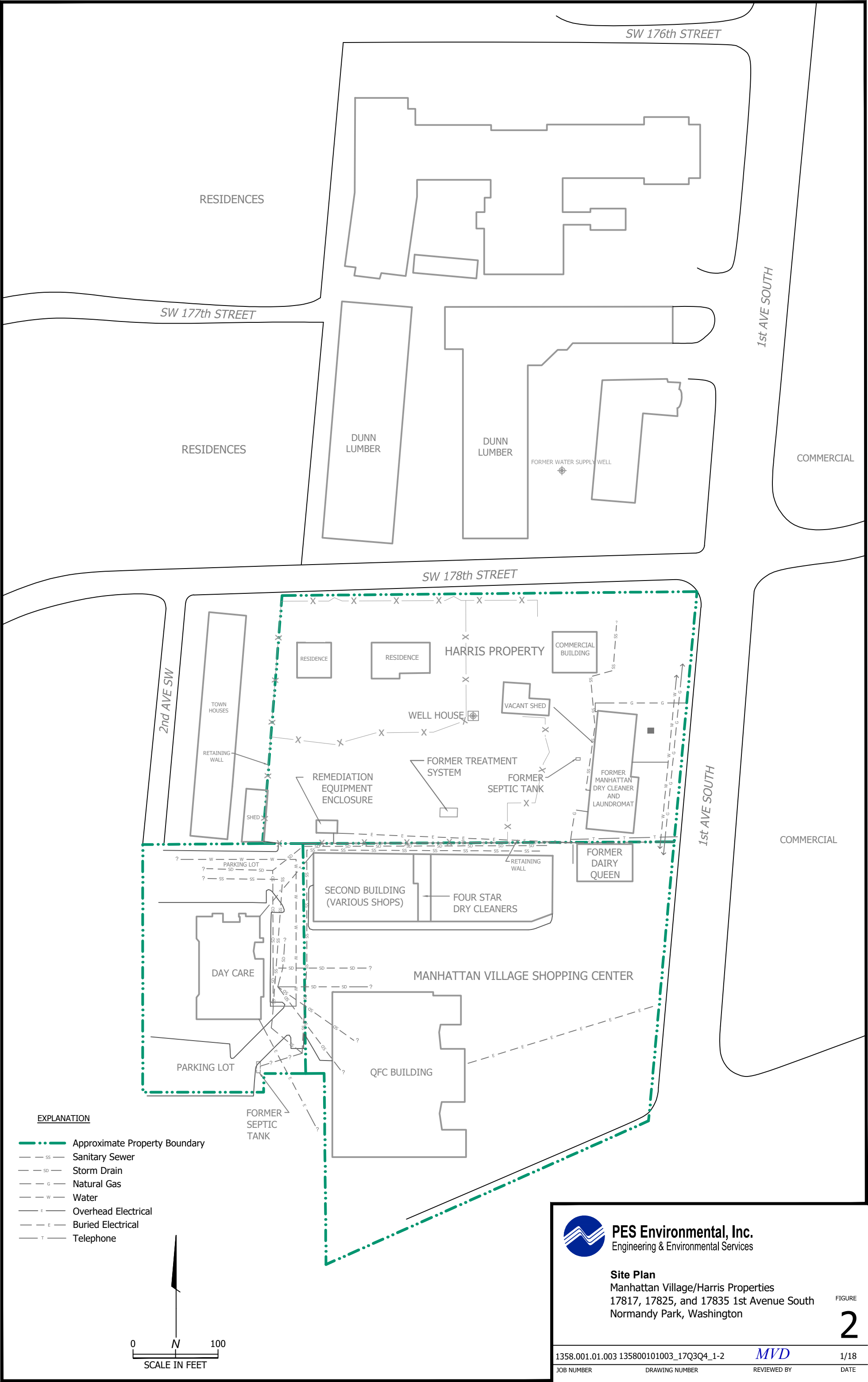
ILLUSTRATIONS

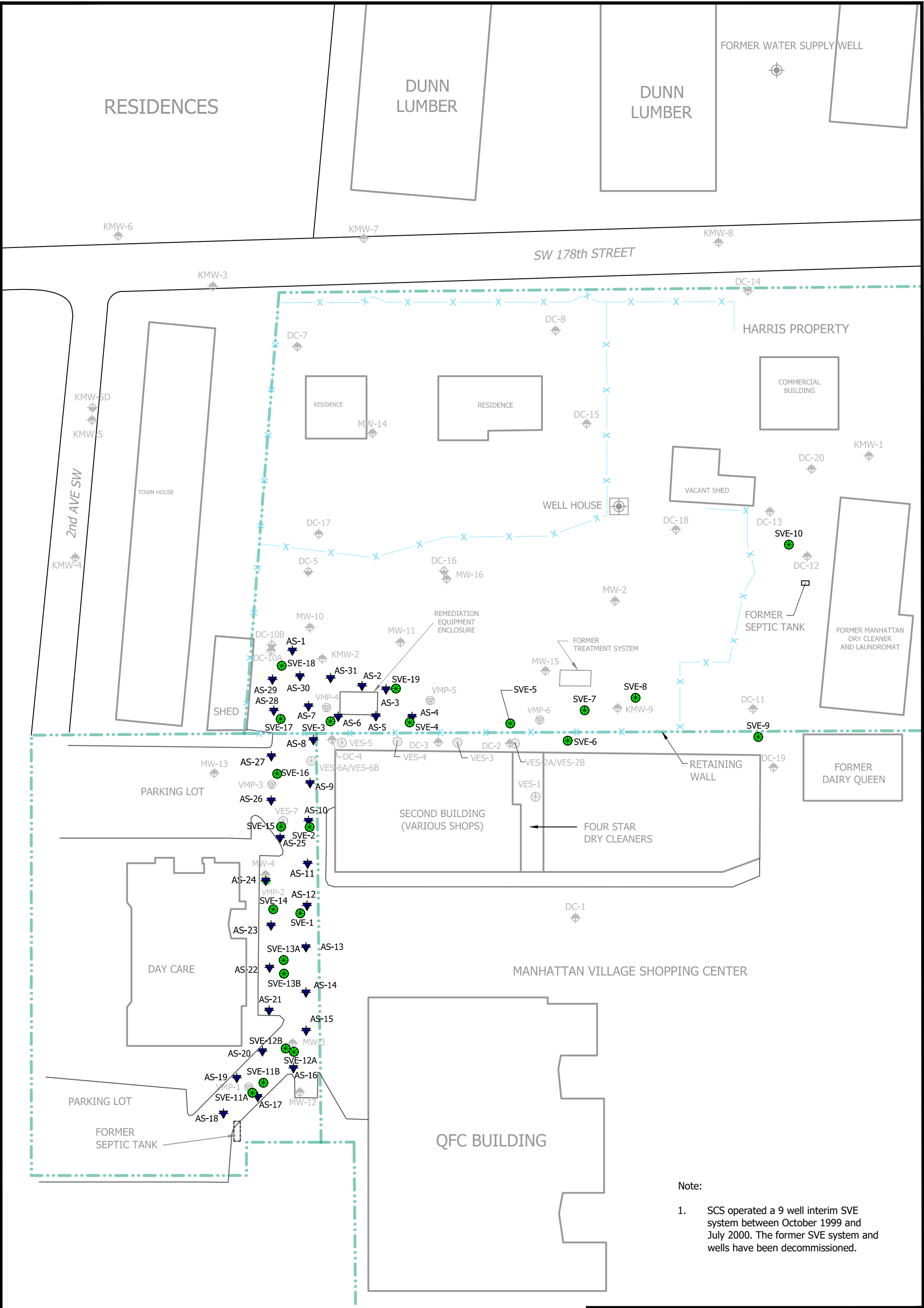


PES Environmental, Inc.
Engineering & Environmental Services

Subject Property Location Map
Manhattan Village/Harris Properties
17817, 17825, and 17835 1st Avenue South
Normandy Park, Washington

FIGURE
1





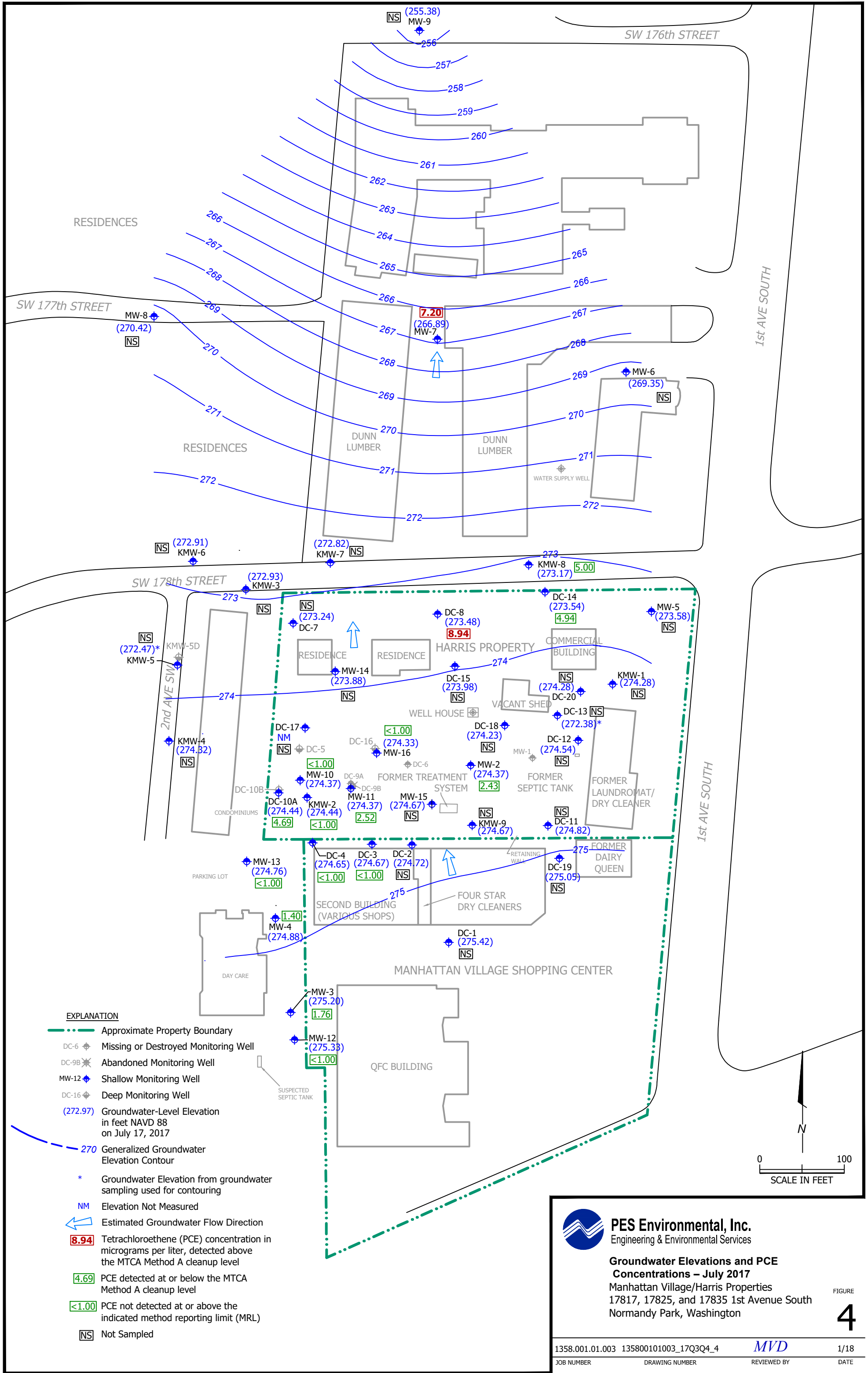
- EXPLANATION**
- Approximate Property Boundary
 - MW-12 Shallow Monitoring Well
 - DC-16 Deep Monitoring Well
 - AS-1 Air Sparge Well
 - SVE-1 Soil Vapor Extraction Well
 - VES-3 Decommissioned Soil Vapor Extraction Well (SCS, 1999)
 - VMP-1 Vapor Monitoring Probe

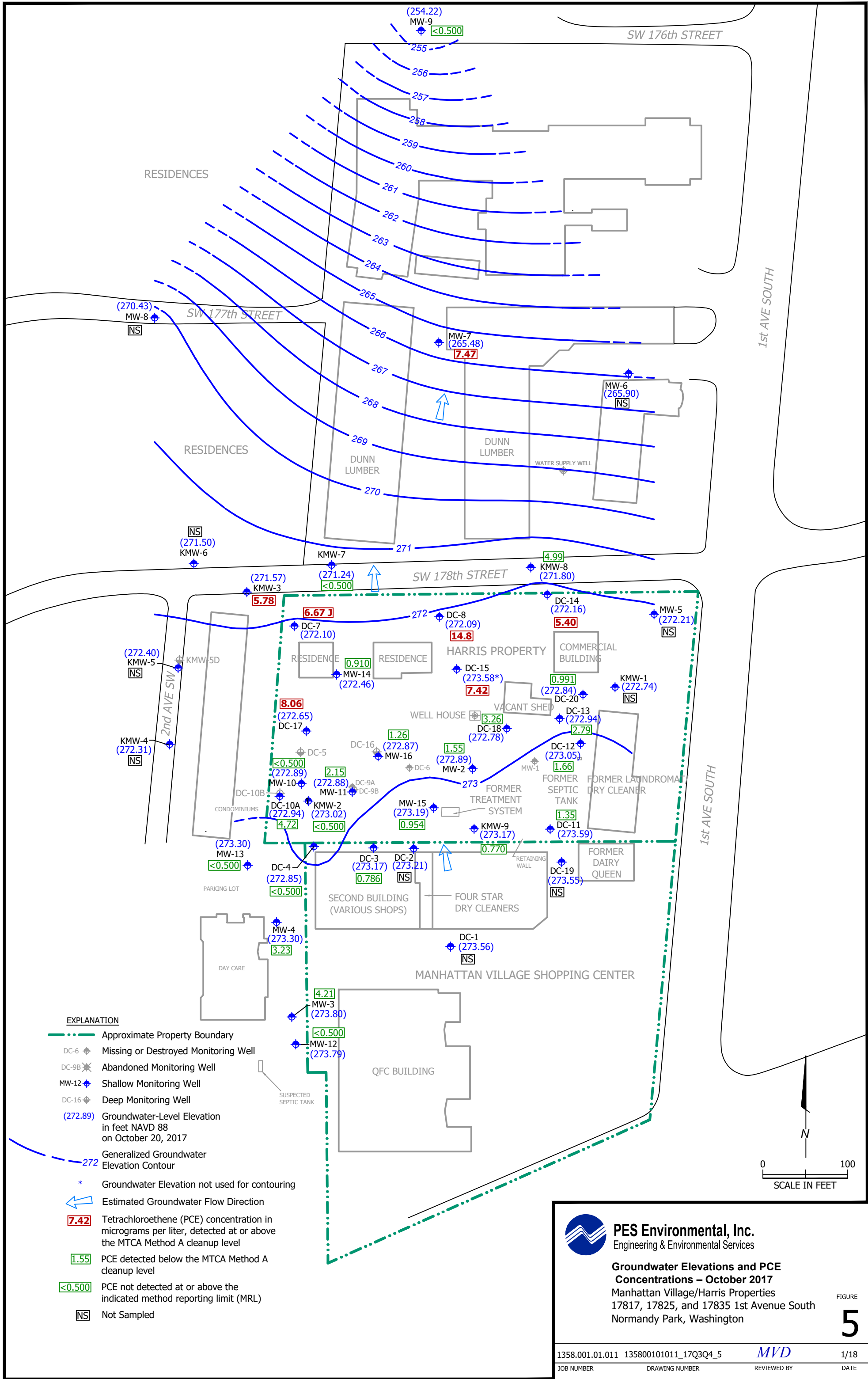


Remediation Well Locations
Manhattan Village/Harris Properties
17817, 17825, and 17835 1st Avenue South
Normandy Park, Washington

FIGURE

3





TABLES

Table 1
SVE System Operation and Maintenance Data
Manhattan Village/Harris Properties
Normandy Park, Washington

Date	Time	Operating Days (days)	System Down Time (days)	Electric Meter (KWH)	Blower				Vacuum		SVE Wells ⁶	Stack				PCE Removal Rate ⁴ (lb/day)	PCE Mass Removed ⁵ (lbs)	Condensate		Notes
					Speed (hz)	Electric Meter (KWH)	Run Time (hr)	Temp. Out (deg F)	Blower (in. w.c.)	Manifold (in. w.c.)		DP (in. w.c.)	Flow ¹ (scfm)	VOC ² (ppm)	Lab PCE ³ (µg/m ³)			DAT Tank (gal)	Holding Tank (gal)	
10/19/16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	97.5	-	-	per PES previous O&M Data Tables	
10/19/16	11:30	0	-	-	51	-	-	85	42	19	1 to 19	2.25	830	-	-	-	-	-	SVE system startup, balance wells	
10/21/16	-	2	-	-	50	-	-	85	48	25	1 to 19	2.10	800	2.96	-	-	-	-	AS system startup, balance wells, noise testing	
10/25/16	10:32	6	-	1,274	51	1,285	159	86	42	20	1 to 19	2.15	830	2.39	2,100	0.157	98.5	169	90	Balance SVE and AS wells, stack TO-15 sample
11/2/16	9:00	14	-	-	51	2,859	349	85	45	20	1 to 19	2.3	840	2.51	1,310	0.099	99.6	92	160	Startup monitoring, stack TO-15 sample
11/10/16	10:30	22	-	-	51	4,318	390	80	35	15	1 to 19	2.5	880	1.25	966	0.076	99.7	-	325	Startup monitoring, stack TO-15 sample
11/16/16	10:30	28	-	-	51	5,418	688	80	35	16	1 to 19	2.0	790	2.57	942	0.067	100.6	60	340	Startup monitoring, stack TO-15 sample
11/23/16	9:00	35	-	-	51	6,655	853	75	30	15	1 to 19	-	-	0.86	-	-	-	120	425	Check AS, clean debris from transfer pump
11/30/16	7:00	42	-	-	51	7,914	1,020	75	33	10	1 to 19	2.0	790	-	-	-	-	75	490	Check AS, clean debris from transfer pump
12/12/16	9:00	54	-	3,398	51	10,209	1,312	75	35	10	1 to 19	2.4	860	1.31	288	0.022	101.7	10	580	O&M, stack TO-15 sample, shutdown for GW sampling
12/15/16	-	57	3	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Restarted system after GW sampling
12/20/16	8:00	62	-	3,704	51	11,115	1,430	75	34	9	1 to 19	2.0	790	-	-	-	-	90	520	Changed blower and compressor oil, check belts
12/28/16	-	70	-	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	750	Respond to DAT Alarm, reset, system operatiing
1/1/17	-	70	-	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	System down on power outage alarm
1/3/17	13:35	70	2	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Responded to alarm, system off - frozen equipment
1/9/17	12:15	70	9	4,444	51	13,211	1,723	65	30	8	1 to 19	2.3	850	-	-	-	-	80	825	Test and restart system after power outage
1/10/17	9:45	71	-	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	System check after restart
1/18/17	11:00	79	-	4,976	51	14,751	1,936	75	32	6	1 to 19	2.3	845	0.51	359	0.027	102.4	0	5	O&M and TO-15 sample, condensate disposal
1/29/17	-	90	-	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Reset alarm, system running
2/1/17	6:45	93	-	5,801	51	17,171	2,269	70	32	10	1 to 19	2.2	-	-	-	-	-	85	220	Install check valve, repair transfer pump leak
2/6/17	5:20	97	1	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Power outage. Restarted system.
2/14/17	11:00	97	-	6,558	51	19,370	2,573	75	32	2	1 to 19	2.3	845	1.14	248	0.019	103.0	85	350	O&M , stack TO-15 sample, clean level switches
2/16/17	15:30	99	-	6,685	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	140	365	System check
3/2/17	-	113	-	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Respond to DAT Alarm, reset, system operatiing
3/10/17	9:00	121	-	8,006	51	23,567	3,146	75	35	26	1 to 19	2.3	845	0.17	275	0.021	103.5	100	565	O&M, stack TO-15 sample,shutdown for GW sampling
3/17/17	-	121	7	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Restarted system after GW sampling
4/8/17	9:40	143	1	9,229	-	27,115	3,653	75	30	24	1 to 19	2.3	845	-	-	-	-	95	670	Power bump/surge, blower low flow alarm, restarted
4/20/17	12:00	155	-	10,022	51	29,101	3,942	75	32	25	1 to 19	2.4	865	0.34	477 EJ	0.037	104.4	93	670	O&M , stack TO-15 sample
4/22/17	-	-	-	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Power bump/surge, blower low flow alarm
4/23/17	15:40	157	1	10,136	51	29,398	3,985	75	30	25	1 to 19	2.3	845	-	-	-	-	92	670	Restarted system
5/29/17	12:00	193	-	12,283	51	35,228	4,845	85	32	32	All except 13A & 14	2.3	835	0.30	137	0.010	105.3	80	680	Closed SVE13A & SVE14, Closed AS10 to AS26
6/16/17	11:00	211	-	-	-	-	-	-	-	-	All except 13A & 14	-	-	-	-	-	-	-	-	Power bump/surge, low flow alarm. Restarted system
6/20/17	8:00	215	-	13,352	51	38,915	5,359	85	34	32	All except 13A & 14	2.3	835	0.40	246	0.018	105.6	68	686	O&M, changed blower and compressor oil, check belts
7/15/17	10:00	240	-	14,596	51	43,192	5,959	94	35	30	All except 13A & 14	2.4	845	0.30	745	0.057	106.6	50	686	O&M , stack TO-15 sample, shut down for GW sampling
7/20/17	14:00	245	5	14,607	51	43,227	5,963	100	40	32	All except 13A & 14	2.3	830	-	-	-	-	48	686	Restarted system after GW sampling, ROI evaluation
8/18/17	9:15	274	-	16,061	51	48,555	6,655	90	38	30	All except 13A & 14	2.3	835	2.4	910	0.068	108.4	20	686	O&M , stack TO-15 sample
9/22/17	10:30	309	-	17,766	51	54,570	7,495	80	40	30	All except 13A & 14	2.4	860	2.0	590	0.046	110.4	10	686	O&M , stack TO-15 sample
10/17/17	8:15	334	-	18,992	51	58,991	8,097	80	40	30	All except 13A & 14	2.3	845	1.3	310	0.024	111.2	0	686	O&M , stack TO-15 sample
10/18/17	-	-	-	-	-	-	-	-	-	-	All except 13A & 14	-	-	-	-	-	-	-	-	Power bump/surge during storm, blower low flow alarm
10/19/17	11:00	335	1	-	51	-	8,127	-	-	-	All except 13A & 14	-	-	-	-	-	-	-	-	Inspect/test system, leave down for GW sampling
10/27/17	10:00	335	8	-	-	-	-	-	-	-	All except 13A & 14	-	-	-	-	-	-	-	-	Restarted system after GW sampling

Table 1
SVE System Operation and Maintenance Data
Manhattan Village/Harris Properties
Normandy Park, Washington

Date	Time	Operating Days (days)	System Down Time (days)	Electric Meter (KWH)	Blower				Vacuum		SVE Wells ⁶	Stack				PCE Removal Rate ⁴ (lb/day)	PCE Mass Removed ⁵ (lbs)	Condensate		Notes
					Speed (hz)	Electric Meter (KWH)	Run Time (hr)	Temp. Out (deg F)	Blower (in. w.c.)	Manifold (in. w.c.)		DP (in. w.c.)	Flow ¹ (scfm)	VOC ² (ppm)	Lab PCE ³ (µg/m ³)			DAT Tank (gal)	Holding Tank (gal)	
Notes: 1. Calculated flow rate based on velocity measurements in feet per minute, converted to cfm based on pipe cross sectional area, and normalized to standard conditions 2. As measured with a photoionization detector (PID) adjusted using 0.57 correction factor for PCE 3. SVE system discharge samples analyzed for VOCs using United States Environmental Protection Agency Method TO-15; see laboratory reports for the complete analytical list. 4. Mass Removal Rate = [flow (scfm) * PCE (µg/m³) * 28.3168 (L/cf) / 1,000 (L/m³) / 453,592,370 (µg/lb) * 60 (min/hour) * 24 (hour/day)] 5. Cumulative mass removed = average mass removal rates from previous and current O&M visit * period run time 6. SVE wells operating. The numbers refer to the SVE well number: SVE-1, SVE-2, SVE-3, SVE-4, SVE-5, SVE-6, SVE-7, SVE-8, SVE-9, SVE-10, SVE-11a, SVE-11b, SVE-12a, SVE-12b, SVE-13a, SVE-14, SVE-15, SVE-16, SVE-17, SVE-18, and SVE-19. KWH = Kilowatt Hours in. w.c. = inches of water column scfm = standard cubic feet per minute deg F = degrees Fahrenheit NM = not measured PCE = tetrachloroethene ppm = parts per million DAT = diffused aeration tank VOC = Volatile Organic Compounds µg/m³ = micrograms per cubic meter lb/day = pounds per day Temp. = Temperature DP = Differential Pressure EJ = estimated value																				

Table 2
AS System Operation and Maintenance Data
Manhattan Village/Harris Properties
Normandy Park, Washington

Date	Air Sparging System							
	Operating Wells ¹	Flow ² (scfm)	Speed (hz)	Electric Meter (KWH)	Run Time (hr)	Compressor Temp (deg F)	Heat Exchanger	
							Temp (deg F)	Pressure (psi)
10/19/16	-	-	-	-	-	-	-	-
10/21/16	1 to 31	286	-	-	-	-	-	-
10/25/16	1 to 31	274	43.2	1,482	110	180	77	6.5
11/2/16	1 to 31	282	43.2	4,210	301	174	68	8.0
11/10/16	1 to 31	285	43.2	7,052	301	175	69	8.0
11/16/16	1 to 31	288	43.2	9,151	639	160	66	8.0
11/23/16	1 to 31	291	43.2	11,552	805	175	66	8.0
11/30/16	1 to 31	288	43.2	13,994	942	170	66	8.0
12/12/16	1 to 31	292	43.2	18,335	1,264	170	62	8.0
12/15/16	1 to 31	-	-	-	-	-	-	-
12/20/16	1 to 31	-	43.2	20,104	1,381	160	64	8.0
12/28/16	1 to 31	-	-	-	-	-	-	-
1/1/17	1 to 31	-	-	-	-	-	-	-
1/3/17	1 to 31	-	-	-	-	-	-	-
1/9/17	1 to 31	287	43.2	24,365	1,674	160	60	9.0
1/10/17	1 to 31	-	-	-	-	-	-	-
1/18/17	1 to 31	276	43.2	27,488	1,887	175	70	9.0
1/29/17	1 to 31	-	-	-	-	-	-	-
2/1/17	1 to 31	298	43.2	32,282	2,219	152	52	8.0
2/6/17	1 to 31	-	-	-	-	-	-	-
2/14/17	1 to 31	286	43.2	36,737	2,523	170	64	8.0
2/16/17	1 to 31	-	-	-	-	-	-	-
3/2/17	1 to 31	-	-	-	-	-	-	-
3/10/17	1 to 31	286	43.2	45,280	3,096	175	66	8.0
3/17/17	1 to 31	-	-	-	-	-	-	-
4/8/17	1 to 31	-	43.2	53,033	3,603	175	68	8.0
4/20/17	1 to 31	273	43.2	57,418	3,892	180	77	7.0
4/22/17	1 to 31	-	-	-	-	-	-	-
4/23/17	1 to 31	-	43.2	58,074	3,935	180	68	8.5
5/29/17	1 to 9, 27 to 31	200	36.0	71,190	4,794	175	76	6.0
6/20/17	1 to 9, 27 to 31	212	36.0	76,339	5,309	170	80	6.0
7/15/17	1 to 9, 27 to 31	214	36.0	82,992	5,908	170	92	6.0
7/20/17	1 to 9, 27 to 31	199	36.0	82,999	5,909	185	100	8.0
8/18/17	1 to 9, 27 to 31	217	36.0	90,120	6,600	165	105	8.0
9/22/17	1 to 9, 27 to 31	216	36.0	98,643	7,441	155	110	8.0
10/17/17	1 to 9, 27 to 31	224	39.0	104,636	8,042	160	120	8.0
Notes: 1. The numbers refer to the AS well number 2. Calculated flow rate based on the sum of the individual AS leg meter readings, normalized to standard conditions. psi = pounds per square inch hz = Hertz KWH = Kilowatt Hours hr = hour scfm = standard cubic feet per minute HEX = heat exchange deg F = degrees Fahrenheit								

Table 3

Groundwater Elevations - July 2017
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	Monument Type	Top of Casing Elevation (feet, NAVD88)	Screened Interval Depth (feet)	Depth to Water (feet)	Groundwater Elevation (feet, NAVD88)
Shallow Monitoring Wells						
MW-2	7/17/2017	Flush	308.34	32.22-42.22	33.97	274.37
MW-3	7/17/2017	Flush	311.41	35.67-45.67	36.21	275.20
MW-4	7/17/2017	Flush	310.47	33.45-43.45	35.59	274.88
MW-5	7/17/2017	Flush	310.38	35.6-45.6	36.80	273.58
MW-6	7/17/2017	Flush	304.14	34.46-44.46	34.79	269.35
MW-7	7/17/2017	Flush	302.64	34.47-44.47	35.75	266.89
MW-8	7/17/2017	Flush	280.68	12.71-22.71	10.26	270.42
MW-9	7/17/2017	Flush	284.97	31.6-41.6	29.59	255.38
MW-10	7/17/2017	Flush	306.71	31.52-41.52	32.34	274.37
MW-11	7/17/2017	Flush	307.62	31.56-41.56	33.25	274.37
MW-12	7/17/2017	Flush	312.80	35.7-45.7	37.47	275.33
MW-13	7/17/2017	Flush	308.75	34.58-44.58	33.99	274.76
MW-14	7/17/2017	Flush	303.82	27.6-37.6	29.94	273.88
MW-15	7/17/2017	AG	312.44	37.14-47.14	37.77	274.67
MW-16	7/17/2017	AG	310.37	29.45-44.65	36.04	274.33
DC-1	7/17/2017	Flush	312.82	39.5-44.5	37.40	275.42
DC-2	7/17/2017	Flush	312.92	41.22-46.22	38.20	274.72
DC-3	7/17/2017	Flush	313.11	42.32-47.32	38.44	274.67
DC-4	7/17/2017	Flush	312.35	43.36-48.36	37.70	274.65
DC-7	7/17/2017	Flush	302.61	34.35-39.35	29.37	273.24
DC-8	7/17/2017	Flush	306.23	36.64-41.64	32.75	273.48
DC-10A	7/17/2017	Flush	307.73	32.01-37.01	33.29	274.44
DC-11	7/17/2017	Flush	311.25	31.6-41.6	36.43	274.82
DC-12	7/17/2017	Flush	311.25	31.7-41.7	36.71	274.54
DC-13	7/17/2017	Flush	310.20	31.7-41.7	37.82	272.38
DC-14	7/17/2017	Flush	308.94	34.4-44.4	35.40	273.54
DC-15	7/17/2017	Flush	307.89	30.7-40.7	33.91	273.98
DC-17	7/17/2017	Flush	305.16	29.81-39.81	--	--
DC-18	7/17/2017	Flush	309.51	31.58-41.58	35.28	274.23
DC-19	7/17/2017	Flush	313.62	36.8-46.8	38.57	275.05
DC-20	7/17/2017	Flush	310.92	33.8-43.8	36.64	274.28
KMW-1	7/17/2017	Flush	311.59	36.8-51.8	37.31	274.28
KMW-2	7/17/2017	Flush	307.04	29.91-39.91	32.60	274.44
KMW-3	7/17/2017	Flush	296.92	24.6-34.6	23.99	272.93
KMW-4	7/17/2017	Flush	299.57	23.79-33.79	25.25	274.32
KMW-5	7/17/2017	Flush	297.22	23.66-33.66	24.75	272.47

Table 3

Groundwater Elevations - July 2017
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	Monument Type	Top of Casing Elevation (feet, NAVD88)	Screened Interval Depth (feet)	Depth to Water (feet)	Groundwater Elevation (feet, NAVD88)
Shallow Monitoring Wells						
KMW-6	7/17/2017	Flush	294.81	25.73-40.73	21.90	272.91
KMW-7	7/17/2017	Flush	301.43	28.78-43.78	28.61	272.82
KMW-8	7/17/2017	Flush	308.15	28.69-43.69	34.98	273.17
KMW-9	7/17/2017	Flush	310.33	33.5-43.5	35.66	274.67
<u>NOTES:</u> 1. '--' = not measured or not applicable. DC-17 was not located due to overgrown vegetation on residential parcel. 2. Well monument types: flush grade monuments and above ground (AG) monuments. 3. Depth to water is measured from top of well casing. 4. Elevations are reported relative to North American Vertical Datum of 1988 (NAVD 88). 5. Top of casing (TOC) elevations were surveyed by D.R. Strong Consulting Engineers, Inc. in February and May 2013 and by Lanktree Land Surveying, Inc. in July 2015. 6. Screened interval depth is estimated using from surveyed elevations (top of casing elevations, ground surface, and monument rim) and field measurements at the time of drilling. 7. Screened intervals completely submerged are shaded.						

Table 4

Groundwater Elevations - October 2017
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	Monument Type	Top of Casing Elevation (feet, NAVD88)	Screened Interval Depth (feet)	Depth to Water (feet)	Groundwater Elevation (feet, NAVD88)
Shallow Monitoring Wells						
MW-2	10/20/2017	Flush	308.34	32.22-42.22	35.45	272.89
MW-3	10/20/2017	Flush	311.41	35.67-45.67	37.61	273.80
MW-4	10/20/2017	Flush	310.47	33.45-43.45	37.17	273.30
MW-5	10/20/2017	Flush	310.38	35.6-45.6	38.17	272.21
MW-6	10/20/2017	Flush	304.14	34.46-44.46	38.24	265.90
MW-7	10/20/2017	Flush	302.64	34.47-44.47	37.16	265.48
MW-8	10/20/2017	Flush	280.68	12.71-22.71	10.25	270.43
MW-9	10/20/2017	Flush	284.97	31.6-41.6	30.75	254.22
MW-10	10/20/2017	Flush	306.71	31.52-41.52	33.82	272.89
MW-11	10/20/2017	Flush	307.62	31.56-41.56	34.74	272.88
MW-12	10/20/2017	Flush	312.80	35.7-45.7	39.01	273.79
MW-13	10/20/2017	Flush	308.75	34.58-44.58	35.45	273.30
MW-14	10/20/2017	Flush	303.82	27.6-37.6	31.36	272.46
MW-15	10/20/2017	AG	312.44	37.14-47.14	39.25	273.19
MW-16	10/20/2017	AG	310.37	29.45-44.65	37.50	272.87
DC-1	10/20/2017	Flush	312.82	39.5-44.5	39.26	273.56
DC-2	10/20/2017	Flush	312.92	41.22-46.22	39.71	273.21
DC-3	10/20/2017	Flush	313.11	42.32-47.32	39.94	273.17
DC-4	10/20/2017	Flush	312.35	43.36-48.36	39.50	272.85
DC-7	10/20/2017	Flush	302.61	34.35-39.35	30.51	272.10
DC-8	10/20/2017	Flush	306.23	36.64-41.64	34.14	272.09
DC-10A	10/20/2017	Flush	307.73	32.01-37.01	34.79	272.94
DC-11	10/20/2017	Flush	311.25	31.6-41.6	37.66	273.59
DC-12	10/20/2017	Flush	311.25	31.7-41.7	38.20	273.05
DC-13	10/20/2017	Flush	310.20	31.7-41.7	37.26	272.94
DC-14	10/20/2017	Flush	308.94	34.4-44.4	36.78	272.16
DC-15	10/20/2017	Flush	307.89	30.7-40.7	34.31	273.58
DC-17	10/20/2017	Flush	305.16	29.81-39.81	32.51	272.65
DC-18	10/20/2017	Flush	309.51	31.58-41.58	36.73	272.78
DC-19	10/20/2017	Flush	313.62	36.8-46.8	40.07	273.55
DC-20	10/20/2017	Flush	310.92	33.8-43.8	38.08	272.84
KMW-1	10/20/2017	Flush	311.59	36.8-51.8	38.85	272.74
KMW-2	10/20/2017	Flush	307.04	29.91-39.91	34.02	273.02
KMW-3	10/20/2017	Flush	296.92	24.6-34.6	25.35	271.57
KMW-4	10/20/2017	Flush	299.57	23.79-33.79	27.26	272.31
KMW-5	10/20/2017	Flush	297.22	23.66-33.66	24.82	272.40

Table 4

Groundwater Elevations - October 2017
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	Monument Type	Top of Casing Elevation (feet, NAVD88)	Screened Interval Depth (feet)	Depth to Water (feet)	Groundwater Elevation (feet, NAVD88)
Shallow Monitoring Wells						
KMW-6	10/20/2017	Flush	294.81	25.73-40.73	23.31	271.50
KMW-7	10/20/2017	Flush	301.43	28.78-43.78	30.19	271.24
KMW-8	10/20/2017	Flush	308.15	28.69-43.69	36.35	271.80
KMW-9	10/20/2017	Flush	310.33	33.5-43.5	37.16	273.17
<u>NOTES:</u> 1. '--' = not measured or not applicable. DC-17 was not located due to overgrown vegetation on residential parcel. 2. Well monument types: flush grade monuments and above ground (AG) monuments. 3. Depth to water is measured from top of well casing. 4. Elevations are reported relative to North American Vertical Datum of 1988 (NAVD 88). 5. Top of casing (TOC) elevations were surveyed by D.R. Strong Consulting Engineers, Inc. in February and May 2013 and by Lanktree Land Surveying, Inc. in July 2015. 6. Screened interval depth is estimated using from surveyed elevations (top of casing elevations, ground surface, and monument rim) and field measurements at the time of drilling. 7. Screened intervals completely submerged are shaded.						

Table 5

Groundwater Field Parameters - July 2017
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	Depth to Water (feet TOC)	pH (units)	Specific Conductivity (μ S/cm)	Temp (°C)	DO (mg/L)	ORP (mV)
Shallow Monitoring Wells							
MW-2	7/18/2017	33.98	6.29	153	12.9	8.2	259
MW-3	7/18/2017	36.25	6.66	147	14.7	10.6	259
MW-4	7/18/2017	35.61	7.24	154	15.2	9.8	226
MW-7	7/19/2017	35.80	6.42	171	15.8	7.6	242
MW-10	7/18/2017	32.34	6.96	117	14.0	11.7	130
MW-11	7/19/2017	33.29	6.80	117	12.7	11.1	261
MW-12	7/18/2017	37.50	7.20	246	15.0	8.2	211
MW-13	7/18/2017	34.00	6.54	179	16.4	9.8	242
MW-16	7/18/2017	36.04	6.53	190	15.4	11.3	224
DC-3	7/18/2017	38.43	7.15	160	15.8	11.0	242
DC-4	7/18/2017	37.71	7.02	220	17.3	10.4	242
DC-8	7/19/2017	32.80	6.39	111	12.9	9.3	270
DC-10A	7/19/2017	32.31	6.58	143	14.2	10.1	240
DC-14	7/19/2017	35.41	6.28	145	13.5	8.3	264
KMW-2	7/18/2017	32.60	6.90	124	14.4	10.9	218
KMW-8	7/19/2017	34.99	6.27	171	14.7	8.3	273
NOTES: 1. TOC = top of casing. 2. units: pH standard units reported to 0.01. 3. μ S/cm = microsiemens per centimeter @ 25 degrees Celsius (°C). 4. Dissolved Oxygen (DO) reported to 0.1 milligrams per liter (mg/L). 5. ORP = oxidation-reduction potential. 6. mV = millivolts.							

Table 6

Groundwater Field Parameters - October 2017
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	Depth to Water (feet TOC)	pH (units)	Specific Conductivity (µS/cm)	Temp (°C)	DO (mg/L)	ORP (mV)
Shallow Monitoring Wells							
MW-2	10/26/2017	35.79	6.29	112	12.8	7.6	330
MW-3	10/25/2017	37.64	6.24	137	12.1	12.0	133
MW-4	10/25/2017	37.17	6.83	143	12.1	10.5	213
MW-7	10/25/2017	37.20	6.45	128	13.1	8.0	274
MW-9	10/23/2017	30.79	6.83	168	12.1	10.8	57
MW-10	10/23/2017	33.88	6.55	128	12.2	10.9	97
MW-11	10/26/2017	34.77	6.74	103	12.8	10.2	332
MW-12	10/23/2017	39.00	7.12	191	12.0	11.0	183
MW-13	10/23/2017	35.45	6.78	198	12.1	11.1	179
MW-14	10/24/2017	31.38	6.55	136	13.0	9.4	331
MW-15	10/24/2017	39.27	6.11	77	11.9	6.5	309
MW-16	10/24/2017	37.51	6.49	142	12.3	11.0	324
DC-3	10/24/2017	39.96	7.01	132	14.0	10.0	322
DC-4	10/24/2017	39.53	6.99	92	15.0	10.3	287
DC-7	10/23/2017	30.77	6.60	119	13.1	10.7	324
DC-8	10/23/2017	34.21	6.21	92	12.6	8.3	326
DC-10A	10/26/2017	34.63	6.47	153	12.3	10.3	168
DC-11	10/26/2017	37.96	6.28	173	13.5	6.7	281
DC-12	10/27/2017	38.22	6.11	176	13.2	6.4	298
DC-13	10/27/2013	37.28	6.08	145	12.8	6.6	322
DC-14	10/26/2017	36.78	6.21	105	12.7	5.8	338
DC-15	10/23/2017	34.35	5.96	114	12.1	6.6	319
DC-17	10/23/2017	32.46	6.68	135	12.1	11.6	349
DC-18	10/26/2017	36.80	6.22	115	13.1	7.4	342
DC-20	10/27/2017	38.12	6.34	164	13.3	0.4	303
KMW-2	10/24/2017	34.09	6.80	104	14.9	9.9	308
KMW-3	10/26/2017	25.34	6.39	146	13.0	8.9	338
KMW-7	10/25/2017	30.21	6.54	113	11.9	10.1	213
KMW-8	10/26/2017	36.40	6.20	119	13.1	8.1	340
KMW-9	10/26/2017	37.18	6.26	105	13.3	7.4	318

NOTES:

1. TOC = top of casing.
2. units: pH standard units reported to 0.01.
3. µS/cm = microsiemens per centimeter @ 25 degrees Celsius (°C).
4. Dissolved Oxygen (DO) reported to 0.1 milligrams per liter (mg/L).
5. ORP = oxidation-reduction potential.
6. mV = millivolts.

Table 7

Tetrachloroethene Concentrations in Groundwater - July 2017
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	Screened Interval Depth (feet TOC)	Depth to Water (feet TOC)	Pump Intake Depth (feet TOC)	PCE (µg/l)
MTCA Method A Ground Water Cleanup Level					5
Shallow Monitoring Wells					
MW-2	7/18/2017	32.22-42.22	33.97	36	2.43
MW-3	7/18/2017	35.67-45.67	36.21	39	1.76
MW-4	7/18/2017	33.45-43.45	35.59	38	1.40
MW-7	7/19/2017	34.47-44.47	35.75	38	7.20
MW-10	7/18/2017	31.52-41.52	32.34	35	1.00 U
MW-11	7/19/2017	31.56-41.56	33.25	35	2.52
MW-12	7/18/2017	35.70-45.70	37.47	39	1.00 U
MW-13	7/18/2017	34.58-44.58	33.99	36	1.00 U
MW-16	7/18/2017	29.45-44.65	36.04	38	1.00 U
DC-3	7/18/2017	42.32-47.32	38.44	44	1.00 U
DC-4	7/18/2017	43.36-48.36	37.70	45	1.00 U
DC-8	7/19/2017	36.64-41.64	32.75	38	8.94
DC-10A	7/19/2017	32.01-37.01	33.29	35	4.69
DC-14	7/19/2017	34.40-44.40	35.40	37	4.94
KMW-2	7/18/2017	29.91-39.91	32.60	35	1.00 U
KMW-8	7/19/2017	28.69-43.69	34.98	37	5.00
<u>NOTES:</u> 1. Tetrachloroethene (PCE) concentrations in micrograms per liter (µg/l). 2. Groundwater samples analyzed using USEPA Method 8260C. 3. U = concentration not detected at or above the laboratory practical quantitation limit (PQL). 4. Detected concentrations are shown in bold. 5. Concentrations exceeding the cleanup level are bold and shaded. 6. Screened interval depth is estimated using from surveyed elevations (top of casing elevations, ground surface, and monument rim) and field measurements at the time of drilling. 7. Pump intake depth and depth to water is measured in feet below the top of casing (TOC). 8. Screened intervals completely submerged are shaded.					

Table 8

**Tetrachloroethene Concentrations in Groundwater - October 2017
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington**

Monitoring Well	Date	Screened Interval Depth (feet TOC)	Depth to Water (feet TOC)	Pump Intake Depth (feet TOC)	PCE (µg/l)
MTCA Method A Ground Water Cleanup Level					5
Shallow Monitoring Wells					
MW-2	10/26/2017	32.22-42.22	35.79	38	1.55
MW-3	10/25/2017	35.67-45.67	37.64	40	4.21
MW-4	10/25/2017	33.45-43.45	37.17	39	3.23
MW-7	10/25/2017	34.47-44.47	37.20	39.5	7.47
MW-9	10/23/2017	31.6-41.6	30.79	33	0.500 U
MW-10	10/23/2017	31.52-41.52	33.88	36	0.500 U
MW-11	10/26/2017	31.56-41.56	34.77	37	2.15
MW-12	10/23/2017	35.7-45.7	42.00	41.5	0.500 U
MW-13	10/23/2017	34.58-44.58	35.45	38	0.500 U
MW-14	10/24/2017	27.6-37.6	31.38	33.5	0.910
MW-15	10/24/2017	37.14-47.14	39.27	39	0.954
MW-16	10/24/2017	29.45-44.65	37.51	40	1.26
DC-3	10/24/2017	42.32-47.32	39.96	43.5	0.786
DC-4	10/24/2017	43.36-48.36	39.53	44	0.500 U
DC-7	10/23/2017	34.35-39.35	30.77	35.5	6.67 J
DC-8	10/23/2017	36.64-41.64	34.21	37.5	14.8
DC-10A	10/26/2017	32.01-37.01	34.63	37	4.72
DC-11	10/26/2017	31.6-41.6	37.96	40.5	1.35
DC-12	10/27/2017	31.7-41.7	38.22	40.5	1.66
DC-13	10/27/2013	31.7-41.7	37.28	40	2.79
DC-14	10/26/2017	34.4-44.4	36.78	39	5.40
DC-15	10/23/2017	30.7-40.7	34.35	37.5	7.42
DC-17	10/23/2017	29.81-39.81	32.46	35	8.06
DC-18	10/26/2017	31.58-41.58	36.80	39	3.26
DC-20	10/27/2017	33.8-43.8	38.12	40.5	0.991
KMW-2	10/24/2017	29.91-39.91	34.09	36	0.500 U
KMW-3	10/26/2017	24.6-34.6	25.34	27.5	5.78
KMW-7	10/25/2017	28.78-43.78	30.21	32.5	0.500 U
KMW-8	10/26/2017	28.69-43.69	36.40	38.5	4.99
KMW-9	10/26/2017	33.5-43.5	37.18	40	0.770

Table 8

Tetrachloroethene Concentrations in Groundwater - October 2017
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	Screened Interval Depth (feet TOC)	Depth to Water (feet TOC)	Pump Intake Depth (feet TOC)	PCE (µg/l)
<u>NOTES:</u> 1. Tetrachloroethene (PCE) concentrations in micrograms per liter (µg/l). 2. Groundwater samples analyzed using USEPA Method 8260C. 3. U = concentration not detected at or above the laboratory practical quantitation limit (PQL). 4. J = the identification of the analyte is acceptable; the reported value is an estimate 5. Detected concentrations are shown in bold. 6. Concentrations exceeding the cleanup level are bold and shaded. 7. Screened interval depth is estimated using from surveyed elevations (top of casing elevations, ground surface, and monument rim) and field measurements at the time of drilling. 8. Pump intake depth and depth to water is measured in feet below the top of casing (TOC). 9. Screened intervals completely submerged are shaded.					

ATTACHMENT A
O&M CHARTS AND SUMMARY TABLES

- Chart A1 – SVE Discharge PCE Concentrations
- Chart A2 – Cumulative PCE Removed
- Table A3 – Historical AVE Leg Analytical Results
- Table A4 – Air Sparging Groundwater Monitoring Parameters

Chart A1
SVE Discharge PCE Concentrations
Manhattan Village/Harris Properties

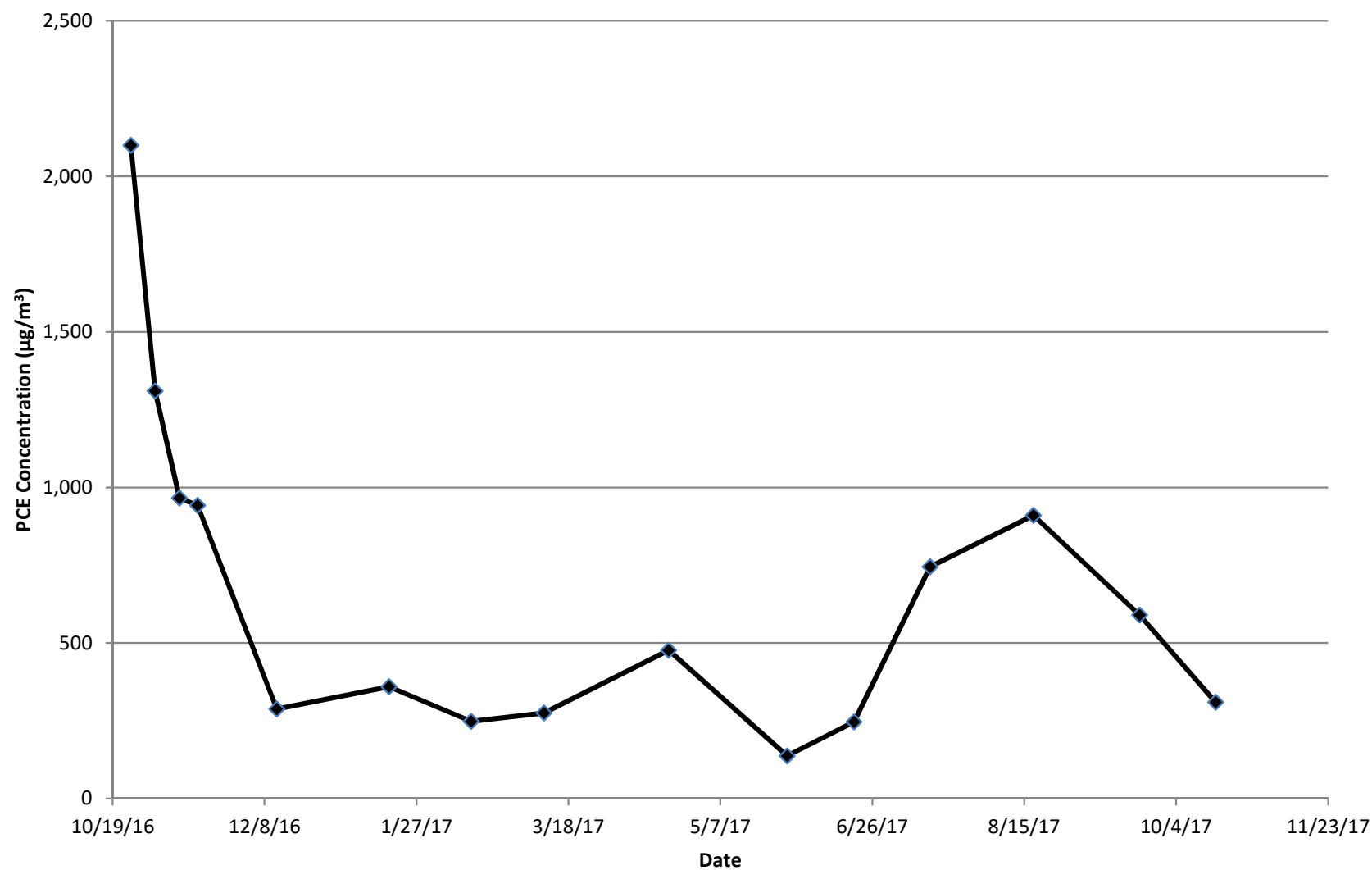


Chart A2
Cumulative PCE Removed
Manhattan Village/Harris Properties

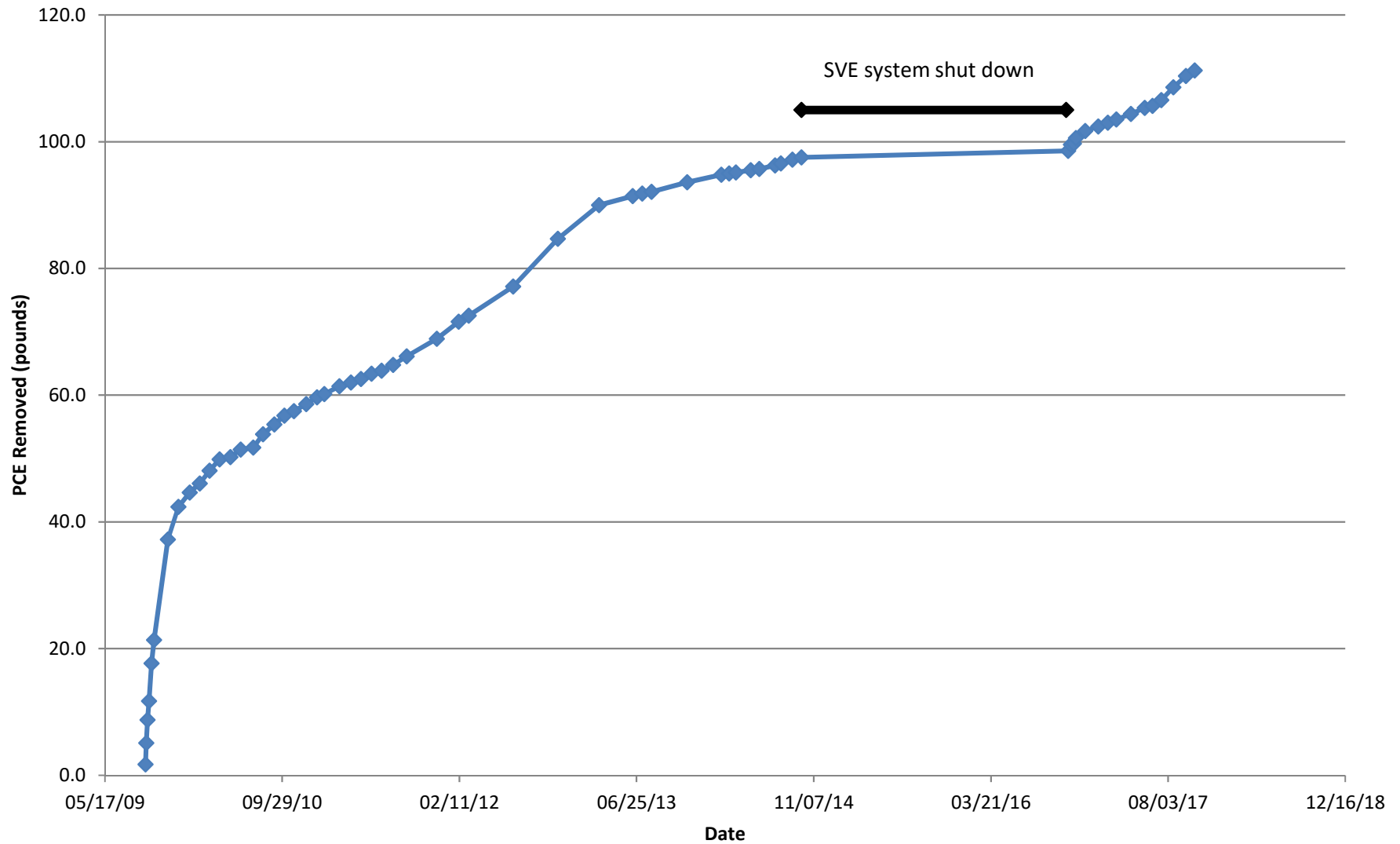


Table A3
Historical SVE Leg Analytical Results
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

SVE Well	PCE Concentration				
	06/04/10	01/26/11	12/09/11	11/05/13	12/12/16
SVE-1	3,900	1,300	1,600	1,010	499
SVE-2	740	1,600	1,300	977	374
SVE-3	7,100	2,900	2,500	1,920	338
SVE-4	330	870	910	412	332
SVE-5	5,100	2,500	1,200	499	716
SVE-6	17,000	4,400	2,900	827	1,490
SVE-7	3,300	1,700	1,400	723	1,130
SVE-8	590	800	6	448	703
SVE-9	880	740	750	325	379
SVE-10	1,300	1,100	1,300	709	398
SVE-11A	--	--	--	--	136
SVE-11B	--	--	--	--	149
SVE-12A	--	--	--	--	217
SVE-12B	--	--	--	--	295
SVE-13A	--	--	--	--	145
SVE-13B	--	--	--	--	241
SVE-14	--	--	--	--	144
SVE-15	--	--	--	--	373
SVE-16	--	--	--	--	587
SVE-17	--	--	--	--	65.1
SVE-18	--	--	--	--	380
SVE-19	--	--	--	--	147
Notes:					
1. Concentrations in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)					

Table A4
Air Sparging Groundwater Monitoring Parameters
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)	Dissolved Oxygen (mg/L)
MW-2	9/21/2016	308.34	35.65	272.69	--
MW-2	10/22/16	308.34	35.95	272.39	9.0
MW-2	10/25/16	308.34	35.91	272.43	7.0
MW-2	11/02/16	308.34	36.00	272.34	8.6
MW-2	11/10/16	308.34	35.99	272.35	7.9
MW-2	11/16/16	308.34	36.07	272.27	8.0
MW-2	12/12/16	308.34	36.02	272.32	8.1
MW-2	02/14/17	308.34	37.01	271.33	7.2
MW-2	03/10/17	308.34	35.00	273.34	8.7
MW-2	04/20/17	308.34	33.90	274.44	--
MW-2	05/29/17	308.34	34.20	274.14	8.9
MW-2	06/20/17	308.34	35.31	273.03	7.0
MW-2	07/15/17	308.34	33.98	274.36	5.6
MW-2	08/18/17	308.34	34.41	273.93	7.4
MW-2	09/22/17	308.34	34.99	273.35	8.4
MW-2	10/17/17	308.34	35.38	272.96	9.5
MW-3	09/21/16	311.41	37.91	273.50	--
MW-3	10/22/16	311.41	38.22	273.19	9.6
MW-3	10/25/16	311.41	38.21	273.20	11.0
MW-3	11/02/16	311.41	38.29	273.12	11.2
MW-3	11/10/16	311.41	38.25	273.16	10.9
MW-3	11/16/16	311.41	38.35	273.06	11.0
MW-3	12/12/16	311.41	38.32	273.09	10.8
MW-3	02/14/17	311.41	37.91	273.50	8.7
MW-3	03/10/17	311.41	37.15	274.26	10.9
MW-3	04/20/17	311.41	36.00	275.41	10.9
MW-3	05/29/17	311.41	35.55	275.86	11.0
MW-3	06/20/17	311.41	35.95	275.46	11.1
MW-3	07/15/17	311.41	36.22	275.19	12.8
MW-3	08/18/17	311.41	36.66	274.75	11.8
MW-3	09/22/17	311.41	37.30	274.11	9.0
MW-3	10/17/17	311.41	37.65	273.76	9.8
MW-4	09/21/16	310.47	37.26	273.21	--
MW-4	10/22/16	310.47	37.55	272.92	9.9
MW-4	10/25/16	310.47	37.40	273.07	11.5
MW-4	11/02/16	310.47	37.52	272.95	11.1
MW-4	11/10/16	310.47	37.45	273.02	11.1
MW-4	11/16/16	310.47	37.59	272.88	10.7
MW-4	12/12/16	310.47	37.48	272.99	10.7
MW-4	01/18/17	310.47	37.42	273.05	11.4
MW-4	02/14/17	310.47	36.90	273.57	9.2
MW-4	03/10/17	310.47	35.91	274.56	11.3
MW-4	04/20/17	310.47	34.11	276.36	--
MW-4	05/29/17	310.47	32.80	277.67	11.1
MW-4	06/20/17	310.47	35.35	275.12	10.2

Table A4
Air Sparging Groundwater Monitoring Parameters
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)	Dissolved Oxygen (mg/L)
MW-4	07/15/17	310.47	35.55	274.92	12.1
MW-4	08/18/17	310.47	35.99	274.48	11.0
MW-4	09/22/17	310.47	36.61	273.86	10.1
MW-4	10/17/17	310.47	37.00	273.47	11.8
MW-10	09/21/16	306.71	33.89	272.82	--
MW-10	10/22/16	306.71	34.25	272.46	11.0
MW-10	10/25/16	306.71	34.25	272.46	10.0
MW-10	11/02/16	306.71	34.33	272.38	11.7
MW-10	11/10/16	306.71	34.31	272.40	11.3
MW-10	11/16/16	306.71	34.41	272.30	11.9
MW-10	12/12/16	306.71	34.31	272.40	11.8
MW-10	01/18/17	306.71	34.25	272.46	8.2
MW-10	02/14/17	306.71	33.98	272.73	10.1
MW-10	03/10/17	306.71	33.21	273.50	11.4
MW-10	04/20/17	306.71	32.11	274.60	--
MW-10	05/29/17	306.71	32.27	274.44	11.1
MW-10	06/20/17	306.71	32.75	273.96	8.5
MW-10	07/15/17	306.71	32.35	274.36	13.4
MW-10	08/18/17	306.71	32.82	273.89	13.6
MW-10	09/22/17	306.71	33.41	273.30	12.8
MW-10	10/17/17	306.71	33.80	272.91	12.6
MW-11	09/21/16	307.62	34.82	272.80	--
MW-11	10/22/16	307.62	35.31	272.31	9.7
MW-11	10/25/16	307.62	35.21	272.41	9.3
MW-11	11/02/16	307.62	35.24	272.38	10.5
MW-11	11/10/16	307.62	35.19	272.43	10.4
MW-11	11/16/16	307.62	35.32	272.30	9.7
MW-11	12/12/16	307.62	35.28	272.34	9.6
MW-11	01/18/17	307.62	35.30	272.32	10.1
MW-11	02/14/17	307.62	34.96	272.66	9.2
MW-11	03/10/17	307.62	34.20	273.42	9.8
MW-11	04/20/17	307.62	33.10	274.52	--
MW-11	05/29/17	307.62	33.97	273.65	9.7
MW-11	06/20/17	307.62	32.97	274.65	8.5
MW-11	07/15/17	307.62	33.25	274.37	11.5
MW-11	08/18/17	307.62	33.71	273.91	11.8
MW-11	09/22/17	307.62	34.30	273.32	11.3
MW-11	10/17/17	307.62	34.84	272.78	10.7
MW-12	09/21/16	312.80	39.19	273.61	--
MW-12	10/22/16	312.80	39.55	273.25	9.3
MW-12	10/25/16	312.80	--	--	--
MW-12	11/02/16	312.80	39.58	273.22	11.1
MW-12	11/10/16	312.80	39.52	273.28	11.3
MW-12	11/16/16	312.80	39.65	273.15	11.2

Table A4
Air Sparging Groundwater Monitoring Parameters
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)	Dissolved Oxygen (mg/L)
MW-12	12/12/16	312.80	39.80	273.00	11.1
MW-12	01/18/17	312.80	39.21	273.59	12.6
MW-12	02/14/17	312.80	39.21	273.59	8.8
MW-12	03/10/17	312.80	38.47	274.33	11.2
MW-12	04/20/17	312.80	37.20	275.60	--
MW-12	05/29/17	312.80	36.92	275.88	11.0
MW-12	06/20/17	312.80	37.20	275.60	10.3
MW-12	07/15/17	312.80	37.42	275.38	10.1
MW-12	08/18/17	312.80	38.00	274.80	9.6
MW-12	09/22/17	312.80	38.52	274.28	8.9
MW-12	10/17/17	312.80	38.90	273.90	9.6
MW-13	09/21/16	308.75	35.66	273.09	--
MW-13	10/22/16	308.75	36.00	272.75	10.6
MW-13	10/25/16	308.75	35.95	272.80	10.4
MW-13	11/02/16	308.75	36.03	272.72	10.1
MW-13	11/10/16	308.75	36.00	272.75	9.6
MW-13	11/16/16	308.75	36.06	272.69	9.7
MW-13	12/12/16	308.75	36.00	272.75	9.6
MW-13	01/18/17	308.75	36.15	272.60	10.3
MW-13	02/14/17	308.75	35.60	273.15	7.0
MW-13	03/10/17	308.75	34.85	273.90	9.8
MW-13	04/20/17	308.75	33.80	274.95	--
MW-13	05/29/17	308.75	33.44	275.31	10.0
MW-13	06/20/17	308.75	33.85	274.90	9.4
MW-13	07/15/17	308.75	34.02	274.73	12.1
MW-13	08/18/17	308.75	34.48	274.27	8.8
MW-13	09/22/17	308.75	35.11	273.64	10.2
MW-13	10/17/17	308.75	35.50	273.25	9.3
MW-15	09/21/16	312.44	39.38	273.06	--
MW-15	10/22/16	312.44	39.75	272.69	9.2
MW-15	10/25/16	312.44	39.72	272.72	8.0
MW-15	11/02/16	312.44	39.81	272.63	8.9
MW-15	11/10/16	312.44	39.77	272.67	8.8
MW-15	11/16/16	312.44	39.90	272.54	9.0
MW-15	12/12/16	312.44	39.85	272.59	8.9
MW-15	01/18/17	312.44	39.85	272.59	9.5
MW-15	02/14/17	312.44	40.55	271.89	7.0
MW-15	03/10/17	312.44	38.79	273.65	9.0
MW-15	04/20/17	312.44	37.71	274.73	--
MW-15	05/29/17	312.44	38.22	274.22	9.1
MW-15	06/20/17	312.44	37.61	274.83	7.7
MW-15	07/15/17	312.44	37.77	274.67	8.4
MW-15	08/18/17	312.44	38.25	274.19	8.5
MW-15	09/22/17	312.44	38.78	273.66	7.9
MW-15	10/17/17	312.44	39.14	273.30	8.0

Table A4
Air Sparging Groundwater Monitoring Parameters
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)	Dissolved Oxygen (mg/L)
MW-16	09/21/16	310.37	37.50	272.87	--
MW-16	10/22/16	310.37	38.00	272.37	9.2
MW-16	10/25/16	310.37	37.95	272.42	7.7
MW-16	11/02/16	310.37	38.03	272.34	8.6
MW-16	11/10/16	310.37	38.01	272.36	8.3
MW-16	11/16/16	310.37	38.10	272.27	8.8
MW-16	12/12/16	310.37	38.19	272.18	8.8
MW-16	01/18/17	310.37	37.91	272.46	12.0
MW-16	02/14/17	310.37	37.72	272.65	8.0
MW-16	03/10/17	310.37	37.01	273.36	9.0
MW-16	04/20/17	310.37	35.90	274.47	--
MW-16	05/29/17	310.37	36.41	273.96	9.3
MW-16	06/20/17	310.37	35.78	274.59	8.1
MW-16	07/15/17	310.37	36.05	274.32	13.0
MW-16	08/18/17	310.37	36.48	273.89	13.2
MW-16	09/22/17	310.37	37.03	273.34	12.4
MW-16	10/17/17	310.37	37.40	272.97	12.0
DC-1	09/21/16	312.82	39.10	273.72	--
DC-1	10/22/16	312.82	39.45	273.37	9.5
DC-1	10/25/16	312.82	39.49	273.33	6.5
DC-1	11/02/16	312.82	39.49	273.33	9.4
DC-1	11/10/16	312.82	39.49	273.33	9.0
DC-1	11/16/16	312.82	39.60	273.22	9.0
DC-1	12/12/16	312.82	39.59	273.23	9.0
DC-1	01/18/17	312.82	39.59	273.23	6.0
DC-1	02/14/17	312.82	39.30	273.52	8.0
DC-1	03/10/17	312.82	38.59	274.23	7.0
DC-1	04/20/17	312.82	37.41	275.41	--
DC-1	05/29/17	312.82	36.94	275.88	7.1
DC-1	06/20/17	312.82	37.20	275.62	7.3
DC-1	07/15/17	312.82	37.40	275.42	7.0
DC-1	08/18/17	312.82	37.07	275.75	6.2
DC-1	09/22/17	312.82	38.49	274.33	8.8
DC-1	10/17/17	312.82	38.85	273.97	8.1
DC-2	09/21/16	312.92	39.82	273.10	--
DC-2	10/22/16	312.92	40.20	272.72	9.0
DC-2	10/25/16	312.92	40.19	272.73	7.7
DC-2	11/02/16	312.92	40.24	272.68	8.4
DC-2	11/10/16	312.92	40.21	272.71	8.2
DC-2	11/16/16	312.92	40.32	272.60	8.3
DC-2	12/12/16	312.92	40.31	272.61	8.4
DC-2	01/18/17	312.92	40.35	272.57	9.1
DC-2	02/14/17	312.92	40.00	272.92	7.1
DC-2	03/10/17	312.92	39.30	273.62	8.5

Table A4
Air Sparging Groundwater Monitoring Parameters
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)	Dissolved Oxygen (mg/L)
DC-2	04/20/17	312.92	38.22	274.70	--
DC-2	05/29/17	312.92	38.78	274.14	8.2
DC-2	06/20/17	312.92	38.08	274.84	9.1
DC-2	07/15/17	312.92	38.19	274.73	8.6
DC-2	08/18/17	312.92	38.67	274.25	7.7
DC-2	09/22/17	312.92	39.25	273.67	10.6
DC-2	10/17/17	312.92	39.62	273.30	8.0
DC-3	09/21/16	313.11	40.11	273.00	--
DC-3	10/22/16	313.11	40.48	272.63	10.1
DC-3	10/25/16	313.11	40.50	272.61	9.4
DC-3	11/02/16	313.11	--	--	--
DC-3	11/10/16	313.11	40.48	272.63	11.4
DC-3	11/16/16	313.11	40.60	272.51	11.3
DC-3	12/12/16	313.11	40.79	272.32	11.4
DC-3	01/18/17	313.11	40.55	272.56	11.9
DC-3	02/14/17	313.11	40.22	272.89	7.8
DC-3	03/10/17	313.11	39.44	273.67	11.5
DC-3	04/20/17	313.11	38.34	274.77	--
DC-3	05/29/17	313.11	38.33	274.78	11.4
DC-3	06/20/17	313.11	38.54	274.57	10.2
DC-3	07/15/17	313.11	38.49	274.62	11.7
DC-3	08/18/17	313.11	38.88	274.23	8.9
DC-3	09/22/17	313.11	39.49	273.62	11.8
DC-3	10/17/17	313.11	39.90	273.21	11.8
DC-4	09/21/16	312.35	39.31	273.04	--
DC-4	10/22/16	312.35	42.03	270.32	10.5
DC-4	10/25/16	312.35	39.65	272.70	10.8
DC-4	11/02/16	312.35	39.69	272.66	11.2
DC-4	11/10/16	312.35	39.61	272.74	11.3
DC-4	11/16/16	312.35	39.79	272.56	11.1
DC-4	12/12/16	312.35	39.71	272.64	11.0
DC-4	01/18/17	312.35	39.79	272.56	12.1
DC-4	02/14/17	312.35	39.41	272.94	8.7
DC-4	03/10/17	312.35	38.61	273.74	11.1
DC-4	04/20/17	312.35	37.51	274.84	--
DC-4	05/29/17	312.35	37.62	274.73	11.1
DC-4	06/20/17	312.35	38.11	274.24	11.1
DC-4	07/15/17	312.35	37.95	274.40	12.7
DC-4	08/18/17	312.35	38.86	273.49	11.6
DC-4	09/22/17	312.35	38.69	273.66	13.1
DC-4	10/17/17	312.35	39.10	273.25	10.6
DC-5	09/21/16	306.25	33.40	272.85	--
DC-5	10/22/16	306.25	33.77	272.48	12.3

Table A4
Air Sparging Groundwater Monitoring Parameters
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)	Dissolved Oxygen (mg/L)
DC-10A	09/21/16	307.73	34.88	272.85	--
DC-10A	10/22/16	307.73	35.17	272.56	10.0
DC-10A	10/25/16	307.73	35.15	272.58	7.5
DC-10A	11/02/16	307.73	35.24	272.49	9.8
DC-10A	11/10/16	307.73	35.22	272.51	10.0
DC-10A	11/16/16	307.73	35.31	272.42	10.3
DC-10A	12/12/16	307.73	35.21	272.52	10.2
DC-10A	01/18/17	307.73	35.15	272.58	9.7
DC-10A	02/14/17	307.73	34.84	272.89	10.2
DC-10A	03/10/17	307.73	34.12	273.61	10.3
DC-10A	04/20/17	307.73	33.00	274.73	--
DC-10A	05/29/17	307.73	34.03	273.70	10.1
DC-10A	06/20/17	307.73	34.05	273.68	10.3
DC-10A	07/15/17	307.73	33.28	274.45	10.9
DC-10A	08/18/17	307.73	33.74	273.99	11.5
DC-10A	09/22/17	307.73	34.39	273.34	10.8
DC-10A	10/17/17	307.73	34.71	273.02	10.6
DC-10B	09/21/16	307.89	34.90	272.99	--
DC-10B	10/22/16	307.89	35.25	272.64	9.8
DC-11	09/21/16	311.25	38.01	273.24	--
DC-11	10/22/16	311.25	38.41	272.84	9.8
DC-11	10/25/16	311.25	38.40	272.85	9.9
DC-11	11/02/16	311.25	38.48	272.77	8.6
DC-11	11/10/16	311.25	38.45	272.80	7.3
DC-11	11/16/16	311.25	38.55	272.70	8.6
DC-11	12/12/16	311.25	38.53	272.72	8.9
DC-11	01/18/17	311.25	38.51	272.74	9.0
DC-11	02/14/17	311.25	38.24	273.01	6.7
DC-11	03/10/17	311.25	37.53	273.72	8.9
DC-11	04/20/17	311.25	36.40	274.85	--
DC-11	05/29/17	311.25	36.22	275.03	8.9
DC-11	06/20/17	311.25	36.15	275.10	6.6
DC-11	07/15/17	311.25	34.32	276.93	7.6
DC-11	08/18/17	311.25	36.09	275.16	7.1
DC-11	09/22/17	311.25	37.52	273.73	5.3
DC-11	10/17/17	311.25	37.82	273.43	7.5
DC-16	09/21/16	307.12	34.67	272.45	--
DC-16	10/22/16	307.12	35.05	272.07	9.5
DC-18	09/21/16	309.51	36.85	272.66	--
DC-18	10/22/16	309.51	37.25	272.26	9.3
DC-18	10/25/16	309.51	37.23	272.28	8.9
DC-18	11/02/16	309.51	37.29	272.22	9.3
DC-18	11/10/16	309.51	37.25	272.26	8.3

Table A4
Air Sparging Groundwater Monitoring Parameters
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)	Dissolved Oxygen (mg/L)
DC-18	11/16/16	309.51	37.37	272.14	9.4
DC-18	12/12/16	309.51	37.33	272.18	10.0
DC-18	01/18/17	309.51	37.35	272.16	7.7
DC-18	02/14/17	309.51	37.05	272.46	7.1
DC-18	03/10/17	309.51	36.34	273.17	10.3
DC-18	04/20/17	309.51	35.25	274.26	--
DC-18	05/29/17	309.51	35.11	274.40	10.4
DC-18	06/20/17	309.51	35.07	274.44	6.5
DC-18	07/15/17	309.51	35.30	274.21	8.9
DC-18	08/18/17	309.51	35.72	273.79	8.9
DC-18	09/22/17	309.51	36.11	273.40	8.1
DC-18	10/17/17	309.51	36.65	272.86	8.5
DC-19	09/21/16	313.62	40.19	273.43	--
DC-19	10/22/16	313.62	40.49	273.13	5.3
DC-19	10/25/16	313.62	39.70	273.92	6.0
DC-19	11/02/16	313.62	40.63	272.99	5.2
DC-19	11/10/16	313.62	40.62	273.00	4.9
DC-19	11/16/16	313.62	40.70	272.92	5.2
DC-19	12/12/16	313.62	40.68	272.94	6.0
DC-19	01/18/17	313.62	40.70	272.92	5.0
DC-19	02/14/17	313.62	40.42	273.20	7.2
DC-19	03/10/17	313.62	39.70	273.92	5.8
DC-19	04/20/17	313.62	38.85	274.77	--
DC-19	05/29/17	313.62	38.14	275.48	6.0
DC-19	06/20/17	313.62	38.31	275.31	6.5
DC-19	07/15/17	313.62	38.60	275.02	7.0
DC-19	08/18/17	313.62	39.05	274.57	2.1
DC-19	09/22/17	313.62	40.63	272.99	3.2
DC-19	10/17/17	313.62	40.00	273.62	4.1
KMW-2	09/21/16	307.04	34.19	272.85	--
KMW-2	10/22/16	307.04	34.50	272.54	10.7
KMW-2	10/25/16	307.04	34.54	272.50	9.8
KMW-2	11/02/16	307.04	34.60	272.44	8.3
KMW-2	11/10/16	307.04	34.57	272.47	10.8
KMW-2	11/16/16	307.04	34.68	272.36	10.4
KMW-2	12/12/16	307.04	34.59	272.45	10.3
KMW-2	01/18/17	307.04	34.79	272.25	9.9
KMW-2	02/14/17	307.04	34.24	272.80	11.1
KMW-2	03/10/17	307.04	33.49	273.55	10.0
KMW-2	04/20/17	307.04	32.41	274.63	--
KMW-2	05/29/17	307.04	32.77	274.27	9.8
KMW-2	06/20/17	307.04	34.19	272.85	10.7
KMW-2	07/15/17	307.04	32.59	274.45	12.1
KMW-2	08/18/17	307.04	33.11	273.93	12.6
KMW-2	09/22/17	307.04	33.69	273.35	12.1

Table A4
Air Sparging Groundwater Monitoring Parameters
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)	Dissolved Oxygen (mg/L)
KMW-2	10/17/17	307.04	34.01	273.03	11.8
KMW-3	09/21/16	296.92	25.34	271.58	--
KMW-3	10/22/16	296.92	25.71	271.21	10.3
KMW-9	09/21/16	310.33	37.28	273.05	--
KMW-9	10/22/16	310.33	37.65	272.68	8.6
KMW-9	10/25/16	310.33	37.60	272.73	8.6
KMW-9	11/02/16	310.33	37.70	272.63	8.6
KMW-9	11/10/16	310.33	37.67	272.66	8.4
KMW-9	11/16/16	310.33	37.77	272.56	8.5
KMW-9	12/12/16	310.33	37.72	272.61	8.7
KMW-9	01/18/17	310.33	37.75	272.58	10.8
KMW-9	02/14/17	310.33	37.45	272.88	6.0
KMW-9	03/10/17	310.33	36.70	273.63	10.6
KMW-9	04/20/17	310.33	35.52	274.81	--
KMW-9	05/29/17	310.33	36.01	274.32	10.2
KMW-9	06/20/17	310.33	35.40	274.93	7.7
KMW-9	07/15/17	310.33	35.64	274.69	8.2
KMW-9	08/18/17	310.33	36.10	274.23	7.8
KMW-9	09/22/17	310.33	36.66	273.67	7.7
KMW-9	10/17/17	310.33	37.02	273.31	8.6
Notes: 1. -- = not measured or not applicable. 2. Well monument types: flush grade monuments and above ground (AG) monuments. 3. Depth to water is measured from top of well casing. 4. Elevations are reported relative to North American Vertical Datum of 1988 (NAVD 88). 5. Top of casing (TOC) elevations were surveyed by D.R. Strong Consulting Engineers, Inc. in February and May 2013 and by Lanktree Land Surveying, Inc. in July 2015. 6. Dissolved Oxygen (DO) reported to 0.1 milligrams per liter (mg/L).					

ATTACHMENT B
LABORATORY REPORTS AND DATA VALIDATION MEMORANDA



Fremont
Analytical

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

PES Environmental, Inc.
Matt Dahl
1215 Fourth Avenue, Suite 1350
Seattle, WA 98161

RE: MVSC
Work Order Number: 1705333

June 14, 2017

Attention Matt Dahl:

Fremont Analytical, Inc. received 1 sample(s) on 5/30/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method TO-15

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Chelsea Ward
Project Manager

CLIENT: PES Environmental, Inc.
Project: MVSC
Work Order: 1705333

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1705333-001	SYS-0517	05/29/2017 12:00 PM	05/30/2017 1:34 PM

CLIENT: PES Environmental, Inc.
Project: MVSC

WorkOrder Narrative:

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Air samples are reported in ppbv and ug/m3.

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Standard temperature and pressure assumes 24.45 = (25C and 1 atm).

Qualifiers:

- * - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



Client: PES Environmental, Inc.

WorkOrder: 1705333

Project: MVSC

Client Sample ID: SYS-0517

Date Sampled: 5/29/2017

Lab ID: 1705333-001A

Date Received: 5/30/2017

Sample Type: Summa Canister

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst
<u>Volatile Organic Compounds by EPA Method TO-15</u>							
	(ppbv)	(ug/m³)	(ppbv)	(ug/m³)			
1,1,1-Trichloroethane	<0.200	<1.09	0.200	1.09		EPA-TO-15	05/30/2017 WC
1,1,2,2-Tetrachloroethane	<0.300	<2.06	0.300	2.06		EPA-TO-15	05/30/2017 WC
CFC-113	<0.500	<3.83	0.500	3.83		EPA-TO-15	05/30/2017 WC
1,1,2-Trichloroethane (TCA)	<0.500	<2.73	0.500	2.73		EPA-TO-15	05/30/2017 WC
1,1-Dichloroethane	<0.200	<0.810	0.200	0.810		EPA-TO-15	05/30/2017 WC
1,1-Dichloroethene (DCE)	<0.200	<0.793	0.200	0.793		EPA-TO-15	05/30/2017 WC
1,2,4-Trichlorobenzene	<0.300	<2.23	0.300	2.23		EPA-TO-15	05/30/2017 WC
1,2,4-Trimethylbenzene	<0.300	<1.47	0.300	1.47		EPA-TO-15	05/30/2017 WC
1,2-Dibromoethane (EDB)	<0.200	<1.54	0.200	1.54		EPA-TO-15	05/30/2017 WC
1,2-Dichlorobenzene	<0.500	<3.01	0.500	3.01		EPA-TO-15	05/30/2017 WC
1,2-Dichloroethane	<0.200	<0.809	0.200	0.809		EPA-TO-15	05/30/2017 WC
1,2-Dichloropropane	<0.500	<2.31	0.500	2.31		EPA-TO-15	05/30/2017 WC
1,3,5-Trimethylbenzene	<0.300	<1.47	0.300	1.47		EPA-TO-15	05/30/2017 WC
1,3-Butadiene	<0.500	<1.11	0.500	1.11		EPA-TO-15	05/30/2017 WC
1,3-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	05/30/2017 WC
1,4-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	05/30/2017 WC
1,4-Dioxane	<1.00	<3.60	1.00	3.60		EPA-TO-15	05/30/2017 WC
(MEK) 2-Butanone	<0.500	<1.47	0.500	1.47		EPA-TO-15	05/30/2017 WC
2-Hexanone	<1.00	<4.10	1.00	4.10		EPA-TO-15	05/30/2017 WC
Isopropyl Alcohol	<1.00	<2.46	1.00	2.46		EPA-TO-15	05/30/2017 WC
4-Methyl-2-pentanone (MIBK)	<1.00	<4.10	1.00	4.10		EPA-TO-15	05/30/2017 WC
Acetone	1.75	4.16	1.00	2.38		EPA-TO-15	05/30/2017 WC
Acrolein	<0.500	<1.15	0.500	1.15		EPA-TO-15	05/30/2017 WC
Benzene	<0.200	<0.639	0.200	0.639		EPA-TO-15	05/30/2017 WC
Benzyl chloride	<0.500	<2.59	0.500	2.59		EPA-TO-15	05/30/2017 WC
Dichlorobromomethane	<0.300	<2.01	0.300	2.01		EPA-TO-15	05/30/2017 WC
Bromoform	<0.200	<2.07	0.200	2.07		EPA-TO-15	05/30/2017 WC
Bromomethane	<0.500	<1.94	0.500	1.94		EPA-TO-15	05/30/2017 WC
Carbon disulfide	<1.50	<4.67	1.50	4.67		EPA-TO-15	05/30/2017 WC
Carbon tetrachloride	<0.200	<1.26	0.200	1.26		EPA-TO-15	05/30/2017 WC



Client: PES Environmental, Inc.

WorkOrder: 1705333

Project: MVSC

Client Sample ID: SYS-0517

Date Sampled: 5/29/2017

Lab ID: 1705333-001A

Date Received: 5/30/2017

Sample Type: Summa Canister

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst	
<u>Volatile Organic Compounds by EPA Method TO-15</u>								
	(ppbv)	(ug/m³)	(ppbv)	(ug/m³)				
Chlorobenzene	<0.200	<0.921	0.200	0.921	*	EPA-TO-15	05/30/2017	WC
Dibromochloromethane	<0.500	<4.26	0.500	4.26		EPA-TO-15	05/30/2017	WC
Chloroethane	<0.500	<1.32	0.500	1.32		EPA-TO-15	05/30/2017	WC
Chloroform	0.929	4.54	0.200	0.977		EPA-TO-15	05/30/2017	WC
Chloromethane	<0.500	<1.03	0.500	1.03		EPA-TO-15	05/30/2017	WC
cis-1,2-Dichloroethene	0.234	0.929	0.200	0.793		EPA-TO-15	05/30/2017	WC
cis-1,3-dichloropropene	<0.500	<2.27	0.500	2.27		EPA-TO-15	05/30/2017	WC
Cyclohexane	<0.200	<0.688	0.200	0.688		EPA-TO-15	05/30/2017	WC
Dichlorodifluoromethane (CFC-12)	<0.300	<1.48	0.300	1.48		EPA-TO-15	05/30/2017	WC
Dichlorotetrafluoroethane (CFC-114)	<0.500	<3.50	0.500	3.50		EPA-TO-15	05/30/2017	WC
Ethyl acetate	<1.00	<3.60	1.00	3.60		EPA-TO-15	05/30/2017	WC
Ethylbenzene	<0.300	<1.30	0.300	1.30		EPA-TO-15	05/30/2017	WC
Heptane	<0.500	<2.01	0.500	2.01		EPA-TO-15	05/30/2017	WC
Hexachlorobutadiene	<1.00	<10.7	1.00	10.7		EPA-TO-15	05/30/2017	WC
m,p-Xylene	<0.200	<0.868	0.200	0.868		EPA-TO-15	05/30/2017	WC
Methyl methacrylate	<0.300	<1.23	0.300	1.23		EPA-TO-15	05/30/2017	WC
Methylene chloride	<1.50	<5.21	1.50	5.21		EPA-TO-15	05/30/2017	WC
Naphthalene	<0.300	<1.57	0.300	1.57		EPA-TO-15	05/30/2017	WC
n-Hexane	<0.200	<0.705	0.200	0.705		EPA-TO-15	05/30/2017	WC
o-Xylene	<0.200	<0.868	0.200	0.868		EPA-TO-15	05/30/2017	WC
4-Ethyltoluene	<0.300	<1.47	0.300	1.47		EPA-TO-15	05/30/2017	WC
Propylene	<0.500	<0.861	0.500	0.861		EPA-TO-15	05/30/2017	WC
Styrene	<0.300	<1.28	0.300	1.28		EPA-TO-15	05/30/2017	WC
Methyl tert-butyl ether (MTBE)	<0.200	<0.721	0.200	0.721		EPA-TO-15	05/30/2017	WC
Tetrachloroethene (PCE)	20.2	137	1.20	8.14		EPA-TO-15	05/31/2017	WC
Tetrahydrofuran	<0.500	<1.47	0.500	1.47		EPA-TO-15	05/30/2017	WC
Toluene	0.613	2.31	0.200	0.754		EPA-TO-15	05/30/2017	WC
trans-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	05/30/2017	WC
trans-1,3-dichloropropene	<0.500	<2.27	0.500	2.27		EPA-TO-15	05/30/2017	WC
Trichloroethene (TCE)	<0.200	<1.07	0.200	1.07		EPA-TO-15	05/30/2017	WC



Client: PES Environmental, Inc.

WorkOrder: 1705333

Project: MVSC

Client Sample ID: SYS-0517

Date Sampled: 5/29/2017

Lab ID: 1705333-001A

Date Received: 5/30/2017

Sample Type: Summa Canister

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst	
<u>Volatile Organic Compounds by EPA Method TO-15</u>								
	(ppbv)	(ug/m³)	(ppbv)	(ug/m³)				
Trichlorofluoromethane (CFC-11)	<0.300	<1.69	0.300	1.69		EPA-TO-15	05/30/2017	WC
Vinyl acetate	<1.00	<3.52	1.00	3.52		EPA-TO-15	05/30/2017	WC
Vinyl chloride	<0.200	<0.511	0.200	0.511		EPA-TO-15	05/30/2017	WC
Surr: 4-Bromofluorobenzene	100 %Rec	--	70-130	--		EPA-TO-15	05/30/2017	WC

NOTES:

* - Flagged value is not within established control limits.

Work Order: 1705333
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID	LCS-R36478	SampType: LCS		Units: ppbv		Prep Date: 5/30/2017			RunNo: 36478		
Client ID:	LCSW	Batch ID: R36478		Analysis Date: 5/30/2017					SeqNo: 699788		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Propylene	4.40	0.500	5.000	0	88.0	70	130				
Dichlorodifluoromethane (CFC-12)	4.72	0.300	5.000	0	94.3	70	130				
Chloromethane	4.75	0.500	5.000	0	95.0	70	130				
Dichlorotetrafluoroethane (CFC-114)	4.79	0.500	5.000	0	95.9	70	130				
Vinyl chloride	4.59	0.200	5.000	0	91.7	70	130				
1,3-Butadiene	4.76	0.500	5.000	0	95.3	70	130				
Bromomethane	4.65	0.500	5.000	0	93.1	70	130				
Trichlorofluoromethane (CFC-11)	4.89	0.300	5.000	0	97.8	70	130				
Chloroethane	4.66	0.500	5.000	0	93.3	70	130				
Acrolein	4.77	0.500	5.000	0	95.4	70	130				
1,1-Dichloroethene (DCE)	4.64	0.200	5.000	0	92.8	70	130				
Acetone	5.34	1.00	5.000	0	107	70	130				
Isopropyl Alcohol	5.22	1.00	5.000	0	104	70	130				
Methylene chloride	4.67	1.50	5.000	0	93.5	70	130				
Carbon disulfide	4.71	1.50	5.000	0	94.3	70	130				
trans-1,2-Dichloroethene	4.69	0.200	5.000	0	93.8	70	130				
Methyl tert-butyl ether (MTBE)	4.65	0.200	5.000	0	93.0	70	130				
n-Hexane	4.65	0.200	5.000	0	92.9	70	130				
1,1-Dichloroethane	4.47	0.200	5.000	0	89.5	70	130				
Vinyl acetate	4.52	1.00	5.000	0	90.4	70	130				
cis-1,2-Dichloroethene	4.68	0.200	5.000	0	93.6	70	130				
(MEK) 2-Butanone	4.54	0.500	5.000	0	90.8	70	130				
Ethyl acetate	4.48	1.00	5.000	0	89.7	70	130				
Chloroform	4.82	0.200	5.000	0	96.4	70	130				
Tetrahydrofuran	4.63	0.500	5.000	0	92.5	70	130				
1,1,1-Trichloroethane	4.96	0.200	5.000	0	99.2	70	130				
Carbon tetrachloride	4.73	0.200	5.000	0	94.7	70	130				
1,2-Dichloroethane	5.16	0.200	5.000	0	103	70	130				
Benzene	4.53	0.200	5.000	0	90.6	70	130				
Cyclohexane	4.35	0.200	5.000	0	87.0	70	130				
Trichloroethene (TCE)	4.57	0.200	5.000	0	91.5	70	130				

Work Order: 1705333
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID	LCS-R36478	SampType: LCS		Units: ppbv		Prep Date: 5/30/2017			RunNo: 36478		
Client ID:	LCSW	Batch ID: R36478					Analysis Date: 5/30/2017			SeqNo: 699788	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloropropane	3.87	0.500	5.000	0	77.4	70	130				
Methyl methacrylate	4.48	0.300	5.000	0	89.5	70	130				
Dichlorobromomethane	4.65	0.300	5.000	0	93.0	70	130				
1,4-Dioxane	4.78	1.00	5.000	0	95.6	70	130				
cis-1,3-dichloropropene	4.56	0.500	5.000	0	91.3	70	130				
Toluene	4.67	0.200	5.000	0	93.4	70	130				
trans-1,3-dichloropropene	4.71	0.500	5.000	0	94.2	70	130				
1,1,2-Trichloroethane (TCA)	4.67	0.500	5.000	0	93.4	70	130				
Tetrachloroethene (PCE)	4.62	0.300	5.000	0	92.4	70	130				
Dibromochloromethane	3.19	0.500	5.000	0	63.8	70	130				S
1,2-Dibromoethane (EDB)	4.50	0.200	5.000	0	90.1	70	130				
Chlorobenzene	4.29	0.200	5.000	0	85.8	70	130				
Ethylbenzene	4.48	0.300	5.000	0	89.5	70	130				
m,p-Xylene	9.53	0.200	10.00	0	95.3	70	130				
o-Xylene	4.39	0.200	5.000	0	87.9	70	130				
Styrene	4.56	0.300	5.000	0	91.2	70	130				
Bromoform	4.56	0.200	5.000	0	91.1	70	130				
1,1,2,2-Tetrachloroethane	4.38	0.300	5.000	0	87.6	70	130				
1,3,5-Trimethylbenzene	4.45	0.300	5.000	0	89.0	70	130				
1,2,4-Trimethylbenzene	4.65	0.300	5.000	0	93.0	70	130				
Benzyl chloride	5.26	0.500	5.000	0	105	70	130				
4-Ethyltoluene	4.50	0.300	5.000	0	90.0	70	130				
1,3-Dichlorobenzene	4.75	0.300	5.000	0	95.0	70	130				
1,4-Dichlorobenzene	4.43	0.300	5.000	0	88.6	70	130				
1,2-Dichlorobenzene	4.38	0.500	5.000	0	87.6	70	130				
1,2,4-Trichlorobenzene	4.62	0.300	5.000	0	92.3	70	130				
Hexachlorobutadiene	4.36	1.00	5.000	0	87.2	70	130				
Naphthalene	4.51	0.300	5.000	0	90.2	70	130				
2-Hexanone	4.85	1.00	5.000	0	96.9	70	130				
4-Methyl-2-pentanone (MIBK)	4.35	1.00	5.000	0	87.0	70	130				
CFC-113	4.31	0.500	5.000	0	86.2	70	130				

Work Order: 1705333
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID	LCS-R36478	SampType: LCS			Units: ppbv	Prep Date: 5/30/2017				RunNo: 36478		
Client ID:	LCSW	Batch ID: R36478			Analysis Date: 5/30/2017				SeqNo: 699788			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Heptane	4.25	0.500	5.000	0	85.1	70	130				
Surr: 4-Bromofluorobenzene	11.0		10.00		110	70	130				

NOTES:

S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.

Sample ID	MB-R36478	SampType:	MBLK	Units:	ppbv	Prep Date:	5/30/2017	RunNo:	36478		
Client ID:	MBLKW	Batch ID:	R36478			Analysis Date:	5/30/2017	SeqNo:	699789		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Propylene	ND	0.500
Dichlorodifluoromethane (CFC-12)	ND	0.300
Chloromethane	ND	0.500
Dichlorotetrafluoroethane (CFC-114)	ND	0.500
Vinyl chloride	ND	0.200
1,3-Butadiene	ND	0.500
Bromomethane	ND	0.500
Trichlorofluoromethane (CFC-11)	ND	0.300
Chloroethane	ND	0.500
Acrolein	ND	0.500
1,1-Dichloroethene (DCE)	ND	0.200
Acetone	ND	1.00
Isopropyl Alcohol	ND	1.00
Methylene chloride	ND	1.50
Carbon disulfide	ND	1.50
trans-1,2-Dichloroethene	ND	0.200
Methyl tert-butyl ether (MTBE)	ND	0.200
n-Hexane	ND	0.200
1,1-Dichloroethane	ND	0.200
Vinyl acetate	ND	1.00
cis-1,2-Dichloroethene	ND	0.200
(MEK) 2-Butanone	ND	0.500

Work Order: 1705333
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID	MB-R36478	SampType:	MBLK		Units:	ppbv		Prep Date:	5/30/2017		RunNo:	36478	
Client ID:	MBLKW	Batch ID:	R36478					Analysis Date:	5/30/2017		SeqNo:	699789	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val		%RPD	RPDLimit	Qual
Ethyl acetate		ND	1.00										
Chloroform		ND	0.200										
Tetrahydrofuran		ND	0.500										
1,1,1-Trichloroethane		ND	0.200										
Carbon tetrachloride		ND	0.200										
1,2-Dichloroethane		ND	0.200										
Benzene		ND	0.200										
Cyclohexane		ND	0.200										
Trichloroethene (TCE)		ND	0.200										
1,2-Dichloropropane		ND	0.500										
Methyl methacrylate		ND	0.300										
Dichlorobromomethane		ND	0.300										
1,4-Dioxane		ND	1.00										
cis-1,3-dichloropropene		ND	0.500										
Toluene		ND	0.200										
trans-1,3-dichloropropene		ND	0.500										
1,1,2-Trichloroethane (TCA)		ND	0.500										
Tetrachloroethene (PCE)		ND	0.300										
Dibromochloromethane		ND	0.500										*
1,2-Dibromoethane (EDB)		ND	0.200										
Chlorobenzene		ND	0.200										
Ethylbenzene		ND	0.300										
m,p-Xylene		ND	0.200										
o-Xylene		ND	0.200										
Styrene		ND	0.300										
Bromoform		ND	0.200										
1,1,2,2-Tetrachloroethane		ND	0.300										
1,3,5-Trimethylbenzene		ND	0.300										
1,2,4-Trimethylbenzene		ND	0.300										
Benzyl chloride		ND	0.500										
4-Ethyltoluene		ND	0.300										

Work Order: 1705333
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID	MB-R36478	SampType:	MBLK		Units:	ppbv			Prep Date:	5/30/2017		RunNo:	36478	
Client ID:	MBLKW	Batch ID:	R36478						Analysis Date:	5/30/2017		SeqNo:	699789	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val		%RPD	RPDLimit	Qual	
1,3-Dichlorobenzene		ND	0.300											
1,4-Dichlorobenzene		ND	0.300											
1,2-Dichlorobenzene		ND	0.500											
1,2,4-Trichlorobenzene		ND	0.300											
Hexachlorobutadiene		ND	1.00											
Naphthalene		ND	0.300											
2-Hexanone		ND	1.00											
4-Methyl-2-pentanone (MIBK)		ND	1.00											
CFC-113		ND	0.500											
Heptane		ND	0.500											
Surr: 4-Bromofluorobenzene		10.6		10.00		106	70	130						

NOTES:

* - Flagged value is not within established control limits.

Sample ID	1705333-001AREP	SampType: REP	Units: ppbv			Prep Date: 5/30/2017			RunNo: 36478		
Client ID:	SYS-0517	Batch ID:	R36478			Analysis Date: 5/30/2017			SeqNo: 699786		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Propylene	ND	0.500						0		30	
Dichlorodifluoromethane (CFC-12)	ND	0.300						0		30	
Chloromethane	ND	0.500						0		30	
Dichlorotetrafluoroethane (CFC-114)	ND	0.500						0		30	
Vinyl chloride	ND	0.200						0		30	
1,3-Butadiene	ND	0.500						0		30	
Bromomethane	ND	0.500						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.300						0		30	
Chloroethane	ND	0.500						0		30	
Acrolein	ND	0.500						0		30	
1,1-Dichloroethene (DCE)	ND	0.200						0		30	
Acetone	2.04	1.00						1.749	15.4	30	
Isopropyl Alcohol	ND	1.00						0		30	

Work Order: 1705333
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID	1705333-001AREP	SampType:	REP	Units:	ppbv	Prep Date:	5/30/2017	RunNo:	36478		
Client ID:	SYS-0517	Batch ID:	R36478			Analysis Date:	5/30/2017	SeqNo:	699786		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methylene chloride	ND	1.50						0		30	
Carbon disulfide	ND	1.50						0		30	
trans-1,2-Dichloroethene	ND	0.200						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.200						0		30	
n-Hexane	ND	0.200						0		30	
1,1-Dichloroethane	ND	0.200						0		30	
Vinyl acetate	ND	1.00						0		30	
cis-1,2-Dichloroethene	0.272	0.200						0.2343	15.1	30	
(MEK) 2-Butanone	ND	0.500						0		30	
Ethyl acetate	ND	1.00						0		30	
Chloroform	1.08	0.200						0.9291	15.1	30	
Tetrahydrofuran	ND	0.500						0		30	
1,1,1-Trichloroethane	ND	0.200						0		30	
Carbon tetrachloride	ND	0.200						0		30	
1,2-Dichloroethane	ND	0.200						0		30	
Benzene	ND	0.200						0		30	
Cyclohexane	ND	0.200						0		30	
Trichloroethene (TCE)	ND	0.200						0		30	
1,2-Dichloropropane	ND	0.500						0		30	
Methyl methacrylate	ND	0.300						0		30	
Dichlorobromomethane	ND	0.300						0		30	
1,4-Dioxane	ND	1.00						0		30	
cis-1,3-dichloropropene	ND	0.500						0		30	
Toluene	0.607	0.200						0.6131	0.983	30	
trans-1,3-dichloropropene	ND	0.500						0		30	
1,1,2-Trichloroethane (TCA)	ND	0.500						0		30	
Tetrachloroethene (PCE)	23.0	0.300						20.60	10.8	30	E
Dibromochloromethane	ND	0.500						0		30	*
1,2-Dibromoethane (EDB)	ND	0.200						0		30	
Chlorobenzene	ND	0.200						0		30	
Ethylbenzene	ND	0.300						0		30	



Work Order: 1705333
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID	1705333-001AREP	SampType: REP		Units: ppbv		Prep Date: 5/30/2017			RunNo: 36478		
Client ID:	SYS-0517	Batch ID: R36478		Analysis Date: 5/30/2017						SeqNo: 699786	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
m,p-Xylene	ND	0.200						0		30	
o-Xylene	ND	0.200						0		30	
Styrene	ND	0.300						0		30	
Bromoform	ND	0.200						0		30	
1,1,2,2-Tetrachloroethane	ND	0.300						0		30	
1,3,5-Trimethylbenzene	ND	0.300						0		30	
1,2,4-Trimethylbenzene	ND	0.300						0		30	
Benzyl chloride	ND	0.500						0		30	
4-Ethyltoluene	ND	0.300						0		30	
1,3-Dichlorobenzene	ND	0.300						0		30	
1,4-Dichlorobenzene	ND	0.300						0		30	
1,2-Dichlorobenzene	ND	0.500						0		30	
1,2,4-Trichlorobenzene	ND	0.300						0		30	
Hexachlorobutadiene	ND	1.00						0		30	
Naphthalene	ND	0.300						0		30	
2-Hexanone	ND	1.00						0		30	
4-Methyl-2-pentanone (MIBK)	ND	1.00						0		30	
CFC-113	ND	0.500						0		30	
Heptane	ND	0.500						0		30	
Surr: 4-Bromofluorobenzene	10.1		10.00		101	70	130		0		

NOTES:

E - Estimated value. The amount exceeds the linear working range of the instrument.

* - Flagged value is not within established control limits.

Client Name: **PES**

Work Order Number: **1705333**

Logged by: **Clare Griggs**

Date Received: **5/30/2017 1:34:00 PM**

Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
2. How was the sample delivered? Client

Log In

3. Coolers are present? Yes ☐ No ☒ NA ☐
- Air Sample
4. Shipping container/cooler in good condition? Yes ☒ No ☐
5. Custody Seals present on shipping container/cooler?
(Refer to comments for Custody Seals not intact) Yes ☐ No ☐ Not Required ☒
6. Was an attempt made to cool the samples? Yes ☐ No ☐ NA ☒
7. Were all items received at a temperature of >0°C to 10.0°C * Yes ☐ No ☐ NA ☒
8. Sample(s) in proper container(s)? Yes ☒ No ☐
9. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
10. Are samples properly preserved? Yes ☒ No ☐
11. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
12. Is there headspace in the VOA vials? Yes ☐ No ☐ NA ☒
13. Did all samples containers arrive in good condition(unbroken)? Yes ☒ No ☐
14. Does paperwork match bottle labels? Yes ☒ No ☐
15. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
16. Is it clear what analyses were requested? Yes ☒ No ☐
17. Were all holding times able to be met? Yes ☒ No ☐

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:		Date	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



Fremont
Analytical

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Air Chain of Custody Record & Laboratory Services Agreement

Date: 5-30-17 Page: 1 of: 1

Project Name: MWSC

Project No: 1358.001.01.007

Location: Normandy Park, WA

Collected by: Karsten Springsstead

Reports to (PM): Matt Dahl

Email (PM): MDahl@pseanv.com

Laboratory Project No (Internal):

1705333

Special Remarks:

Client: PES ENVIRONMENTAL INC.

Address: 1215 4th Ave STE 1350

City, State, Zip: SEATTLE, WA 98106

Telephone: 206-529-3980

Fax: 206-529-3985

Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal Evacuation Pressure (mmHg)	Field Initial Sample Pressure (°Hg)	Field Final Sample Pressure (°Hg)	Analysis Requested	Receipt Date	Final Pressure (°Hg)
1	13471	5-24-17	S	CAN	6L				30	4	TD-15	5/27/17	4
2		1200							159	1200			
3													
4													
5													

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter SF = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished

Date/Time

5-30-17

Received

1334

Date/Time

5/30/17 1334

Date/Time

Received

Date/Time

Turn-Around Time:
☒ Standard
☐ 3 Day
☐ 2 Day
☐ Next Day
Same Day (specify)

MEMORANDUM

TO: Project File **DATE:** August 7, 2017
FROM: Jessie Compeau
SUBJECT: Laboratory Data Validation Review
PROJECT: Manhattan Village Shopping Center - Soil Vapor Extraction System Performance Data Review
PROJECT #: 1535.001.01.003
TASK: May 29, 2017 Air Sample
LAB: Fremont Analytical Service Request No. 1705333

One SVE system stack discharge air sample was collected as part of SVE system O&M at the Manhattan Village Shopping Center in Normandy Park, Washington, on May 29, 2017. The air sample was analyzed for VOCs by USEPA Method TO-15. Laboratory analytical services were provided by Fremont Analytical (Fremont) of Seattle, Washington. Analytical data are reported under Fremont's Project Number 1705333.

The quality assurance review of the laboratory data is summarized below.

DATA QUALIFICATIONS

Guidelines established by USEPA for review of analytical data were used to validate the data. The comments presented in this memorandum refer to the laboratory's performance in meeting the quality control criteria outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (USEPA, 2017).

DATA VALIDATION

Completeness

All samples were collected and analyzed as requested. No concerns, issues, or anomalies were identified in the laboratory report.

Sample Collection and Preservation

The laboratory supplied a Summa canister (6 Liter) for the air sample. The samples were hand delivered and received in good condition by the laboratory. Summa canisters do not require preservation or cooling. The sample was collected, handled, and delivered in an appropriate manner. No data qualifications were warranted based upon sampling and preservation techniques.

Holding Times

The analysis for VOCs by TO-15 was performed within one day of sample collection. This is within the 30-day recommended holding time limit for air samples collected in a Summa canister. No data was qualified based upon holding times.

Initial and Continuing Calibration

Initial and continuing calibration data for this project are retained by the laboratory and available for review if necessary. The case narrative did not indicate any issues with calibration; therefore no qualifications were warranted.

Method Blank Results

A laboratory method blank was included with the analytical batch per method requirement. The method blank results did not report any compounds at concentrations at or above the MRLs.

Trip Blank Results

A trip blank was not required for the VOCs by TO-15 analyses. No qualifications were warranted due to the lack of a trip blank for this method.

Field Duplicate Analyses

No field duplicates were required or collected during this field event.

Laboratory Duplicate/Replicate Analyses

A laboratory replicate was performed on client sample SYS-0517. The relative percent differences (RPDs) for these all target compounds were within the laboratory control limits (30% RPD). No qualifications were warranted.

Surrogate Recoveries

The surrogate percent recovery (% R) results for the VOCs by TO-15 air samples, method blank, replicate, and laboratory control sample are within the laboratory surrogate control limits of 70 - 130% R. No data qualifications were warranted.

Laboratory Control Samples

One laboratory control sample (LCS) was run for the VOCs by TO-15 analytical batch. The LCS was run at the appropriate frequency for this project. The LCS recovery results for all control compounds met the % R acceptance criteria of 70 - 130% with the following exceptions:

One LCS compound (dibromochloromethane) was recovered at 63.8% and below LCS criteria of 70-130%. **Sample SYS-0517 dibromochloromethane result is estimated and qualified (UJ) due to a low LCS result.**

Matrix Spike/Matrix Spike Duplicates

A MS/MSD is not required for the VOCs by TO-15 method.

Other Quality Control Issues

No other laboratory quality control issues were identified in the laboratory report.

Quantitation Limits

Results of the VOCs by TO-15 analysis were reported based on laboratory MRLs (assuming standard temperature and pressure is equal to 24.45) and reported in units of ppbv and $\mu\text{g}/\text{m}^3$. The MRLs indicate the minimum quantity of a target analyte that can be confidently determined by the reference method. The MRLs were acceptable for the project; therefore, no data qualifications were warranted.

Data Assessment

A data qualifier was assigned and laboratory report pages with the qualifier are attached. All data, including qualified data, are judged to be acceptable for their intended use.



Client: PES Environmental, Inc.

WorkOrder: 1705333

Project: MVSC

Client Sample ID: SYS-0517

Date Sampled: 5/29/2017

Lab ID: 1705333-001A

Date Received: 5/30/2017

Sample Type: Summa Canister

Analyte	Concentration	Reporting Limit	Qual	Method	Date/Analyst
<u>Volatile Organic Compounds by EPA Method TO-15</u>					
	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)	
1,1,1-Trichloroethane	<0.200	<1.09	0.200	1.09	EPA-TO-15 05/30/2017 WC
1,1,2,2-Tetrachloroethane	<0.300	<2.06	0.300	2.06	EPA-TO-15 05/30/2017 WC
CFC-113	<0.500	<3.83	0.500	3.83	EPA-TO-15 05/30/2017 WC
1,1,2-Trichloroethane (TCA)	<0.500	<2.73	0.500	2.73	EPA-TO-15 05/30/2017 WC
1,1-Dichloroethane	<0.200	<0.810	0.200	0.810	EPA-TO-15 05/30/2017 WC
1,1-Dichloroethene (DCE)	<0.200	<0.793	0.200	0.793	EPA-TO-15 05/30/2017 WC
1,2,4-Trichlorobenzene	<0.300	<2.23	0.300	2.23	EPA-TO-15 05/30/2017 WC
1,2,4-Trimethylbenzene	<0.300	<1.47	0.300	1.47	EPA-TO-15 05/30/2017 WC
1,2-Dibromoethane (EDB)	<0.200	<1.54	0.200	1.54	EPA-TO-15 05/30/2017 WC
1,2-Dichlorobenzene	<0.500	<3.01	0.500	3.01	EPA-TO-15 05/30/2017 WC
1,2-Dichloroethane	<0.200	<0.809	0.200	0.809	EPA-TO-15 05/30/2017 WC
1,2-Dichloropropane	<0.500	<2.31	0.500	2.31	EPA-TO-15 05/30/2017 WC
1,3,5-Trimethylbenzene	<0.300	<1.47	0.300	1.47	EPA-TO-15 05/30/2017 WC
1,3-Butadiene	<0.500	<1.11	0.500	1.11	EPA-TO-15 05/30/2017 WC
1,3-Dichlorobenzene	<0.300	<1.80	0.300	1.80	EPA-TO-15 05/30/2017 WC
1,4-Dichlorobenzene	<0.300	<1.80	0.300	1.80	EPA-TO-15 05/30/2017 WC
1,4-Dioxane	<1.00	<3.60	1.00	3.60	EPA-TO-15 05/30/2017 WC
(MEK) 2-Butanone	<0.500	<1.47	0.500	1.47	EPA-TO-15 05/30/2017 WC
2-Hexanone	<1.00	<4.10	1.00	4.10	EPA-TO-15 05/30/2017 WC
Isopropyl Alcohol	<1.00	<2.46	1.00	2.46	EPA-TO-15 05/30/2017 WC
4-Methyl-2-pentanone (MIBK)	<1.00	<4.10	1.00	4.10	EPA-TO-15 05/30/2017 WC
Acetone	1.75	4.16	1.00	2.38	EPA-TO-15 05/30/2017 WC
Acrolein	<0.500	<1.15	0.500	1.15	EPA-TO-15 05/30/2017 WC
Benzene	<0.200	<0.639	0.200	0.639	EPA-TO-15 05/30/2017 WC
Benzyl chloride	<0.500	<2.59	0.500	2.59	EPA-TO-15 05/30/2017 WC
Dichlorobromomethane	<0.300	<2.01	0.300	2.01	EPA-TO-15 05/30/2017 WC
Bromoform	<0.200	<2.07	0.200	2.07	EPA-TO-15 05/30/2017 WC
Bromomethane	<0.500	<1.94	0.500	1.94	EPA-TO-15 05/30/2017 WC
Carbon disulfide	<1.50	<4.67	1.50	4.67	EPA-TO-15 05/30/2017 WC
Carbon tetrachloride	<0.200	<1.26	0.200	1.26	EPA-TO-15 05/30/2017 WC



Client: PES Environmental, Inc.

WorkOrder: 1705333

Project: MVSC

Client Sample ID: SYS-0517

Date Sampled: 5/29/2017

Lab ID: 1705333-001A

Date Received: 5/30/2017

Sample Type: Summa Canister

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst	
<u>Volatile Organic Compounds by EPA Method TO-15</u>								
	(ppbv)	(ug/m³)	(ppbv)	(ug/m³)				
Chlorobenzene	<0.200	<0.921	0.200	0.921		EPA-TO-15	05/30/2017	WC
Dibromochloromethane	<0.500 UJ	<4.26	0.500	4.26	*	EPA-TO-15	05/30/2017	WC
Chloroethane	<0.500	<1.32	0.500	1.32		EPA-TO-15	05/30/2017	WC
Chloroform	0.929	4.54	0.200	0.977		EPA-TO-15	05/30/2017	WC
Chloromethane	<0.500	<1.03	0.500	1.03		EPA-TO-15	05/30/2017	WC
cis-1,2-Dichloroethene	0.234	0.929	0.200	0.793		EPA-TO-15	05/30/2017	WC
cis-1,3-dichloropropene	<0.500	<2.27	0.500	2.27		EPA-TO-15	05/30/2017	WC
Cyclohexane	<0.200	<0.688	0.200	0.688		EPA-TO-15	05/30/2017	WC
Dichlorodifluoromethane (CFC-12)	<0.300	<1.48	0.300	1.48		EPA-TO-15	05/30/2017	WC
Dichlorotetrafluoroethane (CFC-114)	<0.500	<3.50	0.500	3.50		EPA-TO-15	05/30/2017	WC
Ethyl acetate	<1.00	<3.60	1.00	3.60		EPA-TO-15	05/30/2017	WC
Ethylbenzene	<0.300	<1.30	0.300	1.30		EPA-TO-15	05/30/2017	WC
Heptane	<0.500	<2.01	0.500	2.01		EPA-TO-15	05/30/2017	WC
Hexachlorobutadiene	<1.00	<10.7	1.00	10.7		EPA-TO-15	05/30/2017	WC
m,p-Xylene	<0.200	<0.868	0.200	0.868		EPA-TO-15	05/30/2017	WC
Methyl methacrylate	<0.300	<1.23	0.300	1.23		EPA-TO-15	05/30/2017	WC
Methylene chloride	<1.50	<5.21	1.50	5.21		EPA-TO-15	05/30/2017	WC
Naphthalene	<0.300	<1.57	0.300	1.57		EPA-TO-15	05/30/2017	WC
n-Hexane	<0.200	<0.705	0.200	0.705		EPA-TO-15	05/30/2017	WC
o-Xylene	<0.200	<0.868	0.200	0.868		EPA-TO-15	05/30/2017	WC
4-Ethyltoluene	<0.300	<1.47	0.300	1.47		EPA-TO-15	05/30/2017	WC
Propylene	<0.500	<0.861	0.500	0.861		EPA-TO-15	05/30/2017	WC
Styrene	<0.300	<1.28	0.300	1.28		EPA-TO-15	05/30/2017	WC
Methyl tert-butyl ether (MTBE)	<0.200	<0.721	0.200	0.721		EPA-TO-15	05/30/2017	WC
Tetrachloroethene (PCE)	20.2	137	1.20	8.14		EPA-TO-15	05/31/2017	WC
Tetrahydrofuran	<0.500	<1.47	0.500	1.47		EPA-TO-15	05/30/2017	WC
Toluene	0.613	2.31	0.200	0.754		EPA-TO-15	05/30/2017	WC
trans-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	05/30/2017	WC
trans-1,3-dichloropropene	<0.500	<2.27	0.500	2.27		EPA-TO-15	05/30/2017	WC
Trichloroethene (TCE)	<0.200	<1.07	0.200	1.07		EPA-TO-15	05/30/2017	WC



Client: PES Environmental, Inc.

WorkOrder: 1705333

Project: MVSC

Client Sample ID: SYS-0517

Date Sampled: 5/29/2017

Lab ID: 1705333-001A

Date Received: 5/30/2017

Sample Type: Summa Canister

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst	
<u>Volatile Organic Compounds by EPA Method TO-15</u>								
	(ppbv)	(ug/m³)	(ppbv)	(ug/m³)				
Trichlorofluoromethane (CFC-11)	<0.300	<1.69	0.300	1.69		EPA-TO-15	05/30/2017	WC
Vinyl acetate	<1.00	<3.52	1.00	3.52		EPA-TO-15	05/30/2017	WC
Vinyl chloride	<0.200	<0.511	0.200	0.511		EPA-TO-15	05/30/2017	WC
Surr: 4-Bromofluorobenzene	100 %Rec	--	70-130	--		EPA-TO-15	05/30/2017	WC

NOTES:

* - Flagged value is not within established control limits.

JC 8/8/17



Fremont
Analytical

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

PES Environmental, Inc.

Matt Dahl
1215 Fourth Avenue, Suite 1350
Seattle, WA 98161

RE: MVSC

Work Order Number: 1706238

June 28, 2017

Attention Matt Dahl:

Fremont Analytical, Inc. received 1 sample(s) on 6/20/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method TO-15

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Chelsea Ward
Project Manager

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005
ORELAP Certification: WA 100009-007 (NELAP Recognized)

CLIENT: PES Environmental, Inc.
Project: MVSC
Work Order: 1706238

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1706238-001	SYS-0617	06/20/2017 8:00 AM	06/20/2017 1:36 PM

CLIENT: PES Environmental, Inc.**Project:** MVSC

WorkOrder Narrative:

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Air samples are reported in ppbv and ug/m3.

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Standard temperature and pressure assumes 24.45 = (25C and 1 atm).

Qualifiers:

- * - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



Client: PES Environmental, Inc.

WorkOrder: 1706238

Project: MVSC

Client Sample ID: SYS-0617

Date Sampled: 6/20/2017

Lab ID: 1706238-001A

Date Received: 6/20/2017

Sample Type: Summa Canister

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst	
<u>Volatile Organic Compounds by EPA Method TO-15</u>								
	(ppbv)	(ug/m³)	(ppbv)	(ug/m³)				
1,1,1-Trichloroethane	<0.200	<1.09	0.200	1.09		EPA-TO-15	06/22/2017	WC
1,1,2,2-Tetrachloroethane	<0.300	<2.06	0.300	2.06		EPA-TO-15	06/22/2017	WC
CFC-113	<0.500	<3.83	0.500	3.83		EPA-TO-15	06/22/2017	WC
1,1,2-Trichloroethane (TCA)	<0.500	<2.73	0.500	2.73		EPA-TO-15	06/22/2017	WC
1,1-Dichloroethane	<0.200	<0.810	0.200	0.810		EPA-TO-15	06/22/2017	WC
1,1-Dichloroethene (DCE)	<0.200	<0.793	0.200	0.793		EPA-TO-15	06/22/2017	WC
1,2,4-Trichlorobenzene	<0.300	<2.23	0.300	2.23		EPA-TO-15	06/22/2017	WC
1,2,4-Trimethylbenzene	0.442	2.17	0.300	1.47		EPA-TO-15	06/22/2017	WC
1,2-Dibromoethane (EDB)	<0.200	<1.54	0.200	1.54		EPA-TO-15	06/22/2017	WC
1,2-Dichlorobenzene	<0.500	<3.01	0.500	3.01		EPA-TO-15	06/22/2017	WC
1,2-Dichloroethane	<0.200	<0.809	0.200	0.809		EPA-TO-15	06/22/2017	WC
1,2-Dichloropropane	<0.500	<2.31	0.500	2.31		EPA-TO-15	06/22/2017	WC
1,3,5-Trimethylbenzene	<0.300	<1.47	0.300	1.47		EPA-TO-15	06/22/2017	WC
1,3-Butadiene	<0.500	<1.11	0.500	1.11		EPA-TO-15	06/22/2017	WC
1,3-Dichlorobenzene	<0.300	<1.80	0.300	1.80		EPA-TO-15	06/22/2017	WC
1,4-Dichlorobenzene	0.365	2.19	0.300	1.80		EPA-TO-15	06/22/2017	WC
1,4-Dioxane	<1.00	<3.60	1.00	3.60		EPA-TO-15	06/22/2017	WC
(MEK) 2-Butanone	<0.500	<1.47	0.500	1.47		EPA-TO-15	06/22/2017	WC
2-Hexanone	<1.00	<4.10	1.00	4.10		EPA-TO-15	06/22/2017	WC
Isopropyl Alcohol	1.24	3.04	1.00	2.46		EPA-TO-15	06/22/2017	WC
4-Methyl-2-pentanone (MIBK)	<1.00	<4.10	1.00	4.10		EPA-TO-15	06/22/2017	WC
Acetone	1.64	3.90	1.00	2.38		EPA-TO-15	06/22/2017	WC
Acrolein	<0.500	<1.15	0.500	1.15		EPA-TO-15	06/22/2017	WC
Benzene	<0.200	<0.639	0.200	0.639		EPA-TO-15	06/22/2017	WC
Benzyl chloride	<0.500	<2.59	0.500	2.59		EPA-TO-15	06/22/2017	WC
Dichlorobromomethane	<0.300	<2.01	0.300	2.01		EPA-TO-15	06/22/2017	WC
Bromoform	<0.200	<2.07	0.200	2.07		EPA-TO-15	06/22/2017	WC
Bromomethane	<0.500	<1.94	0.500	1.94		EPA-TO-15	06/22/2017	WC
Carbon disulfide	<1.50	<4.67	1.50	4.67		EPA-TO-15	06/22/2017	WC
Carbon tetrachloride	<0.200	<1.26	0.200	1.26		EPA-TO-15	06/22/2017	WC



Client: PES Environmental, Inc.

WorkOrder: 1706238

Project: MVSC

Client Sample ID: SYS-0617

Date Sampled: 6/20/2017

Lab ID: 1706238-001A

Date Received: 6/20/2017

Sample Type: Summa Canister

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst
<u>Volatile Organic Compounds by EPA Method TO-15</u>							
	(ppbv)	(ug/m³)	(ppbv)	(ug/m³)			
Chlorobenzene	<0.200	<0.921	0.200	0.921		EPA-TO-15	06/22/2017 WC
Dibromochloromethane	<0.500	<4.26	0.500	4.26		EPA-TO-15	06/22/2017 WC
Chloroethane	<0.500	<1.32	0.500	1.32		EPA-TO-15	06/22/2017 WC
Chloroform	1.51	7.39	0.200	0.977		EPA-TO-15	06/22/2017 WC
Chloromethane	<0.500	<1.03	0.500	1.03		EPA-TO-15	06/22/2017 WC
cis-1,2-Dichloroethene	0.468	1.86	0.200	0.793		EPA-TO-15	06/22/2017 WC
cis-1,3-dichloropropene	<0.500	<2.27	0.500	2.27		EPA-TO-15	06/22/2017 WC
Cyclohexane	0.778	2.68	0.200	0.688		EPA-TO-15	06/22/2017 WC
Dichlorodifluoromethane (CFC-12)	<0.300	<1.48	0.300	1.48		EPA-TO-15	06/22/2017 WC
Dichlorotetrafluoroethane (CFC-114)	<0.500	<3.50	0.500	3.50		EPA-TO-15	06/22/2017 WC
Ethyl acetate	<1.00	<3.60	1.00	3.60		EPA-TO-15	06/22/2017 WC
Ethylbenzene	0.446	1.93	0.300	1.30		EPA-TO-15	06/22/2017 WC
Heptane	<0.500	<2.01	0.500	2.01		EPA-TO-15	06/22/2017 WC
Hexachlorobutadiene	<1.00	<10.7	1.00	10.7		EPA-TO-15	06/22/2017 WC
m,p-Xylene	1.59	6.89	0.200	0.868		EPA-TO-15	06/22/2017 WC
Methyl methacrylate	<0.300	<1.23	0.300	1.23		EPA-TO-15	06/22/2017 WC
Methylene chloride	<1.50	<5.21	1.50	5.21		EPA-TO-15	06/22/2017 WC
Naphthalene	0.553	2.90	0.300	1.57		EPA-TO-15	06/22/2017 WC
n-Hexane	0.516	1.82	0.200	0.705		EPA-TO-15	06/22/2017 WC
o-Xylene	0.610	2.65	0.200	0.868		EPA-TO-15	06/22/2017 WC
4-Ethyltoluene	<0.300	<1.47	0.300	1.47		EPA-TO-15	06/22/2017 WC
Propylene	<0.500	<0.861	0.500	0.861		EPA-TO-15	06/22/2017 WC
Styrene	0.403	1.72	0.300	1.28		EPA-TO-15	06/22/2017 WC
Methyl tert-butyl ether (MTBE)	<0.200	<0.721	0.200	0.721		EPA-TO-15	06/22/2017 WC
Tetrachloroethene (PCE)	36.2	246	4.80	32.6		EPA-TO-15	07/14/2017 WC
Tetrahydrofuran	0.770	2.27	0.500	1.47		EPA-TO-15	06/22/2017 WC
Toluene	1.14	4.29	0.200	0.754		EPA-TO-15	06/22/2017 WC
trans-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	06/22/2017 WC
trans-1,3-dichloropropene	<0.500	<2.27	0.500	2.27		EPA-TO-15	06/22/2017 WC
Trichloroethene (TCE)	0.449	2.41	0.200	1.07		EPA-TO-15	06/22/2017 WC



Client: PES Environmental, Inc.

WorkOrder: 1706238

Project: MVSC

Client Sample ID: SYS-0617

Date Sampled: 6/20/2017

Lab ID: 1706238-001A

Date Received: 6/20/2017

Sample Type: Summa Canister

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst	
<u>Volatile Organic Compounds by EPA Method TO-15</u>								
	(ppbv)	(ug/m³)	(ppbv)	(ug/m³)				
Trichlorofluoromethane (CFC-11)	0.632	3.55	0.300	1.69		EPA-TO-15	06/22/2017	WC
Vinyl acetate	<1.00	<3.52	1.00	3.52		EPA-TO-15	06/22/2017	WC
Vinyl chloride	<0.200	<0.511	0.200	0.511		EPA-TO-15	06/22/2017	WC
Surr: 4-Bromofluorobenzene	85.4 %Rec	--	70-130	--		EPA-TO-15	06/22/2017	WC



Work Order: 1706238
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID	LCS-R37385	SampType:	LCS	Units:	ppbv	Prep Date:	7/13/2017	RunNo:	37385		
Client ID:	LCSW	Batch ID:	R37385			Analysis Date:	7/13/2017	SeqNo:	718278		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Tetrachloroethene (PCE)	5.11	0.300	5.000	0	102	70	130				
Surr: 4-Bromofluorobenzene	10.9		10.00		109	70	130				

Sample ID	MB-R37385	SampType: MBLK			Units: ppbv	Prep Date: 7/13/2017			RunNo: 37385		
Client ID:	MBLKW	Batch ID: R37385			Analysis Date: 7/13/2017			SeqNo: 718279			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Tetrachloroethene (PCE)	ND	0.300									
Surr: 4-Bromofluorobenzene	9.51		10.00		95.1	70	130				

Sample ID	1706238-001AREP	SampType:	REP	Units:	ppbv	Prep Date:	7/14/2017	RunNo:	37385		
Client ID:	SYS-0617	Batch ID:	R37385			Analysis Date:	7/14/2017	SeqNo:	718267		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Tetrachloroethene (PCE)	35.8	4.80						36.20	1.06	30	
Surr: 4-Bromofluorobenzene	145		160.0		90.5	70	130		0		

Work Order: 1706238
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID	LCS-R36997	SampType: LCS		Units: ppbv		Prep Date: 6/21/2017			RunNo: 36997		
Client ID:	LCSW	Batch ID: R36997		Analysis Date: 6/21/2017					SeqNo: 710635		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Propylene	5.10	0.500	5.000	0	102	70	130				
Dichlorodifluoromethane (CFC-12)	5.67	0.300	5.000	0	113	70	130				
Chloromethane	4.71	0.500	5.000	0	94.2	70	130				
Dichlorotetrafluoroethane (CFC-114)	6.11	0.500	5.000	0	122	70	130				
Vinyl chloride	5.36	0.200	5.000	0	107	70	130				
1,3-Butadiene	5.67	0.500	5.000	0	113	70	130				
Bromomethane	5.60	0.500	5.000	0	112	70	130				
Trichlorofluoromethane (CFC-11)	5.53	0.300	5.000	0	111	70	130				
Chloroethane	5.75	0.500	5.000	0	115	70	130				
Acrolein	6.24	0.500	5.000	0	125	70	130				
1,1-Dichloroethene (DCE)	5.21	0.200	5.000	0	104	70	130				
Acetone	5.67	1.00	5.000	0	113	70	130				
Isopropyl Alcohol	6.02	1.00	5.000	0	120	70	130				
Methylene chloride	5.56	1.50	5.000	0	111	70	130				
Carbon disulfide	4.88	1.50	5.000	0	97.7	70	130				
trans-1,2-Dichloroethene	5.13	0.200	5.000	0	103	70	130				
Methyl tert-butyl ether (MTBE)	5.51	0.200	5.000	0	110	70	130				
n-Hexane	5.40	0.200	5.000	0	108	70	130				
1,1-Dichloroethane	5.00	0.200	5.000	0	100	70	130				
Vinyl acetate	5.61	1.00	5.000	0	112	70	130				
cis-1,2-Dichloroethene	5.09	0.200	5.000	0	102	70	130				
(MEK) 2-Butanone	5.41	0.500	5.000	0	108	70	130				
Ethyl acetate	5.70	1.00	5.000	0	114	70	130				
Chloroform	4.98	0.200	5.000	0	99.7	70	130				
Tetrahydrofuran	5.66	0.500	5.000	0	113	70	130				
1,1,1-Trichloroethane	5.03	0.200	5.000	0	101	70	130				
Carbon tetrachloride	4.98	0.200	5.000	0	99.6	70	130				
1,2-Dichloroethane	5.17	0.200	5.000	0	103	70	130				
Benzene	5.03	0.200	5.000	0	101	70	130				
Cyclohexane	5.46	0.200	5.000	0	109	70	130				
Trichloroethene (TCE)	5.22	0.200	5.000	0	104	70	130				



Work Order: 1706238
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID	LCS-R36997	SampType: LCS		Units: ppbv		Prep Date: 6/21/2017			RunNo: 36997		
Client ID:	LCSW	Batch ID: R36997		Analysis Date: 6/21/2017					SeqNo: 710635		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloropropane	5.28	0.500	5.000	0	106	70	130				
Methyl methacrylate	5.43	0.300	5.000	0	109	70	130				
Dichlorobromomethane	5.31	0.300	5.000	0	106	70	130				
1,4-Dioxane	4.09	1.00	5.000	0	81.8	70	130				
cis-1,3-dichloropropene	5.47	0.500	5.000	0	109	70	130				
Toluene	5.15	0.200	5.000	0	103	70	130				
trans-1,3-dichloropropene	5.53	0.500	5.000	0	111	70	130				
1,1,2-Trichloroethane (TCA)	5.07	0.500	5.000	0	101	70	130				
Dibromochloromethane	5.15	0.500	5.000	0	103	70	130				
1,2-Dibromoethane (EDB)	5.10	0.200	5.000	0	102	70	130				
Chlorobenzene	5.45	0.200	5.000	0	109	70	130				
Ethylbenzene	5.48	0.300	5.000	0	110	70	130				
m,p-Xylene	11.0	0.200	10.00	0	110	70	130				
o-Xylene	5.52	0.200	5.000	0	110	70	130				
Styrene	5.52	0.300	5.000	0	110	70	130				
Bromoform	5.58	0.200	5.000	0	112	70	130				
1,1,2,2-Tetrachloroethane	5.53	0.300	5.000	0	111	70	130				
1,3,5-Trimethylbenzene	5.55	0.300	5.000	0	111	70	130				
1,2,4-Trimethylbenzene	5.58	0.300	5.000	0	112	70	130				
Benzyl chloride	5.58	0.500	5.000	0	112	70	130				
4-Ethyltoluene	5.56	0.300	5.000	0	111	70	130				
1,3-Dichlorobenzene	5.61	0.300	5.000	0	112	70	130				
1,4-Dichlorobenzene	5.51	0.300	5.000	0	110	70	130				
1,2-Dichlorobenzene	5.61	0.500	5.000	0	112	70	130				
1,2,4-Trichlorobenzene	5.71	0.300	5.000	0	114	70	130				
Hexachlorobutadiene	5.53	1.00	5.000	0	111	70	130				
Naphthalene	5.60	0.300	5.000	0	112	70	130				
2-Hexanone	5.62	1.00	5.000	0	112	70	130				
4-Methyl-2-pentanone (MIBK)	5.71	1.00	5.000	0	114	70	130				
CFC-113	5.50	0.500	5.000	0	110	70	130				
Heptane	5.27	0.500	5.000	0	105	70	130				

Work Order: 1706238
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID	LCS-R36997	SampType:	LCS	Units:	ppbv	Prep Date:	6/21/2017	RunNo:	36997		
Client ID:	LCSW	Batch ID:	R36997			Analysis Date:	6/21/2017	SeqNo:	710635		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	9.52		10.00		95.2	70	130				

Sample ID	MB-R36997	SampType: MBLK		Units: ppbv		Prep Date: 6/21/2017			RunNo: 36997		
Client ID:	MBLKW	Batch ID: R36997		Analysis Date: 6/21/2017					SeqNo: 710636		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Propylene	ND	0.500									
Dichlorodifluoromethane (CFC-12)	ND	0.300									
Chloromethane	ND	0.500									
Dichlorotetrafluoroethane (CFC-114)	ND	0.500									
Vinyl chloride	ND	0.200									
1,3-Butadiene	ND	0.500									
Bromomethane	ND	0.500									
Trichlorofluoromethane (CFC-11)	ND	0.300									
Chloroethane	ND	0.500									
Acrolein	ND	0.500									
1,1-Dichloroethene (DCE)	ND	0.200									
Acetone	ND	1.00									
Isopropyl Alcohol	ND	1.00									
Methylene chloride	ND	1.50									
Carbon disulfide	ND	1.50									
trans-1,2-Dichloroethene	ND	0.200									
Methyl tert-butyl ether (MTBE)	ND	0.200									
n-Hexane	ND	0.200									
1,1-Dichloroethane	ND	0.200									
Vinyl acetate	ND	1.00									
cis-1,2-Dichloroethene	ND	0.200									
(MEK) 2-Butanone	ND	0.500									
Ethyl acetate	ND	1.00									
Chloroform	ND	0.200									



Work Order: 1706238
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID	MB-R36997	SampType:	MBLK	Units:	ppbv	Prep Date:	6/21/2017	RunNo:	36997		
Client ID:	MBLKW	Batch ID:	R36997	Analysis Date:				6/21/2017	SeqNo:	710636	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tetrahydrofuran	ND	0.500									
1,1,1-Trichloroethane	ND	0.200									
Carbon tetrachloride	ND	0.200									
1,2-Dichloroethane	ND	0.200									
Benzene	ND	0.200									
Cyclohexane	ND	0.200									
Trichloroethene (TCE)	ND	0.200									
1,2-Dichloropropane	ND	0.500									
Methyl methacrylate	ND	0.300									
Dichlorobromomethane	ND	0.300									
1,4-Dioxane	ND	1.00									
cis-1,3-dichloropropene	ND	0.500									
Toluene	ND	0.200									
trans-1,3-dichloropropene	ND	0.500									
1,1,2-Trichloroethane (TCA)	ND	0.500									
Dibromochloromethane	ND	0.500									
1,2-Dibromoethane (EDB)	ND	0.200									
Chlorobenzene	ND	0.200									
Ethylbenzene	ND	0.300									
m,p-Xylene	ND	0.200									
o-Xylene	ND	0.200									
Styrene	ND	0.300									
Bromoform	ND	0.200									
1,1,2,2-Tetrachloroethane	ND	0.300									
1,3,5-Trimethylbenzene	ND	0.300									
1,2,4-Trimethylbenzene	ND	0.300									
Benzyl chloride	ND	0.500									
4-Ethyltoluene	ND	0.300									
1,3-Dichlorobenzene	ND	0.300									
1,4-Dichlorobenzene	ND	0.300									
1,2-Dichlorobenzene	ND	0.500									

Work Order: 1706238
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID	MB-R36997	SampType: MBLK		Units: ppbv		Prep Date: 6/21/2017			RunNo: 36997		
Client ID:	MBLKW	Batch ID: R36997		Analysis Date: 6/21/2017					SeqNo: 710636		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	0.300									
Hexachlorobutadiene	ND	1.00									
Naphthalene	ND	0.300									
2-Hexanone	ND	1.00									
4-Methyl-2-pentanone (MIBK)	ND	1.00									
CFC-113	ND	0.500									
Heptane	ND	0.500									
Surr: 4-Bromofluorobenzene	7.41		10.00		74.1	70	130				

Sample ID	1706238-001AREP	SampType:	REP	Units:	ppbv	Prep Date:	6/22/2017	RunNo:	36997		
Client ID:	SYS-0617	Batch ID:	R36997			Analysis Date:	6/22/2017	SeqNo:	710367		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Propylene	ND	0.500						0		30	I
Dichlorodifluoromethane (CFC-12)	ND	0.300						0		30	
Chloromethane	ND	0.500						0		30	
Dichlorotetrafluoroethane (CFC-114)	ND	0.500						0		30	
Vinyl chloride	ND	0.200						0		30	
1,3-Butadiene	ND	0.500						0		30	
Bromomethane	ND	0.500						0		30	
Trichlorofluoromethane (CFC-11)	0.433	0.300						0.6316	37.4	30	I
Chloroethane	ND	0.500						0		30	
Acrolein	ND	0.500						0		30	
1,1-Dichloroethene (DCE)	ND	0.200						0		30	
Acetone	1.33	1.00						1.642	21.0	30	I
Isopropyl Alcohol	1.01	1.00						1.239	19.9	30	I
Methylene chloride	ND	1.50						0		30	
Carbon disulfide	ND	1.50						0		30	
trans-1,2-Dichloroethene	ND	0.200						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.200						0		30	

Work Order: 1706238
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID	1706238-001AREP	SampType: REP	Units: ppbv			Prep Date: 6/22/2017			RunNo: 36997		
Client ID:	SYS-0617	Batch ID:	R36997			Analysis Date: 6/22/2017			SeqNo: 710367		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
n-Hexane	0.371	0.200						0.5164	32.9	30	I
1,1-Dichloroethane	ND	0.200						0		30	
Vinyl acetate	ND	1.00						0		30	
cis-1,2-Dichloroethene	0.357	0.200						0.4680	26.8	30	I
(MEK) 2-Butanone	ND	0.500						0		30	I
Ethyl acetate	ND	1.00						0		30	I
Chloroform	1.27	0.200						1.514	17.5	30	I
Tetrahydrofuran	0.660	0.500						0.7704	15.5	30	I
1,1,1-Trichloroethane	ND	0.200						0		30	I
Carbon tetrachloride	ND	0.200						0		30	I
1,2-Dichloroethane	ND	0.200						0		30	
Benzene	ND	0.200						0		30	I
Cyclohexane	0.763	0.200						0.7780	1.98	30	I
Trichloroethene (TCE)	0.416	0.200						0.4488	7.63	30	I
1,2-Dichloropropane	ND	0.500						0		30	
Methyl methacrylate	ND	0.300						0		30	
Dichlorobromomethane	ND	0.300						0		30	I
1,4-Dioxane	ND	1.00						0		30	
cis-1,3-dichloropropene	ND	0.500						0		30	
Toluene	1.07	0.200						1.139	6.17	30	I
trans-1,3-dichloropropene	ND	0.500						0		30	
1,1,2-Trichloroethane (TCA)	ND	0.500						0		30	
Dibromochloromethane	ND	0.500						0		30	I
1,2-Dibromoethane (EDB)	ND	0.200						0		30	
Chlorobenzene	ND	0.200						0		30	
Ethylbenzene	0.437	0.300						0.4455	1.85	30	I
m,p-Xylene	1.58	0.200						1.587	0.340	30	I
o-Xylene	0.599	0.200						0.6100	1.81	30	I
Styrene	0.405	0.300						0.4027	0.500	30	I
Bromoform	ND	0.200						0		30	
1,1,2,2-Tetrachloroethane	ND	0.300						0		30	

Work Order: 1706238

CLIENT: PES Environmental, Inc.

Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID	1706238-001AREP	SampType: REP		Units: ppbv		Prep Date: 6/22/2017			RunNo: 36997		
Client ID:	SYS-0617	Batch ID: R36997					Analysis Date: 6/22/2017			SeqNo: 710367	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3,5-Trimethylbenzene	ND	0.300						0		30	I
1,2,4-Trimethylbenzene	0.421	0.300						0.4423	4.99	30	I
Benzyl chloride	ND	0.500						0		30	I
4-Ethyltoluene	ND	0.300						0		30	I
1,3-Dichlorobenzene	ND	0.300						0		30	
1,4-Dichlorobenzene	0.359	0.300						0.3646	1.64	30	I
1,2-Dichlorobenzene	ND	0.500						0		30	
1,2,4-Trichlorobenzene	ND	0.300						0		30	
Hexachlorobutadiene	ND	1.00						0		30	
Naphthalene	0.506	0.300						0.5529	8.84	30	I
2-Hexanone	ND	1.00						0		30	
4-Methyl-2-pentanone (MIBK)	ND	1.00						0		30	
CFC-113	ND	0.500						0		30	
Heptane	ND	0.500						0		30	I
Surr: 4-Bromofluorobenzene	8.33		10.00		83.3	70	130		0		

NOTES:

I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.

Client Name: **PES**

 Work Order Number: **1706238**

 Logged by: **Clare Griggs**

 Date Received: **6/20/2017 1:36:00 PM**

Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
2. How was the sample delivered? Client

Log In

3. Coolers are present? Yes ☐ No ☒ NA ☐
- Air Sample
4. Shipping container/cooler in good condition? Yes ☒ No ☐
5. Custody Seals present on shipping container/cooler?
(Refer to comments for Custody Seals not intact) Yes ☐ No ☐ Not Required ☒
6. Was an attempt made to cool the samples? Yes ☐ No ☐ NA ☒
7. Were all items received at a temperature of >0°C to 10.0°C* Yes ☐ No ☐ NA ☒
8. Sample(s) in proper container(s)? Yes ☒ No ☐
9. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
10. Are samples properly preserved? Yes ☒ No ☐
11. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
12. Is there headspace in the VOA vials? Yes ☐ No ☐ NA ☒
13. Did all samples containers arrive in good condition(unbroken)? Yes ☒ No ☐
14. Does paperwork match bottle labels? Yes ☒ No ☐
15. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
16. Is it clear what analyses were requested? Yes ☒ No ☐
17. Were all holding times able to be met? Yes ☒ No ☐

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:		Date	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

MEMORANDUM

TO: Project File **DATE:** August 7, 2017
FROM: Jessie Compeau
SUBJECT: Laboratory Data Validation Review
PROJECT: Manhattan Village Shopping Center - Soil Vapor Extraction System Performance Data Review
PROJECT #: 1535.001.01.001
TASK: June 20, 2017 Air Sample
LAB: Fremont Analytical Service Request No. 1706238

One SVE system stack discharge air sample was collected as part of SVE system O&M at the Manhattan Village Shopping Center in Normandy Park, Washington, on June 20, 2017. The air sample was analyzed for VOCs by USEPA Method TO-15. Laboratory analytical services were provided by Fremont Analytical (Fremont) of Seattle, Washington. Analytical data are reported under Fremont's Project Number 1706238.

The quality assurance review of the laboratory data is summarized below.

DATA QUALIFICATIONS

Guidelines established by USEPA for review of analytical data were used to validate the data. The comments presented in this memorandum refer to the laboratory's performance in meeting the quality control criteria outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (USEPA, 2017).

DATA VALIDATION

Completeness

All samples were collected and analyzed as requested. No concerns, issues, or anomalies were identified in the laboratory report.

Sample Collection and Preservation

The laboratory supplied a Summa canister (6 Liter) for the air sample. The samples were hand delivered and received in good condition by the laboratory. Summa canisters do not require preservation or cooling. The sample was collected, handled, and delivered in an appropriate manner. No data qualifications were warranted based upon sampling and preservation techniques.

Holding Times

The analysis for VOCs by TO-15 was performed within two and twenty-four days of sample collection. This is within the 30-day recommended holding time limit for air samples collected in a Summa canister. No data was qualified based upon holding times.

Initial and Continuing Calibration

Initial and continuing calibration data for this project are retained by the laboratory and available for review if necessary. The case narrative did not indicate any issues with calibration; therefore no qualifications were warranted.

Method Blank Results

Laboratory method blanks were included with the analytical batch per method requirement. The method blank results did not report any compounds at concentrations at or above the MRLs.

Trip Blank Results

A trip blank was not required for the VOCs by TO-15 analyses. No qualifications were warranted due to the lack of a trip blank for this method.

Field Duplicate Analyses

No field duplicates were required or collected during this field event.

Laboratory Duplicate/Replicate Analyses

A laboratory replicate was performed on client sample SYS-0617. The relative percent differences (RPDs) for these all target compounds were within the laboratory control limits (30% RPD) with the following discussions:

- An internal standard was outside of control limit criteria on the replicate sample associated with Batch R36997 (date of analysis June 22, 2017). VOC results between the sample and replicate sample are comparable and less than 30% RPD. In two cases RPDs exceed control limit criteria of 30%. These compound (trichlorofluoromethane (CFC-11) and n-hexane) RPDs are slightly greater than 30% however no action was taken on this basis due to the low internal standard recovery in the replicate.
- Sample SYS0617 (associated with Batch R37385) was analyzed for tetrachloroethene (PCE) on July 14, 2017. There were no reported issues with the internal standard associated with PCE analysis for this sample. Replicate results are acceptable and less than 30% RPD.

Surrogate Recoveries

The surrogate percent recovery (% R) results for the VOCs by TO-15 air samples, method blank, replicate, and laboratory control sample are within the laboratory surrogate control limits of 70 - 130% R. No data qualifications were warranted.

Laboratory Control Samples

One laboratory control sample (LCS) was run for the VOCs by TO-15 analytical batch. The LCS was run at the appropriate frequency for this project. The LCS recovery results for all control compounds met the % R acceptance criteria of 70 -130%.

Matrix Spike/Matrix Spike Duplicates

A MS/MSD is not required for the VOCs by TO-15 method.

Other Quality Control Issues

No other laboratory quality control issues were identified in the laboratory report with the following exception:

- One of the internal standards associated with Batch R36997 (date of analysis June 22, 2017) was below control limit criteria on quality control replicate sample SYS-0617. Fremont qualified (I) multiple VOC compounds to indicate that these compounds were outside of criteria. Replicate results are lower than the reported SYS-0617 results. No action was taken other than to note that internal standards and surrogate were within criteria on sample SYS-0617.
- Sample SYS0617 was analyzed for tetrachloroethene (PCE) on July 14, 2017. There were no reported issues with the internal standard associated with this sample.

Quantitation Limits

Results of the VOCs by TO-15 analysis were reported based on laboratory MRLs (assuming standard temperature and pressure is equal to 24.45) and reported in units of ppbv and $\mu\text{g}/\text{m}^3$. The MRLs indicate the minimum quantity of a target analyte that can be confidently determined by the reference method. The MRLs were acceptable for the project; therefore, no data qualifications were warranted.

Data Assessment

No data qualifiers were assigned. All data are judged to be acceptable for their intended use.



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

LABORATORY REPORT

August 1, 2017

Karsten Springstead
PES Environmental
1215 Fourth Avenue, Suite 1350
Seattle, WA 98161

RE: MVSC / 1358.001.01.007

Dear Karsten:

Enclosed are the results of the sample submitted to our laboratory on July 19, 2017. For your reference, this analysis has been assigned our service request number P1703421.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Kate Kaneko at 2:35 pm, 08/01/17

Kate Kaneko
Project Manager



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: PES Environmental
Project: MVSC / 1358.001.01.007

Service Request No: P1703421

CASE NARRATIVE

The sample was received intact under chain of custody on July 19, 2017 and was stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the sample at the time of sample receipt.

Volatile Organic Compound Analysis

The sample was analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The upper control criterion was exceeded for bromoform in the Continuing Calibration Verification (CCV) analyzed on July 27, 2017. Since the apparent problem equates to a potential high bias and the field sample analyzed in this sequence did not contain the analyte in question, the data quality has not been affected. No corrective action was required.

The spike recoveries of trichlorofluoromethane and carbon tetrachloride for the Laboratory Control Sample (LCS) analyzed on July 27, 2017 were outside the laboratory generated control criteria. The recovery errors equate to a potential high bias. However, the spike recoveries of the analytes in question were within the method criteria; therefore, the data quality has not been significantly affected. No corrective action was taken.

The upper control criterion was exceeded for bromoform and 1,2,4-trichlorobenzene in the Laboratory Control Samples (LCS/LCSD) analyzed on July 27, 2017. The analytes in question were not detected in the associated field samples. Since the error associated with the elevated recovery equates to a high bias, the sample data has not been significantly affected. The data has been flagged accordingly. No corrective action was required.

The container was cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.



2655 Park Center Dr., Suite A
 Simi Valley, CA 93065
 T: +1 805 526 7161
 F: +1 805 526 7270
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1177034
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-004
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-17-8
Utah DOH (NELAP)	http://health.utah.gov/lab/environmental-lab-certification/	CA01627201 6-6
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: PES Environmental
Project ID: MVSC / 1358.001.01.007

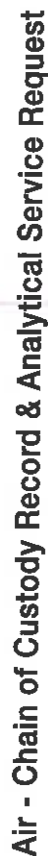
Service Request: P1703421

Date Received: 7/19/2017
Time Received: 09:30

TO-15 - VOC Cans

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)
SYS-0717	P1703421-001	Air	7/15/2017	10:00	SC01730	0.41	3.53

X



2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Air - Chain of Custody Record & Analytical Service Request

[illegible]

ALS Environmental Sample Acceptance Check Form

Client: PES Environmental Work order: P1703421
 Project: Manhattan Village/1358.001.01
 Sample(s) received on: 7/19/17 Date opened: 7/19/17 by: E.PEREZ

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

	Yes	No	N/A
1 Were sample containers properly marked with client sample ID?	☒	☐	☐
2 Did sample containers arrive in good condition?	☒	☐	☐
3 Were chain-of-custody papers used and filled out?	☒	☐	☐
4 Did sample container labels and/or tags agree with custody papers?	☒	☐	☐
5 Was sample volume received adequate for analysis?	☒	☐	☐
6 Are samples within specified holding times?	☒	☐	☐
7 Was proper temperature (thermal preservation) of cooler at receipt adhered to?	☐	☒	☐
8 Were custody seals on outside of cooler/Box/Container?	☐	☒	☐
Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
Were signature and date included?	☐	☐	☒
Were seals intact?	☐	☐	☒
9 Do containers have appropriate preservation , according to method/SOP or Client specified information?	☐	☐	☒
Is there a client indication that the submitted samples are pH preserved?	☐	☐	☒
Were VOA vials checked for presence/absence of air bubbles?	☐	☐	☒
Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it?	☐	☐	☒
10 Tubes: Are the tubes capped and intact?	☐	☐	☒
11 Badges: Are the badges properly capped and intact?	☐	☐	☒
Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1703421-001.01	6.0 L Source Can					

Explain any discrepancies: (include lab sample ID numbers): _____

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: PES Environmental
Client Sample ID: SYS-0717
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1703421
 ALS Sample ID: P1703421-001

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
 Analyst: Wida Ang
 Sample Type: 6.0 L Summa Canister
 Test Notes:

Date Collected: 7/15/17
 Date Received: 7/19/17
 Date Analyzed: 7/27/17
 Volume(s) Analyzed: 0.13 Liter(s)

Initial Pressure (psig): 0.41 Final Pressure (psig): 3.53

Container Dilution Factor: 1.21

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	4.7	ND	2.7	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	4.7	ND	0.94	
74-87-3	Chloromethane	ND	4.7	ND	2.3	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	4.7	ND	0.67	
75-01-4	Vinyl Chloride	ND	4.7	ND	1.8	
106-99-0	1,3-Butadiene	ND	4.7	ND	2.1	
74-83-9	Bromomethane	ND	4.7	ND	1.2	
75-00-3	Chloroethane	ND	4.7	ND	1.8	
64-17-5	Ethanol	ND	47	ND	25	
75-05-8	Acetonitrile	ND	4.7	ND	2.8	
107-02-8	Acrolein	ND	19	ND	8.1	
67-64-1	Acetone	ND	47	ND	20	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	4.7	ND	0.83	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	47	ND	19	
107-13-1	Acrylonitrile	ND	4.7	ND	2.1	
75-35-4	1,1-Dichloroethene	ND	4.7	ND	1.2	
75-09-2	Methylene Chloride	ND	4.7	ND	1.3	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	4.7	ND	1.5	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	4.7	ND	0.61	
75-15-0	Carbon Disulfide	ND	47	ND	15	
156-60-5	trans-1,2-Dichloroethene	ND	4.7	ND	1.2	
75-34-3	1,1-Dichloroethane	ND	4.7	ND	1.2	
1634-04-4	Methyl tert-Butyl Ether	ND	4.7	ND	1.3	
108-05-4	Vinyl Acetate	ND	47	ND	13	
78-93-3	2-Butanone (MEK)	ND	47	ND	16	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: PES Environmental
Client Sample ID: SYS-0717
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1703421
 ALS Sample ID: P1703421-001

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
 Analyst: Wida Ang
 Sample Type: 6.0 L Summa Canister
 Test Notes:

Date Collected: 7/15/17
 Date Received: 7/19/17
 Date Analyzed: 7/27/17
 Volume(s) Analyzed: 0.13 Liter(s)

Initial Pressure (psig): 0.41 Final Pressure (psig): 3.53

Container Dilution Factor: 1.21

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	4.7	ND	1.2	
141-78-6	Ethyl Acetate	ND	9.3	ND	2.6	
110-54-3	n-Hexane	ND	4.7	ND	1.3	
67-66-3	Chloroform	5.3	4.7	1.1	0.95	
109-99-9	Tetrahydrofuran (THF)	ND	4.7	ND	1.6	
107-06-2	1,2-Dichloroethane	ND	4.7	ND	1.2	
71-55-6	1,1,1-Trichloroethane	ND	4.7	ND	0.85	
71-43-2	Benzene	ND	4.7	ND	1.5	
56-23-5	Carbon Tetrachloride	ND	4.7	ND	0.74	
110-82-7	Cyclohexane	ND	9.3	ND	2.7	
78-87-5	1,2-Dichloropropane	ND	4.7	ND	1.0	
75-27-4	Bromodichloromethane	ND	4.7	ND	0.69	
79-01-6	Trichloroethene	ND	4.7	ND	0.87	
123-91-1	1,4-Dioxane	ND	4.7	ND	1.3	
80-62-6	Methyl Methacrylate	ND	9.3	ND	2.3	
142-82-5	n-Heptane	ND	4.7	ND	1.1	
10061-01-5	cis-1,3-Dichloropropene	ND	4.7	ND	1.0	
108-10-1	4-Methyl-2-pentanone	ND	4.7	ND	1.1	
10061-02-6	trans-1,3-Dichloropropene	ND	4.7	ND	1.0	
79-00-5	1,1,2-Trichloroethane	ND	4.7	ND	0.85	
108-88-3	Toluene	ND	4.7	ND	1.2	
591-78-6	2-Hexanone	ND	4.7	ND	1.1	
124-48-1	Dibromochloromethane	ND	4.7	ND	0.55	
106-93-4	1,2-Dibromoethane	ND	4.7	ND	0.61	
123-86-4	n-Butyl Acetate	ND	4.7	ND	0.98	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: PES Environmental
Client Sample ID: SYS-0717
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1703421
 ALS Sample ID: P1703421-001

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
 Analyst: Wida Ang
 Sample Type: 6.0 L Summa Canister
 Test Notes:

Date Collected: 7/15/17
 Date Received: 7/19/17
 Date Analyzed: 7/27/17
 Volume(s) Analyzed: 0.13 Liter(s)

Initial Pressure (psig): 0.41 Final Pressure (psig): 3.53

Container Dilution Factor: 1.21

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	4.7	ND	1.0	
127-18-4	Tetrachloroethene	740	4.7	110	0.69	
108-90-7	Chlorobenzene	ND	4.7	ND	1.0	
100-41-4	Ethylbenzene	ND	4.7	ND	1.1	
179601-23-1	m,p-Xylenes	ND	9.3	ND	2.1	
75-25-2	Bromoform	ND	4.7	ND	0.45	L
100-42-5	Styrene	ND	4.7	ND	1.1	
95-47-6	o-Xylene	ND	4.7	ND	1.1	
111-84-2	n-Nonane	ND	4.7	ND	0.89	
79-34-5	1,1,2,2-Tetrachloroethane	ND	4.7	ND	0.68	
98-82-8	Cumene	ND	4.7	ND	0.95	
80-56-8	alpha-Pinene	ND	4.7	ND	0.84	
103-65-1	n-Propylbenzene	ND	4.7	ND	0.95	
622-96-8	4-Ethyltoluene	ND	4.7	ND	0.95	
108-67-8	1,3,5-Trimethylbenzene	ND	4.7	ND	0.95	
95-63-6	1,2,4-Trimethylbenzene	ND	4.7	ND	0.95	
100-44-7	Benzyl Chloride	ND	4.7	ND	0.90	
541-73-1	1,3-Dichlorobenzene	ND	4.7	ND	0.77	
106-46-7	1,4-Dichlorobenzene	ND	4.7	ND	0.77	
95-50-1	1,2-Dichlorobenzene	ND	4.7	ND	0.77	
5989-27-5	d-Limonene	ND	4.7	ND	0.84	
96-12-8	1,2-Dibromo-3-chloropropane	ND	4.7	ND	0.48	
120-82-1	1,2,4-Trichlorobenzene	ND	4.7	ND	0.63	L
91-20-3	Naphthalene	ND	4.7	ND	0.89	
87-68-3	Hexachlorobutadiene	ND	4.7	ND	0.44	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

L = Laboratory control sample recovery outside the specified limits, results may be biased high.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: PES Environmental
Client Sample ID: Method Blank
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1703421
 ALS Sample ID: P170727-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/27/17
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.50	ND	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.50	ND	0.10	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.50	ND	0.072	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	0.50	ND	0.30	
107-02-8	Acrolein	ND	2.0	ND	0.87	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.50	ND	0.089	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5.0	ND	2.0	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.50	ND	0.16	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: PES Environmental
Client Sample ID: Method Blank
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1703421
 ALS Sample ID: P170727-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/27/17
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.0	ND	0.28	
110-54-3	n-Hexane	ND	0.50	ND	0.14	
67-66-3	Chloroform	ND	0.50	ND	0.10	
109-99-9	Tetrahydrofuran (THF)	ND	0.50	ND	0.17	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
123-91-1	1,4-Dioxane	ND	0.50	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.0	ND	0.24	
142-82-5	n-Heptane	ND	0.50	ND	0.12	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
123-86-4	n-Butyl Acetate	ND	0.50	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: PES Environmental
Client Sample ID: Method Blank
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1703421
 ALS Sample ID: P170727-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/27/17
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.50	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	L
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
111-84-2	n-Nonane	ND	0.50	ND	0.095	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
98-82-8	Cumene	ND	0.50	ND	0.10	
80-56-8	alpha-Pinene	ND	0.50	ND	0.090	
103-65-1	n-Propylbenzene	ND	0.50	ND	0.10	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	ND	0.10	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	ND	0.10	
100-44-7	Benzyl Chloride	ND	0.50	ND	0.097	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50	ND	0.052	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	ND	0.067	L
91-20-3	Naphthalene	ND	0.50	ND	0.095	
87-68-3	Hexachlorobutadiene	ND	0.50	ND	0.047	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

L = Laboratory control sample recovery outside the specified limits, results may be biased high.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Page 1 of 1

Client: PES Environmental
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1703421

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Summa Canister(s)
Test Notes:

Date(s) Collected: 7/15/17
Date(s) Received: 7/19/17
Date(s) Analyzed: 7/27/17

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4	Toluene-d8	Bromofluorobenzene	Acceptance Limits	Data Qualifier
		Percent Recovered	Percent Recovered	Percent Recovered		
Method Blank	P170727-MB	101	104	117	70-130	
Lab Control Sample	P170727-LCS	93	102	120	70-130	
SYS-0717	P1703421-001	89	104	116	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

Client: PES Environmental
Client Sample ID: Lab Control Sample
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1703421
 ALS Sample ID: P170727-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/27/17
Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS Acceptance Limits	Data Qualifier
115-07-1	Propene	210	163	78	52-127	
75-71-8	Dichlorodifluoromethane (CFC 12)	210	206	98	68-109	
74-87-3	Chloromethane	210	165	79	51-130	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	211	219	104	66-114	
75-01-4	Vinyl Chloride	210	196	93	61-125	
106-99-0	1,3-Butadiene	210	238	113	62-144	
74-83-9	Bromomethane	210	208	99	73-123	
75-00-3	Chloroethane	210	191	91	69-122	
64-17-5	Ethanol	1,060	906	85	62-124	
75-05-8	Acetonitrile	213	170	80	57-114	
107-02-8	Acrolein	212	193	91	62-116	
67-64-1	Acetone	1,060	918	87	57-117	
75-69-4	Trichlorofluoromethane (CFC 11)	210	209	100	63-98	L
67-63-0	2-Propanol (Isopropyl Alcohol)	424	369	87	66-121	
107-13-1	Acrylonitrile	213	198	93	68-123	
75-35-4	1,1-Dichloroethene	213	207	97	76-118	
75-09-2	Methylene Chloride	212	196	92	60-118	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	212	183	86	65-126	
76-13-1	Trichlorotrifluoroethane (CFC 113)	212	219	103	73-114	
75-15-0	Carbon Disulfide	213	194	91	57-102	
156-60-5	trans-1,2-Dichloroethene	213	201	94	74-123	
75-34-3	1,1-Dichloroethane	212	182	86	69-111	
1634-04-4	Methyl tert-Butyl Ether	213	201	94	69-113	
108-05-4	Vinyl Acetate	1,060	1180	111	76-128	
78-93-3	2-Butanone (MEK)	212	217	102	63-127	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.
 L = Laboratory control sample recovery outside the specified limits, results may be biased high.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 2 of 3

Client: PES Environmental
Client Sample ID: Lab Control Sample
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1703421
 ALS Sample ID: P170727-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/27/17
Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS Acceptance Limits	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	212	189	89	72-117	
141-78-6	Ethyl Acetate	426	404	95	68-127	
110-54-3	n-Hexane	213	169	79	55-116	
67-66-3	Chloroform	212	197	93	70-109	
109-99-9	Tetrahydrofuran (THF)	213	180	85	72-113	
107-06-2	1,2-Dichloroethane	212	199	94	69-113	
71-55-6	1,1,1-Trichloroethane	212	224	106	72-115	
71-43-2	Benzene	212	195	92	65-107	
56-23-5	Carbon Tetrachloride	213	242	114	71-113	L
110-82-7	Cyclohexane	425	412	97	71-115	
78-87-5	1,2-Dichloropropane	212	184	87	71-115	
75-27-4	Bromodichloromethane	214	224	105	75-118	
79-01-6	Trichloroethene	212	224	106	68-114	
123-91-1	1,4-Dioxane	213	221	104	81-131	
80-62-6	Methyl Methacrylate	424	462	109	72-130	
142-82-5	n-Heptane	213	184	86	68-116	
10061-01-5	cis-1,3-Dichloropropene	210	221	105	77-126	
108-10-1	4-Methyl-2-pentanone	213	203	95	69-126	
10061-02-6	trans-1,3-Dichloropropene	213	232	109	79-125	
79-00-5	1,1,2-Trichloroethane	212	213	100	75-119	
108-88-3	Toluene	212	222	105	59-118	
591-78-6	2-Hexanone	213	214	100	69-129	
124-48-1	Dibromochloromethane	213	269	126	74-136	
106-93-4	1,2-Dibromoethane	212	251	118	73-131	
123-86-4	n-Butyl Acetate	216	210	97	69-130	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.
 L = Laboratory control sample recovery outside the specified limits, results may be biased high.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 3 of 3

Client: PES Environmental
Client Sample ID: Lab Control Sample
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1703421
 ALS Sample ID: P170727-LCS

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
 Analyst: Wida Ang
 Sample Type: 6.0 L Summa Canister
 Test Notes:

Date Collected: NA
 Date Received: NA
 Date Analyzed: 7/27/17
 Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS Acceptance Limits	Data Qualifier
111-65-9	n-Octane	212	185	87	66-120	
127-18-4	Tetrachloroethene	213	257	121	65-130	
108-90-7	Chlorobenzene	212	236	111	68-120	
100-41-4	Ethylbenzene	212	223	105	68-122	
179601-23-1	m,p-Xylenes	424	450	106	68-123	
75-25-2	Bromoform	212	300	142	69-130	L
100-42-5	Styrene	212	244	115	71-133	
95-47-6	o-Xylene	212	231	109	68-122	
111-84-2	n-Nonane	212	181	85	65-120	
79-34-5	1,1,2,2-Tetrachloroethane	212	218	103	69-130	
98-82-8	Cumene	212	225	106	70-123	
80-56-8	alpha-Pinene	213	233	109	70-128	
103-65-1	n-Propylbenzene	214	227	106	69-125	
622-96-8	4-Ethyltoluene	212	242	114	67-130	
108-67-8	1,3,5-Trimethylbenzene	212	226	107	67-124	
95-63-6	1,2,4-Trimethylbenzene	212	239	113	67-129	
100-44-7	Benzyl Chloride	212	280	132	79-138	
541-73-1	1,3-Dichlorobenzene	212	264	125	65-136	
106-46-7	1,4-Dichlorobenzene	213	257	121	66-141	
95-50-1	1,2-Dichlorobenzene	212	261	123	67-136	
5989-27-5	d-Limonene	212	205	97	71-134	
96-12-8	1,2-Dibromo-3-chloropropane	212	288	136	73-136	
120-82-1	1,2,4-Trichlorobenzene	212	295	139	64-134	L
91-20-3	Naphthalene	214	291	136	62-136	
87-68-3	Hexachlorobutadiene	213	283	133	60-133	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.
 L = Laboratory control sample recovery outside the specified limits, results may be biased high.

MEMORANDUM

TO: Project File **DATE:** August 16, 2017

FROM: Jessie Compeau

SUBJECT: Laboratory Data Validation Review

PROJECT: Manhattan Village Shopping Center - Soil Vapor Extraction System Performance Data Review

PROJECT #: 1535.001.01.001

TASK: July 15, 2017 Air Sample

LAB: ALS Environmental P1703421

One SVE system stack discharge air sample was collected as part of SVE system O&M at the Manhattan Village Shopping Center in Normandy Park, Washington, on July 15, 2017. The air sample was analyzed for VOCs by USEPA Method TO-15. Laboratory analytical services were provided by ALS Environmental (ALS) (also known as ALS Global (ALS)) of Simi Valley, California. Analytical data are reported under ALS's service request number P1703421.

The quality assurance review of the laboratory data is summarized below.

DATA QUALIFICATIONS

Guidelines established by USEPA for review of analytical data were used to validate the data. The comments presented in this memorandum refer to the laboratory's performance in meeting the quality control criteria outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (USEPA, 2017).

DATA VALIDATION

Completeness

All samples were collected and analyzed as requested. No concerns, issues, or anomalies were identified in the laboratory report.

Sample Collection and Preservation

The laboratory supplied a Summa canister (6 Liter) for the air sample. The samples were hand delivered and received in good condition by the laboratory. Summa canisters do not require preservation or cooling. The sample was collected, handled, and delivered in an appropriate manner. No data qualifications were warranted based upon sampling and preservation techniques.

Holding Times

The analysis for VOCs by TO-15 was performed within twelve days of sample collection. This is within the 30-day recommended holding time limit for air samples collected in a Summa canister. No data was qualified based upon holding times.

Initial and Continuing Calibration

Initial and continuing calibration data for this project are retained by the laboratory and available for review if necessary. The case narrative indicated the following issues with calibration:

- Bromoform CCV exceeded upper control limit criterion. No action was taken since bromoform was not detected in the associated sample.

Method Blank Results

Laboratory method blanks were included with the analytical batch per method requirement. The method blank results did not report any compounds at concentrations at or above the MRLs.

Trip Blank Results

A trip blank was not required for the VOCs by TO-15 analyses. No qualifications were warranted due to the lack of a trip blank for this method.

Field Duplicate Analyses

No field duplicates were required or collected during this field event.

Laboratory Duplicate/Replicate Analyses

A laboratory replicate was not performed. Refer to the Laboratory Control Sample section for more information.

Surrogate Recoveries

The surrogate percent recovery (% R) results for the VOCs by TO-15 air samples, method blank, and laboratory control sample are within the laboratory surrogate control limits of 70 -130% R. No data qualifications were warranted.

Laboratory Control Samples

A laboratory control sample (LCS) was analyzed for the VOCs by TO-15 with the analytical batch. The LCS recovery results for all control compounds met the % R acceptance criteria with the following exceptions:

Four LCS compounds (trichlorofluoromethane (CFC 11), carbon tetrachloride, bromoform, and 1,2,4-trichlorobenzene) were recovered above ALS's LCS criteria. No action was taken since these compounds were not detected in the associated sample.

ALS was contacted for precision data which was not provided with the report. An LCS duplicate (LCSD) and a non-client sample replicate were also analyzed with the analytical batch but not reported. ALS provided the run log and notes for the analytical batch. Notes indicate that the LCSD met laboratory criteria however LCSD data was not provided for review. No further action is taken other than to note that LCSD or replicate analysis may be requested in the future to assess precision.

Matrix Spike/Matrix Spike Duplicates

A MS/MSD is not required for the VOCs by TO-15 method.

Other Quality Control Issues

No other laboratory quality control issues were identified in the laboratory report.

Quantitation Limits

Results of the VOCs by TO-15 analysis were reported based on laboratory MRLs (assuming standard temperature and pressure is equal to 24.45) and reported in units of ppbv and $\mu\text{g}/\text{m}^3$. ALS confirmed the container dilution factor and volume analyzed during the data validation process.

The MRLs indicate the minimum quantity of a target analyte that can be confidently determined by the reference method. The MRLs were acceptable for the project; therefore, no data qualifications were warranted.

Data Assessment

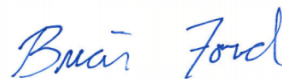
No data qualifiers were assigned. All data, including qualified data, are judged to be acceptable for their intended use.

July 25, 2017

PES Environmental, Inc.- WA

Sample Delivery Group: L923868
Samples Received: 07/20/2017
Project Number: 1358.001.01
Description: MVSC
Site: MVSC
Report To: Matt Dahl
1215 Fourth Ave., Suite 1350
Seattle, WA 98161

Entire Report Reviewed By:



Brian Ford
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	6
Sr: Sample Results	7
MW-02-071817 L923868-01	7
MW-03-071817 L923868-02	9
MW-12-071817 L923868-03	11
MW-04-071817 L923868-04	13
MW-13-071817 L923868-05	15
DC-03-071817 L923868-06	17
DC-04-071817 L923868-07	19
MW-10-071817 L923868-08	21
MW-16-071817 L923868-09	23
KMW-02-071817 L923868-10	25
MW-101-071917 L923868-11	27
MW-11-071917 L923868-12	29
DC-08-071917 L923868-13	31
DC-10A-071917 L923868-14	33
MW-7-071917 L923868-15	35
DC-14-071917 L923868-16	37
KMW-8-071917 L923868-17	39
EQP-1-071917 L923868-18	41
DRUM-1-071917 L923868-19	43
TRIP BLANK L923868-20	45
Qc: Quality Control Summary	47
Volatile Organic Compounds (GC/MS) by Method 8260C	47
Gl: Glossary of Terms	51
Al: Accreditations & Locations	52
Sc: Chain of Custody	53

¹ Cp
² Tc
³ Ss
⁴ Cn
⁵ Sr
⁶ Qc
⁷ Gl
⁸ Al
⁹ Sc

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



MW-02-071817 L923868-01 GW

			Collected by Shannon McKernan	Collected date/time 07/18/17 07:30	Received date/time 07/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1001635	1	07/22/17 11:03	07/22/17 11:03	JAH

¹ Cp

² Tc

³ Ss

MW-03-071817 L923868-02 GW

			Collected by Shannon McKernan	Collected date/time 07/18/17 08:30	Received date/time 07/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1001635	1	07/22/17 11:19	07/22/17 11:19	JAH

⁴ Cn

⁵ Sr

MW-12-071817 L923868-03 GW

			Collected by Shannon McKernan	Collected date/time 07/18/17 09:20	Received date/time 07/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1001635	1	07/22/17 11:36	07/22/17 11:36	JAH

⁶ Qc

⁷ Gl

MW-04-071817 L923868-04 GW

			Collected by Shannon McKernan	Collected date/time 07/18/17 10:20	Received date/time 07/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1001635	1	07/22/17 11:53	07/22/17 11:53	JAH

⁸ Al

⁹ Sc

MW-13-071817 L923868-05 GW

			Collected by Shannon McKernan	Collected date/time 07/18/17 11:45	Received date/time 07/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1001635	1	07/22/17 12:09	07/22/17 12:09	JAH

DC-03-071817 L923868-06 GW

			Collected by Shannon McKernan	Collected date/time 07/18/17 12:40	Received date/time 07/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1001635	1	07/22/17 12:26	07/22/17 12:26	JAH

DC-04-071817 L923868-07 GW

			Collected by Shannon McKernan	Collected date/time 07/18/17 13:40	Received date/time 07/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1001635	1	07/22/17 12:43	07/22/17 12:43	JAH

MW-10-071817 L923868-08 GW

			Collected by Shannon McKernan	Collected date/time 07/18/17 14:55	Received date/time 07/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1001635	1	07/22/17 12:59	07/22/17 12:59	JAH

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



MW-16-071817 L923868-09 GW

			Collected by Shannon McKernan	Collected date/time 07/18/17 16:25	Received date/time 07/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1001635	1	07/22/17 13:16	07/22/17 13:16	JAH

¹ Cp

² Tc

³ Ss

KMW-02-071817 L923868-10 GW

			Collected by Shannon McKernan	Collected date/time 07/18/17 17:30	Received date/time 07/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1001635	1	07/22/17 13:33	07/22/17 13:33	JAH

⁴ Cn

⁵ Sr

MW-101-071917 L923868-11 GW

			Collected by Shannon McKernan	Collected date/time 07/18/17 06:30	Received date/time 07/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1001635	1	07/22/17 13:49	07/22/17 13:49	JAH

⁶ Qc

⁷ Gl

MW-11-071917 L923868-12 GW

			Collected by Shannon McKernan	Collected date/time 07/19/17 07:30	Received date/time 07/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1001635	1	07/22/17 14:06	07/22/17 14:06	JAH

⁸ Al

⁹ Sc

DC-08-071917 L923868-13 GW

			Collected by Shannon McKernan	Collected date/time 07/19/17 09:00	Received date/time 07/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1001635	1	07/22/17 14:23	07/22/17 14:23	JAH

DC-10A-071917 L923868-14 GW

			Collected by Shannon McKernan	Collected date/time 07/19/17 10:40	Received date/time 07/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1001635	1	07/22/17 14:40	07/22/17 14:40	JAH

MW-7-071917 L923868-15 GW

			Collected by Shannon McKernan	Collected date/time 07/19/17 11:55	Received date/time 07/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1001635	1	07/22/17 14:56	07/22/17 14:56	JAH

DC-14-071917 L923868-16 GW

			Collected by Shannon McKernan	Collected date/time 07/19/17 13:00	Received date/time 07/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1001635	1	07/22/17 15:13	07/22/17 15:13	JAH

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



KMW-8-071917 L923868-17 GW

Collected by
Shannon McKernanCollected date/time
07/19/17 14:20Received date/time
07/20/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1001635	1	07/22/17 15:30	07/22/17 15:30	JAH

¹ Cp² Tc³ Ss

EQP-1-071917 L923868-18 GW

Collected by
Shannon McKernanCollected date/time
07/19/17 15:00Received date/time
07/20/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1001635	1	07/22/17 15:47	07/22/17 15:47	JAH

⁴ Cn⁵ Sr⁶ Qc

DRUM-1-071917 L923868-19 GW

Collected by
Shannon McKernanCollected date/time
07/19/17 15:15Received date/time
07/20/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1001635	1	07/22/17 16:04	07/22/17 16:04	JAH

⁷ Gl⁸ Al

TRIP BLANK L923868-20 GW

Collected by
Shannon McKernanCollected date/time
07/18/17 00:00Received date/time
07/20/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1001635	1	07/22/17 10:46	07/22/17 10:46	JAH

⁹ Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Technical Service Representative

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch	
Acetone	ND		50.0	1	07/22/2017 11:03	WG1001635	¹ Cp
Acrolein	ND	J3 J4	50.0	1	07/22/2017 11:03	WG1001635	² Tc
Acrylonitrile	ND		10.0	1	07/22/2017 11:03	WG1001635	³ Ss
Benzene	ND		1.00	1	07/22/2017 11:03	WG1001635	⁴ Cn
Bromobenzene	ND		1.00	1	07/22/2017 11:03	WG1001635	⁵ Sr
Bromodichloromethane	ND		1.00	1	07/22/2017 11:03	WG1001635	⁶ Qc
Bromoform	ND		1.00	1	07/22/2017 11:03	WG1001635	⁷ Gl
Bromomethane	ND		5.00	1	07/22/2017 11:03	WG1001635	⁸ Al
n-Butylbenzene	ND		1.00	1	07/22/2017 11:03	WG1001635	⁹ Sc
sec-Butylbenzene	ND		1.00	1	07/22/2017 11:03	WG1001635	
tert-Butylbenzene	ND		1.00	1	07/22/2017 11:03	WG1001635	
Carbon tetrachloride	ND		1.00	1	07/22/2017 11:03	WG1001635	
Chlorobenzene	ND		1.00	1	07/22/2017 11:03	WG1001635	
Chlorodibromomethane	ND		1.00	1	07/22/2017 11:03	WG1001635	
Chloroethane	ND		5.00	1	07/22/2017 11:03	WG1001635	
Chloroform	ND		5.00	1	07/22/2017 11:03	WG1001635	
Chloromethane	ND		2.50	1	07/22/2017 11:03	WG1001635	
2-Chlorotoluene	ND		1.00	1	07/22/2017 11:03	WG1001635	
4-Chlorotoluene	ND		1.00	1	07/22/2017 11:03	WG1001635	
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/22/2017 11:03	WG1001635	
1,2-Dibromoethane	ND		1.00	1	07/22/2017 11:03	WG1001635	
Dibromomethane	ND		1.00	1	07/22/2017 11:03	WG1001635	
1,2-Dichlorobenzene	ND		1.00	1	07/22/2017 11:03	WG1001635	
1,3-Dichlorobenzene	ND		1.00	1	07/22/2017 11:03	WG1001635	
1,4-Dichlorobenzene	ND		1.00	1	07/22/2017 11:03	WG1001635	
Dichlorodifluoromethane	ND		5.00	1	07/22/2017 11:03	WG1001635	
1,1-Dichloroethane	ND		1.00	1	07/22/2017 11:03	WG1001635	
1,2-Dichloroethane	ND		1.00	1	07/22/2017 11:03	WG1001635	
1,1-Dichloroethene	ND		1.00	1	07/22/2017 11:03	WG1001635	
cis-1,2-Dichloroethene	ND		1.00	1	07/22/2017 11:03	WG1001635	
trans-1,2-Dichloroethene	ND		1.00	1	07/22/2017 11:03	WG1001635	
1,2-Dichloropropane	ND		1.00	1	07/22/2017 11:03	WG1001635	
1,1-Dichloropropene	ND		1.00	1	07/22/2017 11:03	WG1001635	
1,3-Dichloropropane	ND		1.00	1	07/22/2017 11:03	WG1001635	
cis-1,3-Dichloropropene	ND		1.00	1	07/22/2017 11:03	WG1001635	
trans-1,3-Dichloropropene	ND		1.00	1	07/22/2017 11:03	WG1001635	
2,2-Dichloropropane	ND		1.00	1	07/22/2017 11:03	WG1001635	
Di-isopropyl ether	ND		1.00	1	07/22/2017 11:03	WG1001635	
Ethylbenzene	ND		1.00	1	07/22/2017 11:03	WG1001635	
Hexachloro-1,3-butadiene	ND		1.00	1	07/22/2017 11:03	WG1001635	
Isopropylbenzene	ND		1.00	1	07/22/2017 11:03	WG1001635	
p-Isopropyltoluene	ND		1.00	1	07/22/2017 11:03	WG1001635	
2-Butanone (MEK)	ND		10.0	1	07/22/2017 11:03	WG1001635	
Methylene Chloride	ND		5.00	1	07/22/2017 11:03	WG1001635	
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/22/2017 11:03	WG1001635	
Methyl tert-butyl ether	ND		1.00	1	07/22/2017 11:03	WG1001635	
Naphthalene	ND		5.00	1	07/22/2017 11:03	WG1001635	
n-Propylbenzene	ND		1.00	1	07/22/2017 11:03	WG1001635	
Styrene	ND		1.00	1	07/22/2017 11:03	WG1001635	
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/22/2017 11:03	WG1001635	
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/22/2017 11:03	WG1001635	
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/22/2017 11:03	WG1001635	
Tetrachloroethene	2.43		1.00	1	07/22/2017 11:03	WG1001635	
Toluene	ND		1.00	1	07/22/2017 11:03	WG1001635	
1,2,3-Trichlorobenzene	ND	J3	1.00	1	07/22/2017 11:03	WG1001635	
1,2,4-Trichlorobenzene	ND		1.00	1	07/22/2017 11:03	WG1001635	



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	07/22/2017 11:03	WG1001635
1,1,2-Trichloroethane	ND		1.00	1	07/22/2017 11:03	WG1001635
Trichloroethene	ND		1.00	1	07/22/2017 11:03	WG1001635
Trichlorofluoromethane	ND		5.00	1	07/22/2017 11:03	WG1001635
1,2,3-Trichloropropane	ND		2.50	1	07/22/2017 11:03	WG1001635
1,2,4-Trimethylbenzene	ND		1.00	1	07/22/2017 11:03	WG1001635
1,2,3-Trimethylbenzene	ND		1.00	1	07/22/2017 11:03	WG1001635
1,3,5-Trimethylbenzene	ND		1.00	1	07/22/2017 11:03	WG1001635
Vinyl chloride	ND		1.00	1	07/22/2017 11:03	WG1001635
Xylenes, Total	ND		3.00	1	07/22/2017 11:03	WG1001635
(S) Toluene-d8	101		80.0-120		07/22/2017 11:03	WG1001635
(S) Dibromofluoromethane	104		76.0-123		07/22/2017 11:03	WG1001635
(S) 4-Bromofluorobenzene	106		80.0-120		07/22/2017 11:03	WG1001635

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	07/22/2017 11:19	WG1001635
Acrolein	ND	J3 J4	50.0	1	07/22/2017 11:19	WG1001635
Acrylonitrile	ND		10.0	1	07/22/2017 11:19	WG1001635
Benzene	ND		1.00	1	07/22/2017 11:19	WG1001635
Bromobenzene	ND		1.00	1	07/22/2017 11:19	WG1001635
Bromodichloromethane	ND		1.00	1	07/22/2017 11:19	WG1001635
Bromoform	ND		1.00	1	07/22/2017 11:19	WG1001635
Bromomethane	ND		5.00	1	07/22/2017 11:19	WG1001635
n-Butylbenzene	ND		1.00	1	07/22/2017 11:19	WG1001635
sec-Butylbenzene	ND		1.00	1	07/22/2017 11:19	WG1001635
tert-Butylbenzene	ND		1.00	1	07/22/2017 11:19	WG1001635
Carbon tetrachloride	ND		1.00	1	07/22/2017 11:19	WG1001635
Chlorobenzene	ND		1.00	1	07/22/2017 11:19	WG1001635
Chlorodibromomethane	ND		1.00	1	07/22/2017 11:19	WG1001635
Chloroethane	ND		5.00	1	07/22/2017 11:19	WG1001635
Chloroform	ND		5.00	1	07/22/2017 11:19	WG1001635
Chloromethane	ND		2.50	1	07/22/2017 11:19	WG1001635
2-Chlorotoluene	ND		1.00	1	07/22/2017 11:19	WG1001635
4-Chlorotoluene	ND		1.00	1	07/22/2017 11:19	WG1001635
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/22/2017 11:19	WG1001635
1,2-Dibromoethane	ND		1.00	1	07/22/2017 11:19	WG1001635
Dibromomethane	ND		1.00	1	07/22/2017 11:19	WG1001635
1,2-Dichlorobenzene	ND		1.00	1	07/22/2017 11:19	WG1001635
1,3-Dichlorobenzene	ND		1.00	1	07/22/2017 11:19	WG1001635
1,4-Dichlorobenzene	ND		1.00	1	07/22/2017 11:19	WG1001635
Dichlorodifluoromethane	ND		5.00	1	07/22/2017 11:19	WG1001635
1,1-Dichloroethane	ND		1.00	1	07/22/2017 11:19	WG1001635
1,2-Dichloroethane	ND		1.00	1	07/22/2017 11:19	WG1001635
1,1-Dichloroethene	ND		1.00	1	07/22/2017 11:19	WG1001635
cis-1,2-Dichloroethene	ND		1.00	1	07/22/2017 11:19	WG1001635
trans-1,2-Dichloroethene	ND		1.00	1	07/22/2017 11:19	WG1001635
1,2-Dichloropropane	ND		1.00	1	07/22/2017 11:19	WG1001635
1,1-Dichloropropene	ND		1.00	1	07/22/2017 11:19	WG1001635
1,3-Dichloropropane	ND		1.00	1	07/22/2017 11:19	WG1001635
cis-1,3-Dichloropropene	ND		1.00	1	07/22/2017 11:19	WG1001635
trans-1,3-Dichloropropene	ND		1.00	1	07/22/2017 11:19	WG1001635
2,2-Dichloropropane	ND		1.00	1	07/22/2017 11:19	WG1001635
Di-isopropyl ether	ND		1.00	1	07/22/2017 11:19	WG1001635
Ethylbenzene	ND		1.00	1	07/22/2017 11:19	WG1001635
Hexachloro-1,3-butadiene	ND		1.00	1	07/22/2017 11:19	WG1001635
Isopropylbenzene	ND		1.00	1	07/22/2017 11:19	WG1001635
p-Isopropyltoluene	ND		1.00	1	07/22/2017 11:19	WG1001635
2-Butanone (MEK)	ND		10.0	1	07/22/2017 11:19	WG1001635
Methylene Chloride	ND		5.00	1	07/22/2017 11:19	WG1001635
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/22/2017 11:19	WG1001635
Methyl tert-butyl ether	ND		1.00	1	07/22/2017 11:19	WG1001635
Naphthalene	ND		5.00	1	07/22/2017 11:19	WG1001635
n-Propylbenzene	ND		1.00	1	07/22/2017 11:19	WG1001635
Styrene	ND		1.00	1	07/22/2017 11:19	WG1001635
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/22/2017 11:19	WG1001635
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/22/2017 11:19	WG1001635
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/22/2017 11:19	WG1001635
Tetrachloroethene	1.76		1.00	1	07/22/2017 11:19	WG1001635
Toluene	ND		1.00	1	07/22/2017 11:19	WG1001635
1,2,3-Trichlorobenzene	ND	J3	1.00	1	07/22/2017 11:19	WG1001635
1,2,4-Trichlorobenzene	ND		1.00	1	07/22/2017 11:19	WG1001635

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	07/22/2017 11:19	WG1001635
1,1,2-Trichloroethane	ND		1.00	1	07/22/2017 11:19	WG1001635
Trichloroethene	ND		1.00	1	07/22/2017 11:19	WG1001635
Trichlorofluoromethane	ND		5.00	1	07/22/2017 11:19	WG1001635
1,2,3-Trichloropropane	ND		2.50	1	07/22/2017 11:19	WG1001635
1,2,4-Trimethylbenzene	ND		1.00	1	07/22/2017 11:19	WG1001635
1,2,3-Trimethylbenzene	ND		1.00	1	07/22/2017 11:19	WG1001635
1,3,5-Trimethylbenzene	ND		1.00	1	07/22/2017 11:19	WG1001635
Vinyl chloride	ND		1.00	1	07/22/2017 11:19	WG1001635
Xylenes, Total	ND		3.00	1	07/22/2017 11:19	WG1001635
(S) Toluene-d8	102		80.0-120		07/22/2017 11:19	WG1001635
(S) Dibromofluoromethane	104		76.0-123		07/22/2017 11:19	WG1001635
(S) 4-Bromofluorobenzene	105		80.0-120		07/22/2017 11:19	WG1001635

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch	
	ug/l		ug/l		date / time		
Acetone	ND		50.0	1	07/22/2017 11:36	WG1001635	¹ Cp
Acrolein	ND	J3 J4	50.0	1	07/22/2017 11:36	WG1001635	² Tc
Acrylonitrile	ND		10.0	1	07/22/2017 11:36	WG1001635	³ Ss
Benzene	ND		1.00	1	07/22/2017 11:36	WG1001635	⁴ Cn
Bromobenzene	ND		1.00	1	07/22/2017 11:36	WG1001635	⁵ Sr
Bromodichloromethane	ND		1.00	1	07/22/2017 11:36	WG1001635	⁶ Qc
Bromoform	ND		1.00	1	07/22/2017 11:36	WG1001635	⁷ Gl
Bromomethane	ND		5.00	1	07/22/2017 11:36	WG1001635	⁸ Al
n-Butylbenzene	ND		1.00	1	07/22/2017 11:36	WG1001635	⁹ Sc
sec-Butylbenzene	ND		1.00	1	07/22/2017 11:36	WG1001635	
tert-Butylbenzene	ND		1.00	1	07/22/2017 11:36	WG1001635	
Carbon tetrachloride	ND		1.00	1	07/22/2017 11:36	WG1001635	
Chlorobenzene	ND		1.00	1	07/22/2017 11:36	WG1001635	
Chlorodibromomethane	ND		1.00	1	07/22/2017 11:36	WG1001635	
Chloroethane	ND		5.00	1	07/22/2017 11:36	WG1001635	
Chloroform	ND		5.00	1	07/22/2017 11:36	WG1001635	
Chloromethane	ND		2.50	1	07/22/2017 11:36	WG1001635	
2-Chlorotoluene	ND		1.00	1	07/22/2017 11:36	WG1001635	
4-Chlorotoluene	ND		1.00	1	07/22/2017 11:36	WG1001635	
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/22/2017 11:36	WG1001635	
1,2-Dibromoethane	ND		1.00	1	07/22/2017 11:36	WG1001635	
Dibromomethane	ND		1.00	1	07/22/2017 11:36	WG1001635	
1,2-Dichlorobenzene	ND		1.00	1	07/22/2017 11:36	WG1001635	
1,3-Dichlorobenzene	ND		1.00	1	07/22/2017 11:36	WG1001635	
1,4-Dichlorobenzene	ND		1.00	1	07/22/2017 11:36	WG1001635	
Dichlorodifluoromethane	ND		5.00	1	07/22/2017 11:36	WG1001635	
1,1-Dichloroethane	ND		1.00	1	07/22/2017 11:36	WG1001635	
1,2-Dichloroethane	ND		1.00	1	07/22/2017 11:36	WG1001635	
1,1-Dichloroethene	ND		1.00	1	07/22/2017 11:36	WG1001635	
cis-1,2-Dichloroethene	ND		1.00	1	07/22/2017 11:36	WG1001635	
trans-1,2-Dichloroethene	ND		1.00	1	07/22/2017 11:36	WG1001635	
1,2-Dichloropropane	ND		1.00	1	07/22/2017 11:36	WG1001635	
1,1-Dichloropropene	ND		1.00	1	07/22/2017 11:36	WG1001635	
1,3-Dichloropropane	ND		1.00	1	07/22/2017 11:36	WG1001635	
cis-1,3-Dichloropropene	ND		1.00	1	07/22/2017 11:36	WG1001635	
trans-1,3-Dichloropropene	ND		1.00	1	07/22/2017 11:36	WG1001635	
2,2-Dichloropropane	ND		1.00	1	07/22/2017 11:36	WG1001635	
Di-isopropyl ether	ND		1.00	1	07/22/2017 11:36	WG1001635	
Ethylbenzene	ND		1.00	1	07/22/2017 11:36	WG1001635	
Hexachloro-1,3-butadiene	ND		1.00	1	07/22/2017 11:36	WG1001635	
Isopropylbenzene	ND		1.00	1	07/22/2017 11:36	WG1001635	
p-Isopropyltoluene	ND		1.00	1	07/22/2017 11:36	WG1001635	
2-Butanone (MEK)	ND		10.0	1	07/22/2017 11:36	WG1001635	
Methylene Chloride	ND		5.00	1	07/22/2017 11:36	WG1001635	
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/22/2017 11:36	WG1001635	
Methyl tert-butyl ether	ND		1.00	1	07/22/2017 11:36	WG1001635	
Naphthalene	ND		5.00	1	07/22/2017 11:36	WG1001635	
n-Propylbenzene	ND		1.00	1	07/22/2017 11:36	WG1001635	
Styrene	ND		1.00	1	07/22/2017 11:36	WG1001635	
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/22/2017 11:36	WG1001635	
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/22/2017 11:36	WG1001635	
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/22/2017 11:36	WG1001635	
Tetrachloroethene	ND		1.00	1	07/22/2017 11:36	WG1001635	
Toluene	ND		1.00	1	07/22/2017 11:36	WG1001635	
1,2,3-Trichlorobenzene	ND	J3	1.00	1	07/22/2017 11:36	WG1001635	
1,2,4-Trichlorobenzene	ND		1.00	1	07/22/2017 11:36	WG1001635	



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	07/22/2017 11:36	WG1001635
1,1,2-Trichloroethane	ND		1.00	1	07/22/2017 11:36	WG1001635
Trichloroethene	ND		1.00	1	07/22/2017 11:36	WG1001635
Trichlorofluoromethane	ND		5.00	1	07/22/2017 11:36	WG1001635
1,2,3-Trichloropropane	ND		2.50	1	07/22/2017 11:36	WG1001635
1,2,4-Trimethylbenzene	ND		1.00	1	07/22/2017 11:36	WG1001635
1,2,3-Trimethylbenzene	ND		1.00	1	07/22/2017 11:36	WG1001635
1,3,5-Trimethylbenzene	ND		1.00	1	07/22/2017 11:36	WG1001635
Vinyl chloride	ND		1.00	1	07/22/2017 11:36	WG1001635
Xylenes, Total	ND		3.00	1	07/22/2017 11:36	WG1001635
(S) Toluene-d8	102		80.0-120		07/22/2017 11:36	WG1001635
(S) Dibromofluoromethane	104		76.0-123		07/22/2017 11:36	WG1001635
(S) 4-Bromofluorobenzene	103		80.0-120		07/22/2017 11:36	WG1001635

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	07/22/2017 11:53	WG1001635
Acrolein	ND	J3 J4	50.0	1	07/22/2017 11:53	WG1001635
Acrylonitrile	ND		10.0	1	07/22/2017 11:53	WG1001635
Benzene	ND		1.00	1	07/22/2017 11:53	WG1001635
Bromobenzene	ND		1.00	1	07/22/2017 11:53	WG1001635
Bromodichloromethane	ND		1.00	1	07/22/2017 11:53	WG1001635
Bromoform	ND		1.00	1	07/22/2017 11:53	WG1001635
Bromomethane	ND		5.00	1	07/22/2017 11:53	WG1001635
n-Butylbenzene	ND		1.00	1	07/22/2017 11:53	WG1001635
sec-Butylbenzene	ND		1.00	1	07/22/2017 11:53	WG1001635
tert-Butylbenzene	ND		1.00	1	07/22/2017 11:53	WG1001635
Carbon tetrachloride	ND		1.00	1	07/22/2017 11:53	WG1001635
Chlorobenzene	ND		1.00	1	07/22/2017 11:53	WG1001635
Chlorodibromomethane	ND		1.00	1	07/22/2017 11:53	WG1001635
Chloroethane	ND		5.00	1	07/22/2017 11:53	WG1001635
Chloroform	ND		5.00	1	07/22/2017 11:53	WG1001635
Chloromethane	ND		2.50	1	07/22/2017 11:53	WG1001635
2-Chlorotoluene	ND		1.00	1	07/22/2017 11:53	WG1001635
4-Chlorotoluene	ND		1.00	1	07/22/2017 11:53	WG1001635
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/22/2017 11:53	WG1001635
1,2-Dibromoethane	ND		1.00	1	07/22/2017 11:53	WG1001635
Dibromomethane	ND		1.00	1	07/22/2017 11:53	WG1001635
1,2-Dichlorobenzene	ND		1.00	1	07/22/2017 11:53	WG1001635
1,3-Dichlorobenzene	ND		1.00	1	07/22/2017 11:53	WG1001635
1,4-Dichlorobenzene	ND		1.00	1	07/22/2017 11:53	WG1001635
Dichlorodifluoromethane	ND		5.00	1	07/22/2017 11:53	WG1001635
1,1-Dichloroethane	ND		1.00	1	07/22/2017 11:53	WG1001635
1,2-Dichloroethane	ND		1.00	1	07/22/2017 11:53	WG1001635
1,1-Dichloroethene	ND		1.00	1	07/22/2017 11:53	WG1001635
cis-1,2-Dichloroethene	ND		1.00	1	07/22/2017 11:53	WG1001635
trans-1,2-Dichloroethene	ND		1.00	1	07/22/2017 11:53	WG1001635
1,2-Dichloropropane	ND		1.00	1	07/22/2017 11:53	WG1001635
1,1-Dichloropropene	ND		1.00	1	07/22/2017 11:53	WG1001635
1,3-Dichloropropane	ND		1.00	1	07/22/2017 11:53	WG1001635
cis-1,3-Dichloropropene	ND		1.00	1	07/22/2017 11:53	WG1001635
trans-1,3-Dichloropropene	ND		1.00	1	07/22/2017 11:53	WG1001635
2,2-Dichloropropane	ND		1.00	1	07/22/2017 11:53	WG1001635
Di-isopropyl ether	ND		1.00	1	07/22/2017 11:53	WG1001635
Ethylbenzene	ND		1.00	1	07/22/2017 11:53	WG1001635
Hexachloro-1,3-butadiene	ND		1.00	1	07/22/2017 11:53	WG1001635
Isopropylbenzene	ND		1.00	1	07/22/2017 11:53	WG1001635
p-Isopropyltoluene	ND		1.00	1	07/22/2017 11:53	WG1001635
2-Butanone (MEK)	ND		10.0	1	07/22/2017 11:53	WG1001635
Methylene Chloride	ND		5.00	1	07/22/2017 11:53	WG1001635
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/22/2017 11:53	WG1001635
Methyl tert-butyl ether	ND		1.00	1	07/22/2017 11:53	WG1001635
Naphthalene	ND		5.00	1	07/22/2017 11:53	WG1001635
n-Propylbenzene	ND		1.00	1	07/22/2017 11:53	WG1001635
Styrene	ND		1.00	1	07/22/2017 11:53	WG1001635
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/22/2017 11:53	WG1001635
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/22/2017 11:53	WG1001635
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/22/2017 11:53	WG1001635
Tetrachloroethene	1.40		1.00	1	07/22/2017 11:53	WG1001635
Toluene	ND		1.00	1	07/22/2017 11:53	WG1001635
1,2,3-Trichlorobenzene	ND	J3	1.00	1	07/22/2017 11:53	WG1001635
1,2,4-Trichlorobenzene	ND		1.00	1	07/22/2017 11:53	WG1001635

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	07/22/2017 11:53	WG1001635
1,1,2-Trichloroethane	ND		1.00	1	07/22/2017 11:53	WG1001635
Trichloroethene	ND		1.00	1	07/22/2017 11:53	WG1001635
Trichlorofluoromethane	ND		5.00	1	07/22/2017 11:53	WG1001635
1,2,3-Trichloropropane	ND		2.50	1	07/22/2017 11:53	WG1001635
1,2,4-Trimethylbenzene	ND		1.00	1	07/22/2017 11:53	WG1001635
1,2,3-Trimethylbenzene	ND		1.00	1	07/22/2017 11:53	WG1001635
1,3,5-Trimethylbenzene	ND		1.00	1	07/22/2017 11:53	WG1001635
Vinyl chloride	ND		1.00	1	07/22/2017 11:53	WG1001635
Xylenes, Total	ND		3.00	1	07/22/2017 11:53	WG1001635
(S) Toluene-d8	103		80.0-120		07/22/2017 11:53	WG1001635
(S) Dibromofluoromethane	104		76.0-123		07/22/2017 11:53	WG1001635
(S) 4-Bromofluorobenzene	104		80.0-120		07/22/2017 11:53	WG1001635

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch	
	ug/l		ug/l		date / time		
Acetone	ND		50.0	1	07/22/2017 12:09	WG1001635	¹ Cp
Acrolein	ND	J3 J4	50.0	1	07/22/2017 12:09	WG1001635	² Tc
Acrylonitrile	ND		10.0	1	07/22/2017 12:09	WG1001635	³ Ss
Benzene	ND		1.00	1	07/22/2017 12:09	WG1001635	⁴ Cn
Bromobenzene	ND		1.00	1	07/22/2017 12:09	WG1001635	⁵ Sr
Bromodichloromethane	ND		1.00	1	07/22/2017 12:09	WG1001635	⁶ Qc
Bromoform	ND		1.00	1	07/22/2017 12:09	WG1001635	⁷ Gl
Bromomethane	ND		5.00	1	07/22/2017 12:09	WG1001635	⁸ Al
n-Butylbenzene	ND		1.00	1	07/22/2017 12:09	WG1001635	⁹ Sc
sec-Butylbenzene	ND		1.00	1	07/22/2017 12:09	WG1001635	
tert-Butylbenzene	ND		1.00	1	07/22/2017 12:09	WG1001635	
Carbon tetrachloride	ND		1.00	1	07/22/2017 12:09	WG1001635	
Chlorobenzene	ND		1.00	1	07/22/2017 12:09	WG1001635	
Chlorodibromomethane	ND		1.00	1	07/22/2017 12:09	WG1001635	
Chloroethane	ND		5.00	1	07/22/2017 12:09	WG1001635	
Chloroform	ND		5.00	1	07/22/2017 12:09	WG1001635	
Chloromethane	ND		2.50	1	07/22/2017 12:09	WG1001635	
2-Chlorotoluene	ND		1.00	1	07/22/2017 12:09	WG1001635	
4-Chlorotoluene	ND		1.00	1	07/22/2017 12:09	WG1001635	
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/22/2017 12:09	WG1001635	
1,2-Dibromoethane	ND		1.00	1	07/22/2017 12:09	WG1001635	
Dibromomethane	ND		1.00	1	07/22/2017 12:09	WG1001635	
1,2-Dichlorobenzene	ND		1.00	1	07/22/2017 12:09	WG1001635	
1,3-Dichlorobenzene	ND		1.00	1	07/22/2017 12:09	WG1001635	
1,4-Dichlorobenzene	ND		1.00	1	07/22/2017 12:09	WG1001635	
Dichlorodifluoromethane	ND		5.00	1	07/22/2017 12:09	WG1001635	
1,1-Dichloroethane	ND		1.00	1	07/22/2017 12:09	WG1001635	
1,2-Dichloroethane	ND		1.00	1	07/22/2017 12:09	WG1001635	
1,1-Dichloroethene	ND		1.00	1	07/22/2017 12:09	WG1001635	
cis-1,2-Dichloroethene	ND		1.00	1	07/22/2017 12:09	WG1001635	
trans-1,2-Dichloroethene	ND		1.00	1	07/22/2017 12:09	WG1001635	
1,2-Dichloropropane	ND		1.00	1	07/22/2017 12:09	WG1001635	
1,1-Dichloropropene	ND		1.00	1	07/22/2017 12:09	WG1001635	
1,3-Dichloropropane	ND		1.00	1	07/22/2017 12:09	WG1001635	
cis-1,3-Dichloropropene	ND		1.00	1	07/22/2017 12:09	WG1001635	
trans-1,3-Dichloropropene	ND		1.00	1	07/22/2017 12:09	WG1001635	
2,2-Dichloropropane	ND		1.00	1	07/22/2017 12:09	WG1001635	
Di-isopropyl ether	ND		1.00	1	07/22/2017 12:09	WG1001635	
Ethylbenzene	ND		1.00	1	07/22/2017 12:09	WG1001635	
Hexachloro-1,3-butadiene	ND		1.00	1	07/22/2017 12:09	WG1001635	
Isopropylbenzene	ND		1.00	1	07/22/2017 12:09	WG1001635	
p-Isopropyltoluene	ND		1.00	1	07/22/2017 12:09	WG1001635	
2-Butanone (MEK)	ND		10.0	1	07/22/2017 12:09	WG1001635	
Methylene Chloride	ND		5.00	1	07/22/2017 12:09	WG1001635	
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/22/2017 12:09	WG1001635	
Methyl tert-butyl ether	ND		1.00	1	07/22/2017 12:09	WG1001635	
Naphthalene	ND		5.00	1	07/22/2017 12:09	WG1001635	
n-Propylbenzene	ND		1.00	1	07/22/2017 12:09	WG1001635	
Styrene	ND		1.00	1	07/22/2017 12:09	WG1001635	
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/22/2017 12:09	WG1001635	
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/22/2017 12:09	WG1001635	
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/22/2017 12:09	WG1001635	
Tetrachloroethene	ND		1.00	1	07/22/2017 12:09	WG1001635	
Toluene	ND		1.00	1	07/22/2017 12:09	WG1001635	
1,2,3-Trichlorobenzene	ND	J3	1.00	1	07/22/2017 12:09	WG1001635	
1,2,4-Trichlorobenzene	ND		1.00	1	07/22/2017 12:09	WG1001635	



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	07/22/2017 12:09	WG1001635
1,1,2-Trichloroethane	ND		1.00	1	07/22/2017 12:09	WG1001635
Trichloroethene	ND		1.00	1	07/22/2017 12:09	WG1001635
Trichlorofluoromethane	ND		5.00	1	07/22/2017 12:09	WG1001635
1,2,3-Trichloropropane	ND		2.50	1	07/22/2017 12:09	WG1001635
1,2,4-Trimethylbenzene	ND		1.00	1	07/22/2017 12:09	WG1001635
1,2,3-Trimethylbenzene	ND		1.00	1	07/22/2017 12:09	WG1001635
1,3,5-Trimethylbenzene	ND		1.00	1	07/22/2017 12:09	WG1001635
Vinyl chloride	ND		1.00	1	07/22/2017 12:09	WG1001635
Xylenes, Total	ND		3.00	1	07/22/2017 12:09	WG1001635
(S) Toluene-d8	102		80.0-120		07/22/2017 12:09	WG1001635
(S) Dibromofluoromethane	105		76.0-123		07/22/2017 12:09	WG1001635
(S) 4-Bromofluorobenzene	104		80.0-120		07/22/2017 12:09	WG1001635

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	07/22/2017 12:26	WG1001635
Acrolein	ND	J3 J4	50.0	1	07/22/2017 12:26	WG1001635
Acrylonitrile	ND		10.0	1	07/22/2017 12:26	WG1001635
Benzene	ND		1.00	1	07/22/2017 12:26	WG1001635
Bromobenzene	ND		1.00	1	07/22/2017 12:26	WG1001635
Bromodichloromethane	ND		1.00	1	07/22/2017 12:26	WG1001635
Bromoform	ND		1.00	1	07/22/2017 12:26	WG1001635
Bromomethane	ND		5.00	1	07/22/2017 12:26	WG1001635
n-Butylbenzene	ND		1.00	1	07/22/2017 12:26	WG1001635
sec-Butylbenzene	ND		1.00	1	07/22/2017 12:26	WG1001635
tert-Butylbenzene	ND		1.00	1	07/22/2017 12:26	WG1001635
Carbon tetrachloride	ND		1.00	1	07/22/2017 12:26	WG1001635
Chlorobenzene	ND		1.00	1	07/22/2017 12:26	WG1001635
Chlorodibromomethane	ND		1.00	1	07/22/2017 12:26	WG1001635
Chloroethane	ND		5.00	1	07/22/2017 12:26	WG1001635
Chloroform	ND		5.00	1	07/22/2017 12:26	WG1001635
Chloromethane	ND		2.50	1	07/22/2017 12:26	WG1001635
2-Chlorotoluene	ND		1.00	1	07/22/2017 12:26	WG1001635
4-Chlorotoluene	ND		1.00	1	07/22/2017 12:26	WG1001635
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/22/2017 12:26	WG1001635
1,2-Dibromoethane	ND		1.00	1	07/22/2017 12:26	WG1001635
Dibromomethane	ND		1.00	1	07/22/2017 12:26	WG1001635
1,2-Dichlorobenzene	ND		1.00	1	07/22/2017 12:26	WG1001635
1,3-Dichlorobenzene	ND		1.00	1	07/22/2017 12:26	WG1001635
1,4-Dichlorobenzene	ND		1.00	1	07/22/2017 12:26	WG1001635
Dichlorodifluoromethane	ND		5.00	1	07/22/2017 12:26	WG1001635
1,1-Dichloroethane	ND		1.00	1	07/22/2017 12:26	WG1001635
1,2-Dichloroethane	ND		1.00	1	07/22/2017 12:26	WG1001635
1,1-Dichloroethene	ND		1.00	1	07/22/2017 12:26	WG1001635
cis-1,2-Dichloroethene	ND		1.00	1	07/22/2017 12:26	WG1001635
trans-1,2-Dichloroethene	ND		1.00	1	07/22/2017 12:26	WG1001635
1,2-Dichloropropane	ND		1.00	1	07/22/2017 12:26	WG1001635
1,1-Dichloropropene	ND		1.00	1	07/22/2017 12:26	WG1001635
1,3-Dichloropropane	ND		1.00	1	07/22/2017 12:26	WG1001635
cis-1,3-Dichloropropene	ND		1.00	1	07/22/2017 12:26	WG1001635
trans-1,3-Dichloropropene	ND		1.00	1	07/22/2017 12:26	WG1001635
2,2-Dichloropropane	ND		1.00	1	07/22/2017 12:26	WG1001635
Di-isopropyl ether	ND		1.00	1	07/22/2017 12:26	WG1001635
Ethylbenzene	ND		1.00	1	07/22/2017 12:26	WG1001635
Hexachloro-1,3-butadiene	ND		1.00	1	07/22/2017 12:26	WG1001635
Isopropylbenzene	ND		1.00	1	07/22/2017 12:26	WG1001635
p-Isopropyltoluene	ND		1.00	1	07/22/2017 12:26	WG1001635
2-Butanone (MEK)	ND		10.0	1	07/22/2017 12:26	WG1001635
Methylene Chloride	ND		5.00	1	07/22/2017 12:26	WG1001635
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/22/2017 12:26	WG1001635
Methyl tert-butyl ether	ND		1.00	1	07/22/2017 12:26	WG1001635
Naphthalene	ND		5.00	1	07/22/2017 12:26	WG1001635
n-Propylbenzene	ND		1.00	1	07/22/2017 12:26	WG1001635
Styrene	ND		1.00	1	07/22/2017 12:26	WG1001635
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/22/2017 12:26	WG1001635
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/22/2017 12:26	WG1001635
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/22/2017 12:26	WG1001635
Tetrachloroethene	ND		1.00	1	07/22/2017 12:26	WG1001635
Toluene	ND		1.00	1	07/22/2017 12:26	WG1001635
1,2,3-Trichlorobenzene	ND	J3	1.00	1	07/22/2017 12:26	WG1001635
1,2,4-Trichlorobenzene	ND		1.00	1	07/22/2017 12:26	WG1001635

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	07/22/2017 12:26	WG1001635
1,1,2-Trichloroethane	ND		1.00	1	07/22/2017 12:26	WG1001635
Trichloroethene	ND		1.00	1	07/22/2017 12:26	WG1001635
Trichlorofluoromethane	ND		5.00	1	07/22/2017 12:26	WG1001635
1,2,3-Trichloropropane	ND		2.50	1	07/22/2017 12:26	WG1001635
1,2,4-Trimethylbenzene	ND		1.00	1	07/22/2017 12:26	WG1001635
1,2,3-Trimethylbenzene	ND		1.00	1	07/22/2017 12:26	WG1001635
1,3,5-Trimethylbenzene	ND		1.00	1	07/22/2017 12:26	WG1001635
Vinyl chloride	ND		1.00	1	07/22/2017 12:26	WG1001635
Xylenes, Total	ND		3.00	1	07/22/2017 12:26	WG1001635
(S) Toluene-d8	102		80.0-120		07/22/2017 12:26	WG1001635
(S) Dibromofluoromethane	103		76.0-123		07/22/2017 12:26	WG1001635
(S) 4-Bromofluorobenzene	105		80.0-120		07/22/2017 12:26	WG1001635

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch	
Acetone	ND		50.0	1	07/22/2017 12:43	WG1001635	¹ Cp
Acrolein	ND	J3 J4	50.0	1	07/22/2017 12:43	WG1001635	² Tc
Acrylonitrile	ND		10.0	1	07/22/2017 12:43	WG1001635	³ Ss
Benzene	ND		1.00	1	07/22/2017 12:43	WG1001635	⁴ Cn
Bromobenzene	ND		1.00	1	07/22/2017 12:43	WG1001635	⁵ Sr
Bromodichloromethane	ND		1.00	1	07/22/2017 12:43	WG1001635	⁶ Qc
Bromoform	ND		1.00	1	07/22/2017 12:43	WG1001635	⁷ Gl
Bromomethane	ND		5.00	1	07/22/2017 12:43	WG1001635	⁸ Al
n-Butylbenzene	ND		1.00	1	07/22/2017 12:43	WG1001635	⁹ Sc
sec-Butylbenzene	ND		1.00	1	07/22/2017 12:43	WG1001635	
tert-Butylbenzene	ND		1.00	1	07/22/2017 12:43	WG1001635	
Carbon tetrachloride	ND		1.00	1	07/22/2017 12:43	WG1001635	
Chlorobenzene	ND		1.00	1	07/22/2017 12:43	WG1001635	
Chlorodibromomethane	ND		1.00	1	07/22/2017 12:43	WG1001635	
Chloroethane	ND		5.00	1	07/22/2017 12:43	WG1001635	
Chloroform	ND		5.00	1	07/22/2017 12:43	WG1001635	
Chloromethane	ND		2.50	1	07/22/2017 12:43	WG1001635	
2-Chlorotoluene	ND		1.00	1	07/22/2017 12:43	WG1001635	
4-Chlorotoluene	ND		1.00	1	07/22/2017 12:43	WG1001635	
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/22/2017 12:43	WG1001635	
1,2-Dibromoethane	ND		1.00	1	07/22/2017 12:43	WG1001635	
Dibromomethane	ND		1.00	1	07/22/2017 12:43	WG1001635	
1,2-Dichlorobenzene	ND		1.00	1	07/22/2017 12:43	WG1001635	
1,3-Dichlorobenzene	ND		1.00	1	07/22/2017 12:43	WG1001635	
1,4-Dichlorobenzene	ND		1.00	1	07/22/2017 12:43	WG1001635	
Dichlorodifluoromethane	ND		5.00	1	07/22/2017 12:43	WG1001635	
1,1-Dichloroethane	ND		1.00	1	07/22/2017 12:43	WG1001635	
1,2-Dichloroethane	ND		1.00	1	07/22/2017 12:43	WG1001635	
1,1-Dichloroethene	ND		1.00	1	07/22/2017 12:43	WG1001635	
cis-1,2-Dichloroethene	ND		1.00	1	07/22/2017 12:43	WG1001635	
trans-1,2-Dichloroethene	ND		1.00	1	07/22/2017 12:43	WG1001635	
1,2-Dichloropropane	ND		1.00	1	07/22/2017 12:43	WG1001635	
1,1-Dichloropropene	ND		1.00	1	07/22/2017 12:43	WG1001635	
1,3-Dichloropropane	ND		1.00	1	07/22/2017 12:43	WG1001635	
cis-1,3-Dichloropropene	ND		1.00	1	07/22/2017 12:43	WG1001635	
trans-1,3-Dichloropropene	ND		1.00	1	07/22/2017 12:43	WG1001635	
2,2-Dichloropropane	ND		1.00	1	07/22/2017 12:43	WG1001635	
Di-isopropyl ether	ND		1.00	1	07/22/2017 12:43	WG1001635	
Ethylbenzene	ND		1.00	1	07/22/2017 12:43	WG1001635	
Hexachloro-1,3-butadiene	ND		1.00	1	07/22/2017 12:43	WG1001635	
Isopropylbenzene	ND		1.00	1	07/22/2017 12:43	WG1001635	
p-Isopropyltoluene	ND		1.00	1	07/22/2017 12:43	WG1001635	
2-Butanone (MEK)	ND		10.0	1	07/22/2017 12:43	WG1001635	
Methylene Chloride	ND		5.00	1	07/22/2017 12:43	WG1001635	
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/22/2017 12:43	WG1001635	
Methyl tert-butyl ether	ND		1.00	1	07/22/2017 12:43	WG1001635	
Naphthalene	ND		5.00	1	07/22/2017 12:43	WG1001635	
n-Propylbenzene	ND		1.00	1	07/22/2017 12:43	WG1001635	
Styrene	ND		1.00	1	07/22/2017 12:43	WG1001635	
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/22/2017 12:43	WG1001635	
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/22/2017 12:43	WG1001635	
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/22/2017 12:43	WG1001635	
Tetrachloroethene	ND		1.00	1	07/22/2017 12:43	WG1001635	
Toluene	ND		1.00	1	07/22/2017 12:43	WG1001635	
1,2,3-Trichlorobenzene	ND	J3	1.00	1	07/22/2017 12:43	WG1001635	
1,2,4-Trichlorobenzene	ND		1.00	1	07/22/2017 12:43	WG1001635	



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	07/22/2017 12:43	WG1001635
1,1,2-Trichloroethane	ND		1.00	1	07/22/2017 12:43	WG1001635
Trichloroethene	ND		1.00	1	07/22/2017 12:43	WG1001635
Trichlorofluoromethane	ND		5.00	1	07/22/2017 12:43	WG1001635
1,2,3-Trichloropropane	ND		2.50	1	07/22/2017 12:43	WG1001635
1,2,4-Trimethylbenzene	ND		1.00	1	07/22/2017 12:43	WG1001635
1,2,3-Trimethylbenzene	ND		1.00	1	07/22/2017 12:43	WG1001635
1,3,5-Trimethylbenzene	ND		1.00	1	07/22/2017 12:43	WG1001635
Vinyl chloride	ND		1.00	1	07/22/2017 12:43	WG1001635
Xylenes, Total	ND		3.00	1	07/22/2017 12:43	WG1001635
(S) Toluene-d8	100		80.0-120		07/22/2017 12:43	WG1001635
(S) Dibromofluoromethane	105		76.0-123		07/22/2017 12:43	WG1001635
(S) 4-Bromofluorobenzene	102		80.0-120		07/22/2017 12:43	WG1001635

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch	
Acetone	ND		50.0	1	07/22/2017 12:59	WG1001635	¹ Cp
Acrolein	ND	J3 J4	50.0	1	07/22/2017 12:59	WG1001635	² Tc
Acrylonitrile	ND		10.0	1	07/22/2017 12:59	WG1001635	³ Ss
Benzene	ND		1.00	1	07/22/2017 12:59	WG1001635	⁴ Cn
Bromobenzene	ND		1.00	1	07/22/2017 12:59	WG1001635	⁵ Sr
Bromodichloromethane	ND		1.00	1	07/22/2017 12:59	WG1001635	⁶ Qc
Bromoform	ND		1.00	1	07/22/2017 12:59	WG1001635	⁷ Gl
Bromomethane	ND		5.00	1	07/22/2017 12:59	WG1001635	⁸ Al
n-Butylbenzene	ND		1.00	1	07/22/2017 12:59	WG1001635	⁹ Sc
sec-Butylbenzene	ND		1.00	1	07/22/2017 12:59	WG1001635	
tert-Butylbenzene	ND		1.00	1	07/22/2017 12:59	WG1001635	
Carbon tetrachloride	ND		1.00	1	07/22/2017 12:59	WG1001635	
Chlorobenzene	ND		1.00	1	07/22/2017 12:59	WG1001635	
Chlorodibromomethane	ND		1.00	1	07/22/2017 12:59	WG1001635	
Chloroethane	ND		5.00	1	07/22/2017 12:59	WG1001635	
Chloroform	ND		5.00	1	07/22/2017 12:59	WG1001635	
Chloromethane	ND		2.50	1	07/22/2017 12:59	WG1001635	
2-Chlorotoluene	ND		1.00	1	07/22/2017 12:59	WG1001635	
4-Chlorotoluene	ND		1.00	1	07/22/2017 12:59	WG1001635	
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/22/2017 12:59	WG1001635	
1,2-Dibromoethane	ND		1.00	1	07/22/2017 12:59	WG1001635	
Dibromomethane	ND		1.00	1	07/22/2017 12:59	WG1001635	
1,2-Dichlorobenzene	ND		1.00	1	07/22/2017 12:59	WG1001635	
1,3-Dichlorobenzene	ND		1.00	1	07/22/2017 12:59	WG1001635	
1,4-Dichlorobenzene	ND		1.00	1	07/22/2017 12:59	WG1001635	
Dichlorodifluoromethane	ND		5.00	1	07/22/2017 12:59	WG1001635	
1,1-Dichloroethane	ND		1.00	1	07/22/2017 12:59	WG1001635	
1,2-Dichloroethane	ND		1.00	1	07/22/2017 12:59	WG1001635	
1,1-Dichloroethene	ND		1.00	1	07/22/2017 12:59	WG1001635	
cis-1,2-Dichloroethene	ND		1.00	1	07/22/2017 12:59	WG1001635	
trans-1,2-Dichloroethene	ND		1.00	1	07/22/2017 12:59	WG1001635	
1,2-Dichloropropane	ND		1.00	1	07/22/2017 12:59	WG1001635	
1,1-Dichloropropene	ND		1.00	1	07/22/2017 12:59	WG1001635	
1,3-Dichloropropane	ND		1.00	1	07/22/2017 12:59	WG1001635	
cis-1,3-Dichloropropene	ND		1.00	1	07/22/2017 12:59	WG1001635	
trans-1,3-Dichloropropene	ND		1.00	1	07/22/2017 12:59	WG1001635	
2,2-Dichloropropane	ND		1.00	1	07/22/2017 12:59	WG1001635	
Di-isopropyl ether	ND		1.00	1	07/22/2017 12:59	WG1001635	
Ethylbenzene	ND		1.00	1	07/22/2017 12:59	WG1001635	
Hexachloro-1,3-butadiene	ND		1.00	1	07/22/2017 12:59	WG1001635	
Isopropylbenzene	ND		1.00	1	07/22/2017 12:59	WG1001635	
p-Isopropyltoluene	ND		1.00	1	07/22/2017 12:59	WG1001635	
2-Butanone (MEK)	ND		10.0	1	07/22/2017 12:59	WG1001635	
Methylene Chloride	ND		5.00	1	07/22/2017 12:59	WG1001635	
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/22/2017 12:59	WG1001635	
Methyl tert-butyl ether	ND		1.00	1	07/22/2017 12:59	WG1001635	
Naphthalene	ND		5.00	1	07/22/2017 12:59	WG1001635	
n-Propylbenzene	ND		1.00	1	07/22/2017 12:59	WG1001635	
Styrene	ND		1.00	1	07/22/2017 12:59	WG1001635	
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/22/2017 12:59	WG1001635	
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/22/2017 12:59	WG1001635	
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/22/2017 12:59	WG1001635	
Tetrachloroethene	ND		1.00	1	07/22/2017 12:59	WG1001635	
Toluene	ND		1.00	1	07/22/2017 12:59	WG1001635	
1,2,3-Trichlorobenzene	ND	J3	1.00	1	07/22/2017 12:59	WG1001635	
1,2,4-Trichlorobenzene	ND		1.00	1	07/22/2017 12:59	WG1001635	



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	07/22/2017 12:59	WG1001635
1,1,2-Trichloroethane	ND		1.00	1	07/22/2017 12:59	WG1001635
Trichloroethene	ND		1.00	1	07/22/2017 12:59	WG1001635
Trichlorofluoromethane	ND		5.00	1	07/22/2017 12:59	WG1001635
1,2,3-Trichloropropane	ND		2.50	1	07/22/2017 12:59	WG1001635
1,2,4-Trimethylbenzene	ND		1.00	1	07/22/2017 12:59	WG1001635
1,2,3-Trimethylbenzene	ND		1.00	1	07/22/2017 12:59	WG1001635
1,3,5-Trimethylbenzene	ND		1.00	1	07/22/2017 12:59	WG1001635
Vinyl chloride	ND		1.00	1	07/22/2017 12:59	WG1001635
Xylenes, Total	ND		3.00	1	07/22/2017 12:59	WG1001635
(S) Toluene-d8	103		80.0-120		07/22/2017 12:59	WG1001635
(S) Dibromofluoromethane	102		76.0-123		07/22/2017 12:59	WG1001635
(S) 4-Bromofluorobenzene	103		80.0-120		07/22/2017 12:59	WG1001635

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND		50.0	1	07/22/2017 13:16	WG1001635
Acrolein	ND	J3 J4	50.0	1	07/22/2017 13:16	WG1001635
Acrylonitrile	ND		10.0	1	07/22/2017 13:16	WG1001635
Benzene	ND		1.00	1	07/22/2017 13:16	WG1001635
Bromobenzene	ND		1.00	1	07/22/2017 13:16	WG1001635
Bromodichloromethane	ND		1.00	1	07/22/2017 13:16	WG1001635
Bromoform	ND		1.00	1	07/22/2017 13:16	WG1001635
Bromomethane	ND		5.00	1	07/22/2017 13:16	WG1001635
n-Butylbenzene	ND		1.00	1	07/22/2017 13:16	WG1001635
sec-Butylbenzene	ND		1.00	1	07/22/2017 13:16	WG1001635
tert-Butylbenzene	ND		1.00	1	07/22/2017 13:16	WG1001635
Carbon tetrachloride	ND		1.00	1	07/22/2017 13:16	WG1001635
Chlorobenzene	ND		1.00	1	07/22/2017 13:16	WG1001635
Chlorodibromomethane	ND		1.00	1	07/22/2017 13:16	WG1001635
Chloroethane	ND		5.00	1	07/22/2017 13:16	WG1001635
Chloroform	ND		5.00	1	07/22/2017 13:16	WG1001635
Chloromethane	ND		2.50	1	07/22/2017 13:16	WG1001635
2-Chlorotoluene	ND		1.00	1	07/22/2017 13:16	WG1001635
4-Chlorotoluene	ND		1.00	1	07/22/2017 13:16	WG1001635
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/22/2017 13:16	WG1001635
1,2-Dibromoethane	ND		1.00	1	07/22/2017 13:16	WG1001635
Dibromomethane	ND		1.00	1	07/22/2017 13:16	WG1001635
1,2-Dichlorobenzene	ND		1.00	1	07/22/2017 13:16	WG1001635
1,3-Dichlorobenzene	ND		1.00	1	07/22/2017 13:16	WG1001635
1,4-Dichlorobenzene	ND		1.00	1	07/22/2017 13:16	WG1001635
Dichlorodifluoromethane	ND		5.00	1	07/22/2017 13:16	WG1001635
1,1-Dichloroethane	ND		1.00	1	07/22/2017 13:16	WG1001635
1,2-Dichloroethane	ND		1.00	1	07/22/2017 13:16	WG1001635
1,1-Dichloroethene	ND		1.00	1	07/22/2017 13:16	WG1001635
cis-1,2-Dichloroethene	ND		1.00	1	07/22/2017 13:16	WG1001635
trans-1,2-Dichloroethene	ND		1.00	1	07/22/2017 13:16	WG1001635
1,2-Dichloropropane	ND		1.00	1	07/22/2017 13:16	WG1001635
1,1-Dichloropropene	ND		1.00	1	07/22/2017 13:16	WG1001635
1,3-Dichloropropane	ND		1.00	1	07/22/2017 13:16	WG1001635
cis-1,3-Dichloropropene	ND		1.00	1	07/22/2017 13:16	WG1001635
trans-1,3-Dichloropropene	ND		1.00	1	07/22/2017 13:16	WG1001635
2,2-Dichloropropane	ND		1.00	1	07/22/2017 13:16	WG1001635
Di-isopropyl ether	ND		1.00	1	07/22/2017 13:16	WG1001635
Ethylbenzene	ND		1.00	1	07/22/2017 13:16	WG1001635
Hexachloro-1,3-butadiene	ND		1.00	1	07/22/2017 13:16	WG1001635
Isopropylbenzene	ND		1.00	1	07/22/2017 13:16	WG1001635
p-Isopropyltoluene	ND		1.00	1	07/22/2017 13:16	WG1001635
2-Butanone (MEK)	ND		10.0	1	07/22/2017 13:16	WG1001635
Methylene Chloride	ND		5.00	1	07/22/2017 13:16	WG1001635
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/22/2017 13:16	WG1001635
Methyl tert-butyl ether	ND		1.00	1	07/22/2017 13:16	WG1001635
Naphthalene	ND		5.00	1	07/22/2017 13:16	WG1001635
n-Propylbenzene	ND		1.00	1	07/22/2017 13:16	WG1001635
Styrene	ND		1.00	1	07/22/2017 13:16	WG1001635
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/22/2017 13:16	WG1001635
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/22/2017 13:16	WG1001635
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/22/2017 13:16	WG1001635
Tetrachloroethene	ND		1.00	1	07/22/2017 13:16	WG1001635
Toluene	ND		1.00	1	07/22/2017 13:16	WG1001635
1,2,3-Trichlorobenzene	ND	J3	1.00	1	07/22/2017 13:16	WG1001635
1,2,4-Trichlorobenzene	ND		1.00	1	07/22/2017 13:16	WG1001635

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	07/22/2017 13:16	WG1001635
1,1,2-Trichloroethane	ND		1.00	1	07/22/2017 13:16	WG1001635
Trichloroethene	ND		1.00	1	07/22/2017 13:16	WG1001635
Trichlorofluoromethane	ND		5.00	1	07/22/2017 13:16	WG1001635
1,2,3-Trichloropropane	ND		2.50	1	07/22/2017 13:16	WG1001635
1,2,4-Trimethylbenzene	ND		1.00	1	07/22/2017 13:16	WG1001635
1,2,3-Trimethylbenzene	ND		1.00	1	07/22/2017 13:16	WG1001635
1,3,5-Trimethylbenzene	ND		1.00	1	07/22/2017 13:16	WG1001635
Vinyl chloride	ND		1.00	1	07/22/2017 13:16	WG1001635
Xylenes, Total	ND		3.00	1	07/22/2017 13:16	WG1001635
(S) Toluene-d8	102		80.0-120		07/22/2017 13:16	WG1001635
(S) Dibromofluoromethane	104		76.0-123		07/22/2017 13:16	WG1001635
(S) 4-Bromofluorobenzene	102		80.0-120		07/22/2017 13:16	WG1001635

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch	
	ug/l		ug/l		date / time		
Acetone	ND		50.0	1	07/22/2017 13:33	WG1001635	¹ Cp
Acrolein	ND	J3 J4	50.0	1	07/22/2017 13:33	WG1001635	² Tc
Acrylonitrile	ND		10.0	1	07/22/2017 13:33	WG1001635	³ Ss
Benzene	ND		1.00	1	07/22/2017 13:33	WG1001635	⁴ Cn
Bromobenzene	ND		1.00	1	07/22/2017 13:33	WG1001635	⁵ Sr
Bromodichloromethane	ND		1.00	1	07/22/2017 13:33	WG1001635	⁶ Qc
Bromoform	ND		1.00	1	07/22/2017 13:33	WG1001635	⁷ Gl
Bromomethane	ND		5.00	1	07/22/2017 13:33	WG1001635	⁸ Al
n-Butylbenzene	ND		1.00	1	07/22/2017 13:33	WG1001635	⁹ Sc
sec-Butylbenzene	ND		1.00	1	07/22/2017 13:33	WG1001635	
tert-Butylbenzene	ND		1.00	1	07/22/2017 13:33	WG1001635	
Carbon tetrachloride	ND		1.00	1	07/22/2017 13:33	WG1001635	
Chlorobenzene	ND		1.00	1	07/22/2017 13:33	WG1001635	
Chlorodibromomethane	ND		1.00	1	07/22/2017 13:33	WG1001635	
Chloroethane	ND		5.00	1	07/22/2017 13:33	WG1001635	
Chloroform	ND		5.00	1	07/22/2017 13:33	WG1001635	
Chloromethane	ND		2.50	1	07/22/2017 13:33	WG1001635	
2-Chlorotoluene	ND		1.00	1	07/22/2017 13:33	WG1001635	
4-Chlorotoluene	ND		1.00	1	07/22/2017 13:33	WG1001635	
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/22/2017 13:33	WG1001635	
1,2-Dibromoethane	ND		1.00	1	07/22/2017 13:33	WG1001635	
Dibromomethane	ND		1.00	1	07/22/2017 13:33	WG1001635	
1,2-Dichlorobenzene	ND		1.00	1	07/22/2017 13:33	WG1001635	
1,3-Dichlorobenzene	ND		1.00	1	07/22/2017 13:33	WG1001635	
1,4-Dichlorobenzene	ND		1.00	1	07/22/2017 13:33	WG1001635	
Dichlorodifluoromethane	ND		5.00	1	07/22/2017 13:33	WG1001635	
1,1-Dichloroethane	ND		1.00	1	07/22/2017 13:33	WG1001635	
1,2-Dichloroethane	ND		1.00	1	07/22/2017 13:33	WG1001635	
1,1-Dichloroethene	ND		1.00	1	07/22/2017 13:33	WG1001635	
cis-1,2-Dichloroethene	ND		1.00	1	07/22/2017 13:33	WG1001635	
trans-1,2-Dichloroethene	ND		1.00	1	07/22/2017 13:33	WG1001635	
1,2-Dichloropropane	ND		1.00	1	07/22/2017 13:33	WG1001635	
1,1-Dichloropropene	ND		1.00	1	07/22/2017 13:33	WG1001635	
1,3-Dichloropropane	ND		1.00	1	07/22/2017 13:33	WG1001635	
cis-1,3-Dichloropropene	ND		1.00	1	07/22/2017 13:33	WG1001635	
trans-1,3-Dichloropropene	ND		1.00	1	07/22/2017 13:33	WG1001635	
2,2-Dichloropropane	ND		1.00	1	07/22/2017 13:33	WG1001635	
Di-isopropyl ether	ND		1.00	1	07/22/2017 13:33	WG1001635	
Ethylbenzene	ND		1.00	1	07/22/2017 13:33	WG1001635	
Hexachloro-1,3-butadiene	ND		1.00	1	07/22/2017 13:33	WG1001635	
Isopropylbenzene	ND		1.00	1	07/22/2017 13:33	WG1001635	
p-Isopropyltoluene	ND		1.00	1	07/22/2017 13:33	WG1001635	
2-Butanone (MEK)	ND		10.0	1	07/22/2017 13:33	WG1001635	
Methylene Chloride	ND		5.00	1	07/22/2017 13:33	WG1001635	
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/22/2017 13:33	WG1001635	
Methyl tert-butyl ether	ND		1.00	1	07/22/2017 13:33	WG1001635	
Naphthalene	ND		5.00	1	07/22/2017 13:33	WG1001635	
n-Propylbenzene	ND		1.00	1	07/22/2017 13:33	WG1001635	
Styrene	ND		1.00	1	07/22/2017 13:33	WG1001635	
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/22/2017 13:33	WG1001635	
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/22/2017 13:33	WG1001635	
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/22/2017 13:33	WG1001635	
Tetrachloroethene	ND		1.00	1	07/22/2017 13:33	WG1001635	
Toluene	ND		1.00	1	07/22/2017 13:33	WG1001635	
1,2,3-Trichlorobenzene	ND	J3	1.00	1	07/22/2017 13:33	WG1001635	
1,2,4-Trichlorobenzene	ND		1.00	1	07/22/2017 13:33	WG1001635	



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	07/22/2017 13:33	WG1001635
1,1,2-Trichloroethane	ND		1.00	1	07/22/2017 13:33	WG1001635
Trichloroethene	ND		1.00	1	07/22/2017 13:33	WG1001635
Trichlorofluoromethane	ND		5.00	1	07/22/2017 13:33	WG1001635
1,2,3-Trichloropropane	ND		2.50	1	07/22/2017 13:33	WG1001635
1,2,4-Trimethylbenzene	ND		1.00	1	07/22/2017 13:33	WG1001635
1,2,3-Trimethylbenzene	ND		1.00	1	07/22/2017 13:33	WG1001635
1,3,5-Trimethylbenzene	ND		1.00	1	07/22/2017 13:33	WG1001635
Vinyl chloride	ND		1.00	1	07/22/2017 13:33	WG1001635
Xylenes, Total	ND		3.00	1	07/22/2017 13:33	WG1001635
(S) Toluene-d8	103		80.0-120		07/22/2017 13:33	WG1001635
(S) Dibromofluoromethane	103		76.0-123		07/22/2017 13:33	WG1001635
(S) 4-Bromofluorobenzene	101		80.0-120		07/22/2017 13:33	WG1001635

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch	
Acetone	ND		50.0	1	07/22/2017 13:49	WG1001635	¹ Cp
Acrolein	ND	J3 J4	50.0	1	07/22/2017 13:49	WG1001635	² Tc
Acrylonitrile	ND		10.0	1	07/22/2017 13:49	WG1001635	³ Ss
Benzene	ND		1.00	1	07/22/2017 13:49	WG1001635	⁴ Cn
Bromobenzene	ND		1.00	1	07/22/2017 13:49	WG1001635	⁵ Sr
Bromodichloromethane	ND		1.00	1	07/22/2017 13:49	WG1001635	⁶ Qc
Bromoform	ND		1.00	1	07/22/2017 13:49	WG1001635	⁷ Gl
Bromomethane	ND		5.00	1	07/22/2017 13:49	WG1001635	⁸ Al
n-Butylbenzene	ND		1.00	1	07/22/2017 13:49	WG1001635	⁹ Sc
sec-Butylbenzene	ND		1.00	1	07/22/2017 13:49	WG1001635	
tert-Butylbenzene	ND		1.00	1	07/22/2017 13:49	WG1001635	
Carbon tetrachloride	ND		1.00	1	07/22/2017 13:49	WG1001635	
Chlorobenzene	ND		1.00	1	07/22/2017 13:49	WG1001635	
Chlorodibromomethane	ND		1.00	1	07/22/2017 13:49	WG1001635	
Chloroethane	ND		5.00	1	07/22/2017 13:49	WG1001635	
Chloroform	ND		5.00	1	07/22/2017 13:49	WG1001635	
Chloromethane	ND		2.50	1	07/22/2017 13:49	WG1001635	
2-Chlorotoluene	ND		1.00	1	07/22/2017 13:49	WG1001635	
4-Chlorotoluene	ND		1.00	1	07/22/2017 13:49	WG1001635	
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/22/2017 13:49	WG1001635	
1,2-Dibromoethane	ND		1.00	1	07/22/2017 13:49	WG1001635	
Dibromomethane	ND		1.00	1	07/22/2017 13:49	WG1001635	
1,2-Dichlorobenzene	ND		1.00	1	07/22/2017 13:49	WG1001635	
1,3-Dichlorobenzene	ND		1.00	1	07/22/2017 13:49	WG1001635	
1,4-Dichlorobenzene	ND		1.00	1	07/22/2017 13:49	WG1001635	
Dichlorodifluoromethane	ND		5.00	1	07/22/2017 13:49	WG1001635	
1,1-Dichloroethane	ND		1.00	1	07/22/2017 13:49	WG1001635	
1,2-Dichloroethane	ND		1.00	1	07/22/2017 13:49	WG1001635	
1,1-Dichloroethene	ND		1.00	1	07/22/2017 13:49	WG1001635	
cis-1,2-Dichloroethene	ND		1.00	1	07/22/2017 13:49	WG1001635	
trans-1,2-Dichloroethene	ND		1.00	1	07/22/2017 13:49	WG1001635	
1,2-Dichloropropane	ND		1.00	1	07/22/2017 13:49	WG1001635	
1,1-Dichloropropene	ND		1.00	1	07/22/2017 13:49	WG1001635	
1,3-Dichloropropane	ND		1.00	1	07/22/2017 13:49	WG1001635	
cis-1,3-Dichloropropene	ND		1.00	1	07/22/2017 13:49	WG1001635	
trans-1,3-Dichloropropene	ND		1.00	1	07/22/2017 13:49	WG1001635	
2,2-Dichloropropane	ND		1.00	1	07/22/2017 13:49	WG1001635	
Di-isopropyl ether	ND		1.00	1	07/22/2017 13:49	WG1001635	
Ethylbenzene	ND		1.00	1	07/22/2017 13:49	WG1001635	
Hexachloro-1,3-butadiene	ND		1.00	1	07/22/2017 13:49	WG1001635	
Isopropylbenzene	ND		1.00	1	07/22/2017 13:49	WG1001635	
p-Isopropyltoluene	ND		1.00	1	07/22/2017 13:49	WG1001635	
2-Butanone (MEK)	ND		10.0	1	07/22/2017 13:49	WG1001635	
Methylene Chloride	ND		5.00	1	07/22/2017 13:49	WG1001635	
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/22/2017 13:49	WG1001635	
Methyl tert-butyl ether	ND		1.00	1	07/22/2017 13:49	WG1001635	
Naphthalene	ND		5.00	1	07/22/2017 13:49	WG1001635	
n-Propylbenzene	ND		1.00	1	07/22/2017 13:49	WG1001635	
Styrene	ND		1.00	1	07/22/2017 13:49	WG1001635	
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/22/2017 13:49	WG1001635	
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/22/2017 13:49	WG1001635	
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/22/2017 13:49	WG1001635	
Tetrachloroethene	2.53		1.00	1	07/22/2017 13:49	WG1001635	
Toluene	ND		1.00	1	07/22/2017 13:49	WG1001635	
1,2,3-Trichlorobenzene	ND	J3	1.00	1	07/22/2017 13:49	WG1001635	
1,2,4-Trichlorobenzene	ND		1.00	1	07/22/2017 13:49	WG1001635	



Collected date/time: 07/18/17 06:30

L923868

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	07/22/2017 13:49	WG1001635
1,1,2-Trichloroethane	ND		1.00	1	07/22/2017 13:49	WG1001635
Trichloroethene	ND		1.00	1	07/22/2017 13:49	WG1001635
Trichlorofluoromethane	ND		5.00	1	07/22/2017 13:49	WG1001635
1,2,3-Trichloropropane	ND		2.50	1	07/22/2017 13:49	WG1001635
1,2,4-Trimethylbenzene	ND		1.00	1	07/22/2017 13:49	WG1001635
1,2,3-Trimethylbenzene	ND		1.00	1	07/22/2017 13:49	WG1001635
1,3,5-Trimethylbenzene	ND		1.00	1	07/22/2017 13:49	WG1001635
Vinyl chloride	ND		1.00	1	07/22/2017 13:49	WG1001635
Xylenes, Total	ND		3.00	1	07/22/2017 13:49	WG1001635
(S) Toluene-d8	103		80.0-120		07/22/2017 13:49	WG1001635
(S) Dibromofluoromethane	103		76.0-123		07/22/2017 13:49	WG1001635
(S) 4-Bromofluorobenzene	101		80.0-120		07/22/2017 13:49	WG1001635

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	07/22/2017 14:06	WG1001635
Acrolein	ND	J3 J4	50.0	1	07/22/2017 14:06	WG1001635
Acrylonitrile	ND		10.0	1	07/22/2017 14:06	WG1001635
Benzene	ND		1.00	1	07/22/2017 14:06	WG1001635
Bromobenzene	ND		1.00	1	07/22/2017 14:06	WG1001635
Bromodichloromethane	ND		1.00	1	07/22/2017 14:06	WG1001635
Bromoform	ND		1.00	1	07/22/2017 14:06	WG1001635
Bromomethane	ND		5.00	1	07/22/2017 14:06	WG1001635
n-Butylbenzene	ND		1.00	1	07/22/2017 14:06	WG1001635
sec-Butylbenzene	ND		1.00	1	07/22/2017 14:06	WG1001635
tert-Butylbenzene	ND		1.00	1	07/22/2017 14:06	WG1001635
Carbon tetrachloride	ND		1.00	1	07/22/2017 14:06	WG1001635
Chlorobenzene	ND		1.00	1	07/22/2017 14:06	WG1001635
Chlorodibromomethane	ND		1.00	1	07/22/2017 14:06	WG1001635
Chloroethane	ND		5.00	1	07/22/2017 14:06	WG1001635
Chloroform	ND		5.00	1	07/22/2017 14:06	WG1001635
Chloromethane	ND		2.50	1	07/22/2017 14:06	WG1001635
2-Chlorotoluene	ND		1.00	1	07/22/2017 14:06	WG1001635
4-Chlorotoluene	ND		1.00	1	07/22/2017 14:06	WG1001635
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/22/2017 14:06	WG1001635
1,2-Dibromoethane	ND		1.00	1	07/22/2017 14:06	WG1001635
Dibromomethane	ND		1.00	1	07/22/2017 14:06	WG1001635
1,2-Dichlorobenzene	ND		1.00	1	07/22/2017 14:06	WG1001635
1,3-Dichlorobenzene	ND		1.00	1	07/22/2017 14:06	WG1001635
1,4-Dichlorobenzene	ND		1.00	1	07/22/2017 14:06	WG1001635
Dichlorodifluoromethane	ND		5.00	1	07/22/2017 14:06	WG1001635
1,1-Dichloroethane	ND		1.00	1	07/22/2017 14:06	WG1001635
1,2-Dichloroethane	ND		1.00	1	07/22/2017 14:06	WG1001635
1,1-Dichloroethene	ND		1.00	1	07/22/2017 14:06	WG1001635
cis-1,2-Dichloroethene	ND		1.00	1	07/22/2017 14:06	WG1001635
trans-1,2-Dichloroethene	ND		1.00	1	07/22/2017 14:06	WG1001635
1,2-Dichloropropane	ND		1.00	1	07/22/2017 14:06	WG1001635
1,1-Dichloropropene	ND		1.00	1	07/22/2017 14:06	WG1001635
1,3-Dichloropropane	ND		1.00	1	07/22/2017 14:06	WG1001635
cis-1,3-Dichloropropene	ND		1.00	1	07/22/2017 14:06	WG1001635
trans-1,3-Dichloropropene	ND		1.00	1	07/22/2017 14:06	WG1001635
2,2-Dichloropropane	ND		1.00	1	07/22/2017 14:06	WG1001635
Di-isopropyl ether	ND		1.00	1	07/22/2017 14:06	WG1001635
Ethylbenzene	ND		1.00	1	07/22/2017 14:06	WG1001635
Hexachloro-1,3-butadiene	ND		1.00	1	07/22/2017 14:06	WG1001635
Isopropylbenzene	ND		1.00	1	07/22/2017 14:06	WG1001635
p-Isopropyltoluene	ND		1.00	1	07/22/2017 14:06	WG1001635
2-Butanone (MEK)	ND		10.0	1	07/22/2017 14:06	WG1001635
Methylene Chloride	ND		5.00	1	07/22/2017 14:06	WG1001635
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/22/2017 14:06	WG1001635
Methyl tert-butyl ether	ND		1.00	1	07/22/2017 14:06	WG1001635
Naphthalene	ND		5.00	1	07/22/2017 14:06	WG1001635
n-Propylbenzene	ND		1.00	1	07/22/2017 14:06	WG1001635
Styrene	ND		1.00	1	07/22/2017 14:06	WG1001635
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/22/2017 14:06	WG1001635
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/22/2017 14:06	WG1001635
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/22/2017 14:06	WG1001635
Tetrachloroethene	2.52		1.00	1	07/22/2017 14:06	WG1001635
Toluene	ND		1.00	1	07/22/2017 14:06	WG1001635
1,2,3-Trichlorobenzene	ND	J3	1.00	1	07/22/2017 14:06	WG1001635
1,2,4-Trichlorobenzene	ND		1.00	1	07/22/2017 14:06	WG1001635

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	07/22/2017 14:06	WG1001635
1,1,2-Trichloroethane	ND		1.00	1	07/22/2017 14:06	WG1001635
Trichloroethene	ND		1.00	1	07/22/2017 14:06	WG1001635
Trichlorofluoromethane	ND		5.00	1	07/22/2017 14:06	WG1001635
1,2,3-Trichloropropane	ND		2.50	1	07/22/2017 14:06	WG1001635
1,2,4-Trimethylbenzene	ND		1.00	1	07/22/2017 14:06	WG1001635
1,2,3-Trimethylbenzene	ND		1.00	1	07/22/2017 14:06	WG1001635
1,3,5-Trimethylbenzene	ND		1.00	1	07/22/2017 14:06	WG1001635
Vinyl chloride	ND		1.00	1	07/22/2017 14:06	WG1001635
Xylenes, Total	ND		3.00	1	07/22/2017 14:06	WG1001635
(S) Toluene-d8	100		80.0-120		07/22/2017 14:06	WG1001635
(S) Dibromofluoromethane	102		76.0-123		07/22/2017 14:06	WG1001635
(S) 4-Bromofluorobenzene	101		80.0-120		07/22/2017 14:06	WG1001635

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch	
Acetone	ND		50.0	1	07/22/2017 14:23	WG1001635	¹ Cp
Acrolein	ND	J3 J4	50.0	1	07/22/2017 14:23	WG1001635	² Tc
Acrylonitrile	ND		10.0	1	07/22/2017 14:23	WG1001635	³ Ss
Benzene	ND		1.00	1	07/22/2017 14:23	WG1001635	⁴ Cn
Bromobenzene	ND		1.00	1	07/22/2017 14:23	WG1001635	⁵ Sr
Bromodichloromethane	ND		1.00	1	07/22/2017 14:23	WG1001635	⁶ Qc
Bromoform	ND		1.00	1	07/22/2017 14:23	WG1001635	⁷ Gl
Bromomethane	ND		5.00	1	07/22/2017 14:23	WG1001635	⁸ Al
n-Butylbenzene	ND		1.00	1	07/22/2017 14:23	WG1001635	⁹ Sc
sec-Butylbenzene	ND		1.00	1	07/22/2017 14:23	WG1001635	
tert-Butylbenzene	ND		1.00	1	07/22/2017 14:23	WG1001635	
Carbon tetrachloride	ND		1.00	1	07/22/2017 14:23	WG1001635	
Chlorobenzene	ND		1.00	1	07/22/2017 14:23	WG1001635	
Chlorodibromomethane	ND		1.00	1	07/22/2017 14:23	WG1001635	
Chloroethane	ND		5.00	1	07/22/2017 14:23	WG1001635	
Chloroform	ND		5.00	1	07/22/2017 14:23	WG1001635	
Chloromethane	ND		2.50	1	07/22/2017 14:23	WG1001635	
2-Chlorotoluene	ND		1.00	1	07/22/2017 14:23	WG1001635	
4-Chlorotoluene	ND		1.00	1	07/22/2017 14:23	WG1001635	
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/22/2017 14:23	WG1001635	
1,2-Dibromoethane	ND		1.00	1	07/22/2017 14:23	WG1001635	
Dibromomethane	ND		1.00	1	07/22/2017 14:23	WG1001635	
1,2-Dichlorobenzene	ND		1.00	1	07/22/2017 14:23	WG1001635	
1,3-Dichlorobenzene	ND		1.00	1	07/22/2017 14:23	WG1001635	
1,4-Dichlorobenzene	ND		1.00	1	07/22/2017 14:23	WG1001635	
Dichlorodifluoromethane	ND		5.00	1	07/22/2017 14:23	WG1001635	
1,1-Dichloroethane	ND		1.00	1	07/22/2017 14:23	WG1001635	
1,2-Dichloroethane	ND		1.00	1	07/22/2017 14:23	WG1001635	
1,1-Dichloroethene	ND		1.00	1	07/22/2017 14:23	WG1001635	
cis-1,2-Dichloroethene	ND		1.00	1	07/22/2017 14:23	WG1001635	
trans-1,2-Dichloroethene	ND		1.00	1	07/22/2017 14:23	WG1001635	
1,2-Dichloropropane	ND		1.00	1	07/22/2017 14:23	WG1001635	
1,1-Dichloropropene	ND		1.00	1	07/22/2017 14:23	WG1001635	
1,3-Dichloropropane	ND		1.00	1	07/22/2017 14:23	WG1001635	
cis-1,3-Dichloropropene	ND		1.00	1	07/22/2017 14:23	WG1001635	
trans-1,3-Dichloropropene	ND		1.00	1	07/22/2017 14:23	WG1001635	
2,2-Dichloropropane	ND		1.00	1	07/22/2017 14:23	WG1001635	
Di-isopropyl ether	ND		1.00	1	07/22/2017 14:23	WG1001635	
Ethylbenzene	ND		1.00	1	07/22/2017 14:23	WG1001635	
Hexachloro-1,3-butadiene	ND		1.00	1	07/22/2017 14:23	WG1001635	
Isopropylbenzene	ND		1.00	1	07/22/2017 14:23	WG1001635	
p-Isopropyltoluene	ND		1.00	1	07/22/2017 14:23	WG1001635	
2-Butanone (MEK)	ND		10.0	1	07/22/2017 14:23	WG1001635	
Methylene Chloride	ND		5.00	1	07/22/2017 14:23	WG1001635	
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/22/2017 14:23	WG1001635	
Methyl tert-butyl ether	ND		1.00	1	07/22/2017 14:23	WG1001635	
Naphthalene	ND		5.00	1	07/22/2017 14:23	WG1001635	
n-Propylbenzene	ND		1.00	1	07/22/2017 14:23	WG1001635	
Styrene	ND		1.00	1	07/22/2017 14:23	WG1001635	
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/22/2017 14:23	WG1001635	
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/22/2017 14:23	WG1001635	
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/22/2017 14:23	WG1001635	
Tetrachloroethene	8.94		1.00	1	07/22/2017 14:23	WG1001635	
Toluene	ND		1.00	1	07/22/2017 14:23	WG1001635	
1,2,3-Trichlorobenzene	ND	J3	1.00	1	07/22/2017 14:23	WG1001635	
1,2,4-Trichlorobenzene	ND		1.00	1	07/22/2017 14:23	WG1001635	



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	07/22/2017 14:23	WG1001635
1,1,2-Trichloroethane	ND		1.00	1	07/22/2017 14:23	WG1001635
Trichloroethene	ND		1.00	1	07/22/2017 14:23	WG1001635
Trichlorofluoromethane	ND		5.00	1	07/22/2017 14:23	WG1001635
1,2,3-Trichloropropane	ND		2.50	1	07/22/2017 14:23	WG1001635
1,2,4-Trimethylbenzene	ND		1.00	1	07/22/2017 14:23	WG1001635
1,2,3-Trimethylbenzene	ND		1.00	1	07/22/2017 14:23	WG1001635
1,3,5-Trimethylbenzene	ND		1.00	1	07/22/2017 14:23	WG1001635
Vinyl chloride	ND		1.00	1	07/22/2017 14:23	WG1001635
Xylenes, Total	ND		3.00	1	07/22/2017 14:23	WG1001635
(S) Toluene-d8	99.6		80.0-120		07/22/2017 14:23	WG1001635
(S) Dibromofluoromethane	103		76.0-123		07/22/2017 14:23	WG1001635
(S) 4-Bromofluorobenzene	101		80.0-120		07/22/2017 14:23	WG1001635

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch	
Acetone	ND		50.0	1	07/22/2017 14:40	WG1001635	¹ Cp
Acrolein	ND	J3 J4	50.0	1	07/22/2017 14:40	WG1001635	² Tc
Acrylonitrile	ND		10.0	1	07/22/2017 14:40	WG1001635	³ Ss
Benzene	ND		1.00	1	07/22/2017 14:40	WG1001635	⁴ Cn
Bromobenzene	ND		1.00	1	07/22/2017 14:40	WG1001635	⁵ Sr
Bromodichloromethane	ND		1.00	1	07/22/2017 14:40	WG1001635	⁶ Qc
Bromoform	ND		1.00	1	07/22/2017 14:40	WG1001635	⁷ Gl
Bromomethane	ND		5.00	1	07/22/2017 14:40	WG1001635	⁸ Al
n-Butylbenzene	ND		1.00	1	07/22/2017 14:40	WG1001635	⁹ Sc
sec-Butylbenzene	ND		1.00	1	07/22/2017 14:40	WG1001635	
tert-Butylbenzene	ND		1.00	1	07/22/2017 14:40	WG1001635	
Carbon tetrachloride	ND		1.00	1	07/22/2017 14:40	WG1001635	
Chlorobenzene	ND		1.00	1	07/22/2017 14:40	WG1001635	
Chlorodibromomethane	ND		1.00	1	07/22/2017 14:40	WG1001635	
Chloroethane	ND		5.00	1	07/22/2017 14:40	WG1001635	
Chloroform	ND		5.00	1	07/22/2017 14:40	WG1001635	
Chloromethane	ND		2.50	1	07/22/2017 14:40	WG1001635	
2-Chlorotoluene	ND		1.00	1	07/22/2017 14:40	WG1001635	
4-Chlorotoluene	ND		1.00	1	07/22/2017 14:40	WG1001635	
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/22/2017 14:40	WG1001635	
1,2-Dibromoethane	ND		1.00	1	07/22/2017 14:40	WG1001635	
Dibromomethane	ND		1.00	1	07/22/2017 14:40	WG1001635	
1,2-Dichlorobenzene	ND		1.00	1	07/22/2017 14:40	WG1001635	
1,3-Dichlorobenzene	ND		1.00	1	07/22/2017 14:40	WG1001635	
1,4-Dichlorobenzene	ND		1.00	1	07/22/2017 14:40	WG1001635	
Dichlorodifluoromethane	ND		5.00	1	07/22/2017 14:40	WG1001635	
1,1-Dichloroethane	ND		1.00	1	07/22/2017 14:40	WG1001635	
1,2-Dichloroethane	ND		1.00	1	07/22/2017 14:40	WG1001635	
1,1-Dichloroethene	ND		1.00	1	07/22/2017 14:40	WG1001635	
cis-1,2-Dichloroethene	ND		1.00	1	07/22/2017 14:40	WG1001635	
trans-1,2-Dichloroethene	ND		1.00	1	07/22/2017 14:40	WG1001635	
1,2-Dichloropropane	ND		1.00	1	07/22/2017 14:40	WG1001635	
1,1-Dichloropropene	ND		1.00	1	07/22/2017 14:40	WG1001635	
1,3-Dichloropropane	ND		1.00	1	07/22/2017 14:40	WG1001635	
cis-1,3-Dichloropropene	ND		1.00	1	07/22/2017 14:40	WG1001635	
trans-1,3-Dichloropropene	ND		1.00	1	07/22/2017 14:40	WG1001635	
2,2-Dichloropropane	ND		1.00	1	07/22/2017 14:40	WG1001635	
Di-isopropyl ether	ND		1.00	1	07/22/2017 14:40	WG1001635	
Ethylbenzene	ND		1.00	1	07/22/2017 14:40	WG1001635	
Hexachloro-1,3-butadiene	ND		1.00	1	07/22/2017 14:40	WG1001635	
Isopropylbenzene	ND		1.00	1	07/22/2017 14:40	WG1001635	
p-Isopropyltoluene	ND		1.00	1	07/22/2017 14:40	WG1001635	
2-Butanone (MEK)	ND		10.0	1	07/22/2017 14:40	WG1001635	
Methylene Chloride	ND		5.00	1	07/22/2017 14:40	WG1001635	
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/22/2017 14:40	WG1001635	
Methyl tert-butyl ether	ND		1.00	1	07/22/2017 14:40	WG1001635	
Naphthalene	ND		5.00	1	07/22/2017 14:40	WG1001635	
n-Propylbenzene	ND		1.00	1	07/22/2017 14:40	WG1001635	
Styrene	ND		1.00	1	07/22/2017 14:40	WG1001635	
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/22/2017 14:40	WG1001635	
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/22/2017 14:40	WG1001635	
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/22/2017 14:40	WG1001635	
Tetrachloroethene	4.69		1.00	1	07/22/2017 14:40	WG1001635	
Toluene	ND		1.00	1	07/22/2017 14:40	WG1001635	
1,2,3-Trichlorobenzene	ND	J3	1.00	1	07/22/2017 14:40	WG1001635	
1,2,4-Trichlorobenzene	ND		1.00	1	07/22/2017 14:40	WG1001635	



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	07/22/2017 14:40	WG1001635
1,1,2-Trichloroethane	ND		1.00	1	07/22/2017 14:40	WG1001635
Trichloroethene	ND		1.00	1	07/22/2017 14:40	WG1001635
Trichlorofluoromethane	ND		5.00	1	07/22/2017 14:40	WG1001635
1,2,3-Trichloropropane	ND		2.50	1	07/22/2017 14:40	WG1001635
1,2,4-Trimethylbenzene	ND		1.00	1	07/22/2017 14:40	WG1001635
1,2,3-Trimethylbenzene	ND		1.00	1	07/22/2017 14:40	WG1001635
1,3,5-Trimethylbenzene	ND		1.00	1	07/22/2017 14:40	WG1001635
Vinyl chloride	ND		1.00	1	07/22/2017 14:40	WG1001635
Xylenes, Total	ND		3.00	1	07/22/2017 14:40	WG1001635
(S) Toluene-d8	102		80.0-120		07/22/2017 14:40	WG1001635
(S) Dibromofluoromethane	104		76.0-123		07/22/2017 14:40	WG1001635
(S) 4-Bromofluorobenzene	101		80.0-120		07/22/2017 14:40	WG1001635

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch	
Acetone	ND		50.0	1	07/22/2017 14:56	WG1001635	¹ Cp
Acrolein	ND	J3 J4	50.0	1	07/22/2017 14:56	WG1001635	² Tc
Acrylonitrile	ND		10.0	1	07/22/2017 14:56	WG1001635	³ Ss
Benzene	ND		1.00	1	07/22/2017 14:56	WG1001635	⁴ Cn
Bromobenzene	ND		1.00	1	07/22/2017 14:56	WG1001635	⁵ Sr
Bromodichloromethane	ND		1.00	1	07/22/2017 14:56	WG1001635	⁶ Qc
Bromoform	ND		1.00	1	07/22/2017 14:56	WG1001635	⁷ Gl
Bromomethane	ND		5.00	1	07/22/2017 14:56	WG1001635	⁸ Al
n-Butylbenzene	ND		1.00	1	07/22/2017 14:56	WG1001635	⁹ Sc
sec-Butylbenzene	ND		1.00	1	07/22/2017 14:56	WG1001635	
tert-Butylbenzene	ND		1.00	1	07/22/2017 14:56	WG1001635	
Carbon tetrachloride	ND		1.00	1	07/22/2017 14:56	WG1001635	
Chlorobenzene	ND		1.00	1	07/22/2017 14:56	WG1001635	
Chlorodibromomethane	ND		1.00	1	07/22/2017 14:56	WG1001635	
Chloroethane	ND		5.00	1	07/22/2017 14:56	WG1001635	
Chloroform	ND		5.00	1	07/22/2017 14:56	WG1001635	
Chloromethane	ND		2.50	1	07/22/2017 14:56	WG1001635	
2-Chlorotoluene	ND		1.00	1	07/22/2017 14:56	WG1001635	
4-Chlorotoluene	ND		1.00	1	07/22/2017 14:56	WG1001635	
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/22/2017 14:56	WG1001635	
1,2-Dibromoethane	ND		1.00	1	07/22/2017 14:56	WG1001635	
Dibromomethane	ND		1.00	1	07/22/2017 14:56	WG1001635	
1,2-Dichlorobenzene	ND		1.00	1	07/22/2017 14:56	WG1001635	
1,3-Dichlorobenzene	ND		1.00	1	07/22/2017 14:56	WG1001635	
1,4-Dichlorobenzene	ND		1.00	1	07/22/2017 14:56	WG1001635	
Dichlorodifluoromethane	ND		5.00	1	07/22/2017 14:56	WG1001635	
1,1-Dichloroethane	ND		1.00	1	07/22/2017 14:56	WG1001635	
1,2-Dichloroethane	ND		1.00	1	07/22/2017 14:56	WG1001635	
1,1-Dichloroethene	ND		1.00	1	07/22/2017 14:56	WG1001635	
cis-1,2-Dichloroethene	ND		1.00	1	07/22/2017 14:56	WG1001635	
trans-1,2-Dichloroethene	ND		1.00	1	07/22/2017 14:56	WG1001635	
1,2-Dichloropropane	ND		1.00	1	07/22/2017 14:56	WG1001635	
1,1-Dichloropropene	ND		1.00	1	07/22/2017 14:56	WG1001635	
1,3-Dichloropropane	ND		1.00	1	07/22/2017 14:56	WG1001635	
cis-1,3-Dichloropropene	ND		1.00	1	07/22/2017 14:56	WG1001635	
trans-1,3-Dichloropropene	ND		1.00	1	07/22/2017 14:56	WG1001635	
2,2-Dichloropropane	ND		1.00	1	07/22/2017 14:56	WG1001635	
Di-isopropyl ether	ND		1.00	1	07/22/2017 14:56	WG1001635	
Ethylbenzene	ND		1.00	1	07/22/2017 14:56	WG1001635	
Hexachloro-1,3-butadiene	ND		1.00	1	07/22/2017 14:56	WG1001635	
Isopropylbenzene	ND		1.00	1	07/22/2017 14:56	WG1001635	
p-Isopropyltoluene	ND		1.00	1	07/22/2017 14:56	WG1001635	
2-Butanone (MEK)	ND		10.0	1	07/22/2017 14:56	WG1001635	
Methylene Chloride	ND		5.00	1	07/22/2017 14:56	WG1001635	
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/22/2017 14:56	WG1001635	
Methyl tert-butyl ether	ND		1.00	1	07/22/2017 14:56	WG1001635	
Naphthalene	ND		5.00	1	07/22/2017 14:56	WG1001635	
n-Propylbenzene	ND		1.00	1	07/22/2017 14:56	WG1001635	
Styrene	ND		1.00	1	07/22/2017 14:56	WG1001635	
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/22/2017 14:56	WG1001635	
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/22/2017 14:56	WG1001635	
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/22/2017 14:56	WG1001635	
Tetrachloroethene	7.20		1.00	1	07/22/2017 14:56	WG1001635	
Toluene	ND		1.00	1	07/22/2017 14:56	WG1001635	
1,2,3-Trichlorobenzene	ND	J3	1.00	1	07/22/2017 14:56	WG1001635	
1,2,4-Trichlorobenzene	ND		1.00	1	07/22/2017 14:56	WG1001635	



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	07/22/2017 14:56	WG1001635
1,1,2-Trichloroethane	ND		1.00	1	07/22/2017 14:56	WG1001635
Trichloroethene	ND		1.00	1	07/22/2017 14:56	WG1001635
Trichlorofluoromethane	ND		5.00	1	07/22/2017 14:56	WG1001635
1,2,3-Trichloropropane	ND		2.50	1	07/22/2017 14:56	WG1001635
1,2,4-Trimethylbenzene	ND		1.00	1	07/22/2017 14:56	WG1001635
1,2,3-Trimethylbenzene	ND		1.00	1	07/22/2017 14:56	WG1001635
1,3,5-Trimethylbenzene	ND		1.00	1	07/22/2017 14:56	WG1001635
Vinyl chloride	ND		1.00	1	07/22/2017 14:56	WG1001635
Xylenes, Total	ND		3.00	1	07/22/2017 14:56	WG1001635
(S) Toluene-d8	101		80.0-120		07/22/2017 14:56	WG1001635
(S) Dibromofluoromethane	104		76.0-123		07/22/2017 14:56	WG1001635
(S) 4-Bromofluorobenzene	102		80.0-120		07/22/2017 14:56	WG1001635

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch	
Acetone	ND		50.0	1	07/22/2017 15:13	WG1001635	¹ Cp
Acrolein	ND	J3 J4	50.0	1	07/22/2017 15:13	WG1001635	² Tc
Acrylonitrile	ND		10.0	1	07/22/2017 15:13	WG1001635	³ Ss
Benzene	ND		1.00	1	07/22/2017 15:13	WG1001635	⁴ Cn
Bromobenzene	ND		1.00	1	07/22/2017 15:13	WG1001635	⁵ Sr
Bromodichloromethane	ND		1.00	1	07/22/2017 15:13	WG1001635	⁶ Qc
Bromoform	ND		1.00	1	07/22/2017 15:13	WG1001635	⁷ Gl
Bromomethane	ND		5.00	1	07/22/2017 15:13	WG1001635	⁸ Al
n-Butylbenzene	ND		1.00	1	07/22/2017 15:13	WG1001635	⁹ Sc
sec-Butylbenzene	ND		1.00	1	07/22/2017 15:13	WG1001635	
tert-Butylbenzene	ND		1.00	1	07/22/2017 15:13	WG1001635	
Carbon tetrachloride	ND		1.00	1	07/22/2017 15:13	WG1001635	
Chlorobenzene	ND		1.00	1	07/22/2017 15:13	WG1001635	
Chlorodibromomethane	ND		1.00	1	07/22/2017 15:13	WG1001635	
Chloroethane	ND		5.00	1	07/22/2017 15:13	WG1001635	
Chloroform	ND		5.00	1	07/22/2017 15:13	WG1001635	
Chloromethane	ND		2.50	1	07/22/2017 15:13	WG1001635	
2-Chlorotoluene	ND		1.00	1	07/22/2017 15:13	WG1001635	
4-Chlorotoluene	ND		1.00	1	07/22/2017 15:13	WG1001635	
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/22/2017 15:13	WG1001635	
1,2-Dibromoethane	ND		1.00	1	07/22/2017 15:13	WG1001635	
Dibromomethane	ND		1.00	1	07/22/2017 15:13	WG1001635	
1,2-Dichlorobenzene	ND		1.00	1	07/22/2017 15:13	WG1001635	
1,3-Dichlorobenzene	ND		1.00	1	07/22/2017 15:13	WG1001635	
1,4-Dichlorobenzene	ND		1.00	1	07/22/2017 15:13	WG1001635	
Dichlorodifluoromethane	ND		5.00	1	07/22/2017 15:13	WG1001635	
1,1-Dichloroethane	ND		1.00	1	07/22/2017 15:13	WG1001635	
1,2-Dichloroethane	ND		1.00	1	07/22/2017 15:13	WG1001635	
1,1-Dichloroethene	ND		1.00	1	07/22/2017 15:13	WG1001635	
cis-1,2-Dichloroethene	ND		1.00	1	07/22/2017 15:13	WG1001635	
trans-1,2-Dichloroethene	ND		1.00	1	07/22/2017 15:13	WG1001635	
1,2-Dichloropropane	ND		1.00	1	07/22/2017 15:13	WG1001635	
1,1-Dichloropropene	ND		1.00	1	07/22/2017 15:13	WG1001635	
1,3-Dichloropropane	ND		1.00	1	07/22/2017 15:13	WG1001635	
cis-1,3-Dichloropropene	ND		1.00	1	07/22/2017 15:13	WG1001635	
trans-1,3-Dichloropropene	ND		1.00	1	07/22/2017 15:13	WG1001635	
2,2-Dichloropropane	ND		1.00	1	07/22/2017 15:13	WG1001635	
Di-isopropyl ether	ND		1.00	1	07/22/2017 15:13	WG1001635	
Ethylbenzene	ND		1.00	1	07/22/2017 15:13	WG1001635	
Hexachloro-1,3-butadiene	ND		1.00	1	07/22/2017 15:13	WG1001635	
Isopropylbenzene	ND		1.00	1	07/22/2017 15:13	WG1001635	
p-Isopropyltoluene	ND		1.00	1	07/22/2017 15:13	WG1001635	
2-Butanone (MEK)	ND		10.0	1	07/22/2017 15:13	WG1001635	
Methylene Chloride	ND		5.00	1	07/22/2017 15:13	WG1001635	
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/22/2017 15:13	WG1001635	
Methyl tert-butyl ether	ND		1.00	1	07/22/2017 15:13	WG1001635	
Naphthalene	ND		5.00	1	07/22/2017 15:13	WG1001635	
n-Propylbenzene	ND		1.00	1	07/22/2017 15:13	WG1001635	
Styrene	ND		1.00	1	07/22/2017 15:13	WG1001635	
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/22/2017 15:13	WG1001635	
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/22/2017 15:13	WG1001635	
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/22/2017 15:13	WG1001635	
Tetrachloroethene	4.94		1.00	1	07/22/2017 15:13	WG1001635	
Toluene	ND		1.00	1	07/22/2017 15:13	WG1001635	
1,2,3-Trichlorobenzene	ND	J3	1.00	1	07/22/2017 15:13	WG1001635	
1,2,4-Trichlorobenzene	ND		1.00	1	07/22/2017 15:13	WG1001635	



Collected date/time: 07/19/17 13:00

L923868

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	07/22/2017 15:13	WG1001635
1,1,2-Trichloroethane	ND		1.00	1	07/22/2017 15:13	WG1001635
Trichloroethene	ND		1.00	1	07/22/2017 15:13	WG1001635
Trichlorofluoromethane	ND		5.00	1	07/22/2017 15:13	WG1001635
1,2,3-Trichloropropane	ND		2.50	1	07/22/2017 15:13	WG1001635
1,2,4-Trimethylbenzene	ND		1.00	1	07/22/2017 15:13	WG1001635
1,2,3-Trimethylbenzene	ND		1.00	1	07/22/2017 15:13	WG1001635
1,3,5-Trimethylbenzene	ND		1.00	1	07/22/2017 15:13	WG1001635
Vinyl chloride	ND		1.00	1	07/22/2017 15:13	WG1001635
Xylenes, Total	ND		3.00	1	07/22/2017 15:13	WG1001635
(S) Toluene-d8	101		80.0-120		07/22/2017 15:13	WG1001635
(S) Dibromofluoromethane	104		76.0-123		07/22/2017 15:13	WG1001635
(S) 4-Bromofluorobenzene	98.3		80.0-120		07/22/2017 15:13	WG1001635

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch	
	ug/l		ug/l		date / time		
Acetone	ND		50.0	1	07/22/2017 15:30	WG1001635	¹ Cp
Acrolein	ND	J3 J4	50.0	1	07/22/2017 15:30	WG1001635	² Tc
Acrylonitrile	ND		10.0	1	07/22/2017 15:30	WG1001635	³ Ss
Benzene	ND		1.00	1	07/22/2017 15:30	WG1001635	⁴ Cn
Bromobenzene	ND		1.00	1	07/22/2017 15:30	WG1001635	⁵ Sr
Bromodichloromethane	ND		1.00	1	07/22/2017 15:30	WG1001635	⁶ Qc
Bromoform	ND		1.00	1	07/22/2017 15:30	WG1001635	⁷ Gl
Bromomethane	ND		5.00	1	07/22/2017 15:30	WG1001635	⁸ Al
n-Butylbenzene	ND		1.00	1	07/22/2017 15:30	WG1001635	⁹ Sc
sec-Butylbenzene	ND		1.00	1	07/22/2017 15:30	WG1001635	
tert-Butylbenzene	ND		1.00	1	07/22/2017 15:30	WG1001635	
Carbon tetrachloride	ND		1.00	1	07/22/2017 15:30	WG1001635	
Chlorobenzene	ND		1.00	1	07/22/2017 15:30	WG1001635	
Chlorodibromomethane	ND		1.00	1	07/22/2017 15:30	WG1001635	
Chloroethane	ND		5.00	1	07/22/2017 15:30	WG1001635	
Chloroform	ND		5.00	1	07/22/2017 15:30	WG1001635	
Chloromethane	ND		2.50	1	07/22/2017 15:30	WG1001635	
2-Chlorotoluene	ND		1.00	1	07/22/2017 15:30	WG1001635	
4-Chlorotoluene	ND		1.00	1	07/22/2017 15:30	WG1001635	
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/22/2017 15:30	WG1001635	
1,2-Dibromoethane	ND		1.00	1	07/22/2017 15:30	WG1001635	
Dibromomethane	ND		1.00	1	07/22/2017 15:30	WG1001635	
1,2-Dichlorobenzene	ND		1.00	1	07/22/2017 15:30	WG1001635	
1,3-Dichlorobenzene	ND		1.00	1	07/22/2017 15:30	WG1001635	
1,4-Dichlorobenzene	ND		1.00	1	07/22/2017 15:30	WG1001635	
Dichlorodifluoromethane	ND		5.00	1	07/22/2017 15:30	WG1001635	
1,1-Dichloroethane	ND		1.00	1	07/22/2017 15:30	WG1001635	
1,2-Dichloroethane	ND		1.00	1	07/22/2017 15:30	WG1001635	
1,1-Dichloroethene	ND		1.00	1	07/22/2017 15:30	WG1001635	
cis-1,2-Dichloroethene	ND		1.00	1	07/22/2017 15:30	WG1001635	
trans-1,2-Dichloroethene	ND		1.00	1	07/22/2017 15:30	WG1001635	
1,2-Dichloropropane	ND		1.00	1	07/22/2017 15:30	WG1001635	
1,1-Dichloropropene	ND		1.00	1	07/22/2017 15:30	WG1001635	
1,3-Dichloropropane	ND		1.00	1	07/22/2017 15:30	WG1001635	
cis-1,3-Dichloropropene	ND		1.00	1	07/22/2017 15:30	WG1001635	
trans-1,3-Dichloropropene	ND		1.00	1	07/22/2017 15:30	WG1001635	
2,2-Dichloropropane	ND		1.00	1	07/22/2017 15:30	WG1001635	
Di-isopropyl ether	ND		1.00	1	07/22/2017 15:30	WG1001635	
Ethylbenzene	ND		1.00	1	07/22/2017 15:30	WG1001635	
Hexachloro-1,3-butadiene	ND		1.00	1	07/22/2017 15:30	WG1001635	
Isopropylbenzene	ND		1.00	1	07/22/2017 15:30	WG1001635	
p-Isopropyltoluene	ND		1.00	1	07/22/2017 15:30	WG1001635	
2-Butanone (MEK)	ND		10.0	1	07/22/2017 15:30	WG1001635	
Methylene Chloride	ND		5.00	1	07/22/2017 15:30	WG1001635	
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/22/2017 15:30	WG1001635	
Methyl tert-butyl ether	ND		1.00	1	07/22/2017 15:30	WG1001635	
Naphthalene	ND		5.00	1	07/22/2017 15:30	WG1001635	
n-Propylbenzene	ND		1.00	1	07/22/2017 15:30	WG1001635	
Styrene	ND		1.00	1	07/22/2017 15:30	WG1001635	
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/22/2017 15:30	WG1001635	
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/22/2017 15:30	WG1001635	
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/22/2017 15:30	WG1001635	
Tetrachloroethene	5.00		1.00	1	07/22/2017 15:30	WG1001635	
Toluene	ND		1.00	1	07/22/2017 15:30	WG1001635	
1,2,3-Trichlorobenzene	ND	J3	1.00	1	07/22/2017 15:30	WG1001635	
1,2,4-Trichlorobenzene	ND		1.00	1	07/22/2017 15:30	WG1001635	



Collected date/time: 07/19/17 14:20

L923868

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	07/22/2017 15:30	WG1001635
1,1,2-Trichloroethane	ND		1.00	1	07/22/2017 15:30	WG1001635
Trichloroethene	ND		1.00	1	07/22/2017 15:30	WG1001635
Trichlorofluoromethane	ND		5.00	1	07/22/2017 15:30	WG1001635
1,2,3-Trichloropropane	ND		2.50	1	07/22/2017 15:30	WG1001635
1,2,4-Trimethylbenzene	ND		1.00	1	07/22/2017 15:30	WG1001635
1,2,3-Trimethylbenzene	ND		1.00	1	07/22/2017 15:30	WG1001635
1,3,5-Trimethylbenzene	ND		1.00	1	07/22/2017 15:30	WG1001635
Vinyl chloride	ND		1.00	1	07/22/2017 15:30	WG1001635
Xylenes, Total	ND		3.00	1	07/22/2017 15:30	WG1001635
(S) Toluene-d8	102		80.0-120		07/22/2017 15:30	WG1001635
(S) Dibromofluoromethane	106		76.0-123		07/22/2017 15:30	WG1001635
(S) 4-Bromofluorobenzene	99.0		80.0-120		07/22/2017 15:30	WG1001635

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch	
Acetone	ND		50.0	1	07/22/2017 15:47	WG1001635	¹ Cp
Acrolein	ND	J3 J4	50.0	1	07/22/2017 15:47	WG1001635	² Tc
Acrylonitrile	ND		10.0	1	07/22/2017 15:47	WG1001635	³ Ss
Benzene	ND		1.00	1	07/22/2017 15:47	WG1001635	⁴ Cn
Bromobenzene	ND		1.00	1	07/22/2017 15:47	WG1001635	⁵ Sr
Bromodichloromethane	ND		1.00	1	07/22/2017 15:47	WG1001635	⁶ Qc
Bromoform	ND		1.00	1	07/22/2017 15:47	WG1001635	⁷ Gl
Bromomethane	ND		5.00	1	07/22/2017 15:47	WG1001635	⁸ Al
n-Butylbenzene	ND		1.00	1	07/22/2017 15:47	WG1001635	⁹ Sc
sec-Butylbenzene	ND		1.00	1	07/22/2017 15:47	WG1001635	
tert-Butylbenzene	ND		1.00	1	07/22/2017 15:47	WG1001635	
Carbon tetrachloride	ND		1.00	1	07/22/2017 15:47	WG1001635	
Chlorobenzene	ND		1.00	1	07/22/2017 15:47	WG1001635	
Chlorodibromomethane	ND		1.00	1	07/22/2017 15:47	WG1001635	
Chloroethane	ND		5.00	1	07/22/2017 15:47	WG1001635	
Chloroform	ND		5.00	1	07/22/2017 15:47	WG1001635	
Chloromethane	ND		2.50	1	07/22/2017 15:47	WG1001635	
2-Chlorotoluene	ND		1.00	1	07/22/2017 15:47	WG1001635	
4-Chlorotoluene	ND		1.00	1	07/22/2017 15:47	WG1001635	
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/22/2017 15:47	WG1001635	
1,2-Dibromoethane	ND		1.00	1	07/22/2017 15:47	WG1001635	
Dibromomethane	ND		1.00	1	07/22/2017 15:47	WG1001635	
1,2-Dichlorobenzene	ND		1.00	1	07/22/2017 15:47	WG1001635	
1,3-Dichlorobenzene	ND		1.00	1	07/22/2017 15:47	WG1001635	
1,4-Dichlorobenzene	ND		1.00	1	07/22/2017 15:47	WG1001635	
Dichlorodifluoromethane	ND		5.00	1	07/22/2017 15:47	WG1001635	
1,1-Dichloroethane	ND		1.00	1	07/22/2017 15:47	WG1001635	
1,2-Dichloroethane	ND		1.00	1	07/22/2017 15:47	WG1001635	
1,1-Dichloroethene	ND		1.00	1	07/22/2017 15:47	WG1001635	
cis-1,2-Dichloroethene	ND		1.00	1	07/22/2017 15:47	WG1001635	
trans-1,2-Dichloroethene	ND		1.00	1	07/22/2017 15:47	WG1001635	
1,2-Dichloropropane	ND		1.00	1	07/22/2017 15:47	WG1001635	
1,1-Dichloropropene	ND		1.00	1	07/22/2017 15:47	WG1001635	
1,3-Dichloropropane	ND		1.00	1	07/22/2017 15:47	WG1001635	
cis-1,3-Dichloropropene	ND		1.00	1	07/22/2017 15:47	WG1001635	
trans-1,3-Dichloropropene	ND		1.00	1	07/22/2017 15:47	WG1001635	
2,2-Dichloropropane	ND		1.00	1	07/22/2017 15:47	WG1001635	
Di-isopropyl ether	ND		1.00	1	07/22/2017 15:47	WG1001635	
Ethylbenzene	ND		1.00	1	07/22/2017 15:47	WG1001635	
Hexachloro-1,3-butadiene	ND		1.00	1	07/22/2017 15:47	WG1001635	
Isopropylbenzene	ND		1.00	1	07/22/2017 15:47	WG1001635	
p-Isopropyltoluene	ND		1.00	1	07/22/2017 15:47	WG1001635	
2-Butanone (MEK)	ND		10.0	1	07/22/2017 15:47	WG1001635	
Methylene Chloride	ND		5.00	1	07/22/2017 15:47	WG1001635	
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/22/2017 15:47	WG1001635	
Methyl tert-butyl ether	ND		1.00	1	07/22/2017 15:47	WG1001635	
Naphthalene	ND		5.00	1	07/22/2017 15:47	WG1001635	
n-Propylbenzene	ND		1.00	1	07/22/2017 15:47	WG1001635	
Styrene	ND		1.00	1	07/22/2017 15:47	WG1001635	
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/22/2017 15:47	WG1001635	
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/22/2017 15:47	WG1001635	
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/22/2017 15:47	WG1001635	
Tetrachloroethene	ND		1.00	1	07/22/2017 15:47	WG1001635	
Toluene	ND		1.00	1	07/22/2017 15:47	WG1001635	
1,2,3-Trichlorobenzene	ND	J3	1.00	1	07/22/2017 15:47	WG1001635	
1,2,4-Trichlorobenzene	ND		1.00	1	07/22/2017 15:47	WG1001635	



Collected date/time: 07/19/17 15:00

L923868

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	07/22/2017 15:47	WG1001635
1,1,2-Trichloroethane	ND		1.00	1	07/22/2017 15:47	WG1001635
Trichloroethene	ND		1.00	1	07/22/2017 15:47	WG1001635
Trichlorofluoromethane	ND		5.00	1	07/22/2017 15:47	WG1001635
1,2,3-Trichloropropane	ND		2.50	1	07/22/2017 15:47	WG1001635
1,2,4-Trimethylbenzene	ND		1.00	1	07/22/2017 15:47	WG1001635
1,2,3-Trimethylbenzene	ND		1.00	1	07/22/2017 15:47	WG1001635
1,3,5-Trimethylbenzene	ND		1.00	1	07/22/2017 15:47	WG1001635
Vinyl chloride	ND		1.00	1	07/22/2017 15:47	WG1001635
Xylenes, Total	ND		3.00	1	07/22/2017 15:47	WG1001635
(S) Toluene-d8	102		80.0-120		07/22/2017 15:47	WG1001635
(S) Dibromofluoromethane	104		76.0-123		07/22/2017 15:47	WG1001635
(S) 4-Bromofluorobenzene	102		80.0-120		07/22/2017 15:47	WG1001635

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch	
Acetone	ND		50.0	1	07/22/2017 16:04	WG1001635	¹ Cp
Acrolein	ND	J3 J4	50.0	1	07/22/2017 16:04	WG1001635	² Tc
Acrylonitrile	ND		10.0	1	07/22/2017 16:04	WG1001635	³ Ss
Benzene	ND		1.00	1	07/22/2017 16:04	WG1001635	⁴ Cn
Bromobenzene	ND		1.00	1	07/22/2017 16:04	WG1001635	⁵ Sr
Bromodichloromethane	ND		1.00	1	07/22/2017 16:04	WG1001635	⁶ Qc
Bromoform	ND		1.00	1	07/22/2017 16:04	WG1001635	⁷ Gl
Bromomethane	ND		5.00	1	07/22/2017 16:04	WG1001635	⁸ Al
n-Butylbenzene	ND		1.00	1	07/22/2017 16:04	WG1001635	⁹ Sc
sec-Butylbenzene	ND		1.00	1	07/22/2017 16:04	WG1001635	
tert-Butylbenzene	ND		1.00	1	07/22/2017 16:04	WG1001635	
Carbon tetrachloride	ND		1.00	1	07/22/2017 16:04	WG1001635	
Chlorobenzene	ND		1.00	1	07/22/2017 16:04	WG1001635	
Chlorodibromomethane	ND		1.00	1	07/22/2017 16:04	WG1001635	
Chloroethane	ND		5.00	1	07/22/2017 16:04	WG1001635	
Chloroform	ND		5.00	1	07/22/2017 16:04	WG1001635	
Chloromethane	ND		2.50	1	07/22/2017 16:04	WG1001635	
2-Chlorotoluene	ND		1.00	1	07/22/2017 16:04	WG1001635	
4-Chlorotoluene	ND		1.00	1	07/22/2017 16:04	WG1001635	
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/22/2017 16:04	WG1001635	
1,2-Dibromoethane	ND		1.00	1	07/22/2017 16:04	WG1001635	
Dibromomethane	ND		1.00	1	07/22/2017 16:04	WG1001635	
1,2-Dichlorobenzene	ND		1.00	1	07/22/2017 16:04	WG1001635	
1,3-Dichlorobenzene	ND		1.00	1	07/22/2017 16:04	WG1001635	
1,4-Dichlorobenzene	ND		1.00	1	07/22/2017 16:04	WG1001635	
Dichlorodifluoromethane	ND		5.00	1	07/22/2017 16:04	WG1001635	
1,1-Dichloroethane	ND		1.00	1	07/22/2017 16:04	WG1001635	
1,2-Dichloroethane	ND		1.00	1	07/22/2017 16:04	WG1001635	
1,1-Dichloroethene	ND		1.00	1	07/22/2017 16:04	WG1001635	
cis-1,2-Dichloroethene	ND		1.00	1	07/22/2017 16:04	WG1001635	
trans-1,2-Dichloroethene	ND		1.00	1	07/22/2017 16:04	WG1001635	
1,2-Dichloropropane	ND		1.00	1	07/22/2017 16:04	WG1001635	
1,1-Dichloropropene	ND		1.00	1	07/22/2017 16:04	WG1001635	
1,3-Dichloropropane	ND		1.00	1	07/22/2017 16:04	WG1001635	
cis-1,3-Dichloropropene	ND		1.00	1	07/22/2017 16:04	WG1001635	
trans-1,3-Dichloropropene	ND		1.00	1	07/22/2017 16:04	WG1001635	
2,2-Dichloropropane	ND		1.00	1	07/22/2017 16:04	WG1001635	
Di-isopropyl ether	ND		1.00	1	07/22/2017 16:04	WG1001635	
Ethylbenzene	ND		1.00	1	07/22/2017 16:04	WG1001635	
Hexachloro-1,3-butadiene	ND		1.00	1	07/22/2017 16:04	WG1001635	
Isopropylbenzene	ND		1.00	1	07/22/2017 16:04	WG1001635	
p-Isopropyltoluene	ND		1.00	1	07/22/2017 16:04	WG1001635	
2-Butanone (MEK)	ND		10.0	1	07/22/2017 16:04	WG1001635	
Methylene Chloride	ND		5.00	1	07/22/2017 16:04	WG1001635	
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/22/2017 16:04	WG1001635	
Methyl tert-butyl ether	ND		1.00	1	07/22/2017 16:04	WG1001635	
Naphthalene	ND		5.00	1	07/22/2017 16:04	WG1001635	
n-Propylbenzene	ND		1.00	1	07/22/2017 16:04	WG1001635	
Styrene	ND		1.00	1	07/22/2017 16:04	WG1001635	
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/22/2017 16:04	WG1001635	
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/22/2017 16:04	WG1001635	
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/22/2017 16:04	WG1001635	
Tetrachloroethene	ND		1.00	1	07/22/2017 16:04	WG1001635	
Toluene	ND		1.00	1	07/22/2017 16:04	WG1001635	
1,2,3-Trichlorobenzene	ND	J3	1.00	1	07/22/2017 16:04	WG1001635	
1,2,4-Trichlorobenzene	ND		1.00	1	07/22/2017 16:04	WG1001635	



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	07/22/2017 16:04	WG1001635
1,1,2-Trichloroethane	ND		1.00	1	07/22/2017 16:04	WG1001635
Trichloroethene	ND		1.00	1	07/22/2017 16:04	WG1001635
Trichlorofluoromethane	ND		5.00	1	07/22/2017 16:04	WG1001635
1,2,3-Trichloropropane	ND		2.50	1	07/22/2017 16:04	WG1001635
1,2,4-Trimethylbenzene	ND		1.00	1	07/22/2017 16:04	WG1001635
1,2,3-Trimethylbenzene	ND		1.00	1	07/22/2017 16:04	WG1001635
1,3,5-Trimethylbenzene	ND		1.00	1	07/22/2017 16:04	WG1001635
Vinyl chloride	ND		1.00	1	07/22/2017 16:04	WG1001635
Xylenes, Total	ND		3.00	1	07/22/2017 16:04	WG1001635
(S) Toluene-d8	101		80.0-120		07/22/2017 16:04	WG1001635
(S) Dibromofluoromethane	104		76.0-123		07/22/2017 16:04	WG1001635
(S) 4-Bromofluorobenzene	98.9		80.0-120		07/22/2017 16:04	WG1001635

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch	
Acetone	ND		50.0	1	07/22/2017 10:46	WG1001635	¹ Cp
Acrolein	ND	J3 J4	50.0	1	07/22/2017 10:46	WG1001635	² Tc
Acrylonitrile	ND		10.0	1	07/22/2017 10:46	WG1001635	³ Ss
Benzene	ND		1.00	1	07/22/2017 10:46	WG1001635	⁴ Cn
Bromobenzene	ND		1.00	1	07/22/2017 10:46	WG1001635	⁵ Sr
Bromodichloromethane	ND		1.00	1	07/22/2017 10:46	WG1001635	⁶ Qc
Bromoform	ND		1.00	1	07/22/2017 10:46	WG1001635	⁷ Gl
Bromomethane	ND		5.00	1	07/22/2017 10:46	WG1001635	⁸ Al
n-Butylbenzene	ND		1.00	1	07/22/2017 10:46	WG1001635	⁹ Sc
sec-Butylbenzene	ND		1.00	1	07/22/2017 10:46	WG1001635	
tert-Butylbenzene	ND		1.00	1	07/22/2017 10:46	WG1001635	
Carbon tetrachloride	ND		1.00	1	07/22/2017 10:46	WG1001635	
Chlorobenzene	ND		1.00	1	07/22/2017 10:46	WG1001635	
Chlorodibromomethane	ND		1.00	1	07/22/2017 10:46	WG1001635	
Chloroethane	ND		5.00	1	07/22/2017 10:46	WG1001635	
Chloroform	ND		5.00	1	07/22/2017 10:46	WG1001635	
Chloromethane	ND		2.50	1	07/22/2017 10:46	WG1001635	
2-Chlorotoluene	ND		1.00	1	07/22/2017 10:46	WG1001635	
4-Chlorotoluene	ND		1.00	1	07/22/2017 10:46	WG1001635	
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/22/2017 10:46	WG1001635	
1,2-Dibromoethane	ND		1.00	1	07/22/2017 10:46	WG1001635	
Dibromomethane	ND		1.00	1	07/22/2017 10:46	WG1001635	
1,2-Dichlorobenzene	ND		1.00	1	07/22/2017 10:46	WG1001635	
1,3-Dichlorobenzene	ND		1.00	1	07/22/2017 10:46	WG1001635	
1,4-Dichlorobenzene	ND		1.00	1	07/22/2017 10:46	WG1001635	
Dichlorodifluoromethane	ND		5.00	1	07/22/2017 10:46	WG1001635	
1,1-Dichloroethane	ND		1.00	1	07/22/2017 10:46	WG1001635	
1,2-Dichloroethane	ND		1.00	1	07/22/2017 10:46	WG1001635	
1,1-Dichloroethene	ND		1.00	1	07/22/2017 10:46	WG1001635	
cis-1,2-Dichloroethene	ND		1.00	1	07/22/2017 10:46	WG1001635	
trans-1,2-Dichloroethene	ND		1.00	1	07/22/2017 10:46	WG1001635	
1,2-Dichloropropane	ND		1.00	1	07/22/2017 10:46	WG1001635	
1,1-Dichloropropene	ND		1.00	1	07/22/2017 10:46	WG1001635	
1,3-Dichloropropane	ND		1.00	1	07/22/2017 10:46	WG1001635	
cis-1,3-Dichloropropene	ND		1.00	1	07/22/2017 10:46	WG1001635	
trans-1,3-Dichloropropene	ND		1.00	1	07/22/2017 10:46	WG1001635	
2,2-Dichloropropane	ND		1.00	1	07/22/2017 10:46	WG1001635	
Di-isopropyl ether	ND		1.00	1	07/22/2017 10:46	WG1001635	
Ethylbenzene	ND		1.00	1	07/22/2017 10:46	WG1001635	
Hexachloro-1,3-butadiene	ND		1.00	1	07/22/2017 10:46	WG1001635	
Isopropylbenzene	ND		1.00	1	07/22/2017 10:46	WG1001635	
p-Isopropyltoluene	ND		1.00	1	07/22/2017 10:46	WG1001635	
2-Butanone (MEK)	ND		10.0	1	07/22/2017 10:46	WG1001635	
Methylene Chloride	ND		5.00	1	07/22/2017 10:46	WG1001635	
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/22/2017 10:46	WG1001635	
Methyl tert-butyl ether	ND		1.00	1	07/22/2017 10:46	WG1001635	
Naphthalene	ND		5.00	1	07/22/2017 10:46	WG1001635	
n-Propylbenzene	ND		1.00	1	07/22/2017 10:46	WG1001635	
Styrene	ND		1.00	1	07/22/2017 10:46	WG1001635	
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/22/2017 10:46	WG1001635	
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/22/2017 10:46	WG1001635	
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/22/2017 10:46	WG1001635	
Tetrachloroethene	ND		1.00	1	07/22/2017 10:46	WG1001635	
Toluene	ND		1.00	1	07/22/2017 10:46	WG1001635	
1,2,3-Trichlorobenzene	ND	J3	1.00	1	07/22/2017 10:46	WG1001635	
1,2,4-Trichlorobenzene	ND		1.00	1	07/22/2017 10:46	WG1001635	



Collected date/time: 07/18/17 00:00

L923868

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	07/22/2017 10:46	WG1001635
1,1,2-Trichloroethane	ND		1.00	1	07/22/2017 10:46	WG1001635
Trichloroethene	ND		1.00	1	07/22/2017 10:46	WG1001635
Trichlorofluoromethane	ND		5.00	1	07/22/2017 10:46	WG1001635
1,2,3-Trichloropropane	ND		2.50	1	07/22/2017 10:46	WG1001635
1,2,4-Trimethylbenzene	ND		1.00	1	07/22/2017 10:46	WG1001635
1,2,3-Trimethylbenzene	ND		1.00	1	07/22/2017 10:46	WG1001635
1,3,5-Trimethylbenzene	ND		1.00	1	07/22/2017 10:46	WG1001635
Vinyl chloride	ND		1.00	1	07/22/2017 10:46	WG1001635
Xylenes, Total	ND		3.00	1	07/22/2017 10:46	WG1001635
(S) Toluene-d8	101		80.0-120		07/22/2017 10:46	WG1001635
(S) Dibromofluoromethane	106		76.0-123		07/22/2017 10:46	WG1001635
(S) 4-Bromofluorobenzene	106		80.0-120		07/22/2017 10:46	WG1001635

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



Method Blank (MB)

(MB) R3235685-3 07/22/17 09:21

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Acetone	U		10.0	50.0
Acrolein	U		8.87	50.0
Acrylonitrile	U		1.87	10.0
Benzene	U		0.331	1.00
Bromobenzene	U		0.352	1.00
Bromodichloromethane	U		0.380	1.00
Bromoform	U		0.469	1.00
Bromomethane	U		0.866	5.00
n-Butylbenzene	U		0.361	1.00
sec-Butylbenzene	U		0.365	1.00
tert-Butylbenzene	U		0.399	1.00
Carbon tetrachloride	U		0.379	1.00
Chlorobenzene	U		0.348	1.00
Chlorodibromomethane	U		0.327	1.00
Chloroethane	U		0.453	5.00
Chloroform	U		0.324	5.00
Chloromethane	U		0.276	2.50
2-Chlorotoluene	U		0.375	1.00
4-Chlorotoluene	U		0.351	1.00
1,2-Dibromo-3-Chloropropane	U		1.33	5.00
1,2-Dibromoethane	U		0.381	1.00
Dibromomethane	U		0.346	1.00
1,2-Dichlorobenzene	U		0.349	1.00
1,3-Dichlorobenzene	U		0.220	1.00
1,4-Dichlorobenzene	U		0.274	1.00
Dichlorodifluoromethane	U		0.551	5.00
1,1-Dichloroethane	U		0.259	1.00
1,2-Dichloroethane	U		0.361	1.00
1,1-Dichloroethene	U		0.398	1.00
cis-1,2-Dichloroethene	U		0.260	1.00
trans-1,2-Dichloroethene	U		0.396	1.00
1,2-Dichloropropane	U		0.306	1.00
1,1-Dichloropropene	U		0.352	1.00
1,3-Dichloropropane	U		0.366	1.00
cis-1,3-Dichloropropene	U		0.418	1.00
trans-1,3-Dichloropropene	U		0.419	1.00
2,2-Dichloropropane	U		0.321	1.00
Di-isopropyl ether	U		0.320	1.00
Ethylbenzene	U		0.384	1.00
Hexachloro-1,3-butadiene	0.483	U	0.256	1.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3235685-3 07/22/17 09:21

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Isopropylbenzene	U		0.326	1.00
p-Isopropyltoluene	U		0.350	1.00
2-Butanone (MEK)	U		3.93	10.0
Methylene Chloride	U		1.00	5.00
4-Methyl-2-pentanone (MIBK)	U		2.14	10.0
Methyl tert-butyl ether	U		0.367	1.00
Naphthalene	U		1.00	5.00
n-Propylbenzene	U		0.349	1.00
Styrene	U		0.307	1.00
1,1,1,2-Tetrachloroethane	U		0.385	1.00
1,1,2,2-Tetrachloroethane	U		0.130	1.00
Tetrachloroethene	U		0.372	1.00
Toluene	U		0.412	1.00
1,1,2-Trichlorotrifluoroethane	U		0.303	1.00
1,2,3-Trichlorobenzene	0.373	J	0.230	1.00
1,2,4-Trichlorobenzene	U		0.355	1.00
1,1,1-Trichloroethane	U		0.319	1.00
1,1,2-Trichloroethane	U		0.383	1.00
Trichloroethene	U		0.398	1.00
Trichlorofluoromethane	U		1.20	5.00
1,2,3-Trichloropropane	U		0.807	2.50
1,2,3-Trimethylbenzene	U		0.321	1.00
1,2,4-Trimethylbenzene	U		0.373	1.00
1,3,5-Trimethylbenzene	U		0.387	1.00
Vinyl chloride	U		0.259	1.00
Xylenes, Total	U		1.06	3.00
(S) Toluene-d8	104			80.0-120
(S) Dibromofluoromethane	104			76.0-123
(S) 4-Bromofluorobenzene	106			80.0-120

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3235685-1 07/22/17 08:31 • (LCSD) R3235685-2 07/22/17 08:48

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Acetone	125	116	109	92.6	86.9	10.0-160			6.32	23
Acrolein	125	234	162	187	130	10.0-160	J4	J3	36.0	20
Acrylonitrile	125	145	150	116	120	60.0-142			3.22	20
Benzene	25.0	25.7	25.6	103	102	69.0-123			0.620	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3235685-1 07/22/17 08:31 • (LCSD) R3235685-2 07/22/17 08:48

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromobenzene	25.0	24.6	24.1	98.2	96.6	79.0-120			1.69	20
Bromodichloromethane	25.0	23.9	23.8	95.6	95.0	76.0-120			0.630	20
Bromoform	25.0	24.3	24.5	97.1	98.1	67.0-132			1.01	20
Bromomethane	25.0	25.7	28.6	103	114	18.0-160			10.5	20
n-Butylbenzene	25.0	24.3	25.0	97.1	99.9	72.0-126			2.84	20
sec-Butylbenzene	25.0	24.4	24.6	97.7	98.2	74.0-121			0.480	20
tert-Butylbenzene	25.0	24.3	24.7	97.1	98.7	75.0-122			1.69	20
Carbon tetrachloride	25.0	24.4	24.4	97.6	97.5	63.0-122			0.140	20
Chlorobenzene	25.0	22.8	22.8	91.1	91.1	79.0-121			0.0100	20
Chlorodibromomethane	25.0	23.4	23.3	93.7	93.2	75.0-125			0.490	20
Chloroethane	25.0	24.8	23.7	99.2	94.8	47.0-152			4.60	20
Chloroform	25.0	25.5	25.4	102	102	72.0-121			0.230	20
Chloromethane	25.0	25.2	25.7	101	103	48.0-139			2.04	20
2-Chlorotoluene	25.0	24.5	24.4	97.8	97.4	74.0-122			0.410	20
4-Chlorotoluene	25.0	24.4	24.3	97.4	97.1	79.0-120			0.310	20
1,2-Dibromo-3-Chloropropane	25.0	24.0	26.1	96.1	104	64.0-127			8.17	20
1,2-Dibromoethane	25.0	23.0	23.4	92.0	93.5	77.0-123			1.63	20
Dibromomethane	25.0	24.3	24.5	97.3	97.8	78.0-120			0.540	20
1,2-Dichlorobenzene	25.0	23.4	24.1	93.7	96.5	80.0-120			2.96	20
1,3-Dichlorobenzene	25.0	23.4	23.3	93.7	93.4	72.0-123			0.350	20
1,4-Dichlorobenzene	25.0	23.3	23.4	93.2	93.5	77.0-120			0.270	20
Dichlorodifluoromethane	25.0	26.5	26.0	106	104	49.0-155			2.06	20
1,1-Dichloroethane	25.0	25.1	25.4	100	102	70.0-126			1.17	20
1,2-Dichloroethane	25.0	25.7	25.6	103	102	67.0-126			0.220	20
1,1-Dichloroethene	25.0	24.1	24.1	96.4	96.3	64.0-129			0.0400	20
cis-1,2-Dichloroethene	25.0	24.7	24.5	98.9	98.2	73.0-120			0.780	20
trans-1,2-Dichloroethene	25.0	25.0	24.8	99.8	99.1	71.0-121			0.760	20
1,2-Dichloropropane	25.0	24.8	25.0	99.0	99.8	75.0-125			0.790	20
1,1-Dichloropropene	25.0	25.3	25.4	101	102	71.0-129			0.390	20
1,3-Dichloropropane	25.0	23.2	23.2	92.7	92.6	80.0-121			0.110	20
cis-1,3-Dichloropropene	25.0	23.2	23.1	92.7	92.4	79.0-123			0.270	20
trans-1,3-Dichloropropene	25.0	23.1	23.4	92.6	93.5	74.0-127			1.03	20
2,2-Dichloropropane	25.0	22.8	22.8	91.0	91.1	60.0-125			0.0700	20
Di-isopropyl ether	25.0	25.2	25.5	101	102	59.0-133			0.920	20
Ethylbenzene	25.0	23.1	23.2	92.4	93.0	77.0-120			0.570	20
Hexachloro-1,3-butadiene	25.0	20.7	24.2	82.7	96.8	64.0-131			15.7	20
Isopropylbenzene	25.0	24.5	24.4	98.2	97.8	75.0-120			0.420	20
p-Isopropyltoluene	25.0	23.7	24.0	94.9	95.9	74.0-126			1.05	20
2-Butanone (MEK)	125	125	140	100	112	37.0-158			11.1	20
Methylene Chloride	25.0	25.1	25.1	100	100	66.0-121			0.0800	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3235685-1 07/22/17 08:31 • (LCSD) R3235685-2 07/22/17 08:48

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
4-Methyl-2-pentanone (MIBK)	125	119	124	95.5	99.3	59.0-143			3.92	20
Methyl tert-butyl ether	25.0	27.3	27.3	109	109	64.0-123			0.0800	20
Naphthalene	25.0	24.2	27.8	97.0	111	62.0-128			13.8	20
n-Propylbenzene	25.0	24.9	24.7	99.6	98.9	79.0-120			0.670	20
Styrene	25.0	24.6	24.6	98.2	98.5	78.0-124			0.240	20
1,1,1,2-Tetrachloroethane	25.0	22.2	22.1	89.0	88.5	75.0-122			0.510	20
1,1,2,2-Tetrachloroethane	25.0	24.8	24.8	99.1	99.4	71.0-122			0.310	20
Tetrachloroethene	25.0	21.0	21.1	83.8	84.3	70.0-127			0.600	20
Toluene	25.0	22.8	22.9	91.2	91.5	77.0-120			0.350	20
1,1,2-Trichlorotrifluoroethane	25.0	24.2	23.5	96.7	93.9	61.0-136			2.94	20
1,2,3-Trichlorobenzene	25.0	21.8	26.9	87.3	108	61.0-133		J3	20.7	20
1,2,4-Trichlorobenzene	25.0	22.7	26.1	90.7	105	69.0-129			14.2	20
1,1,1-Trichloroethane	25.0	25.4	25.3	102	101	68.0-122			0.470	20
1,1,2-Trichloroethane	25.0	23.0	23.1	91.9	92.5	78.0-120			0.570	20
Trichloroethene	25.0	23.5	23.5	93.9	94.1	78.0-120			0.170	20
Trichlorofluoromethane	25.0	26.2	25.1	105	100	56.0-137			4.41	20
1,2,3-Trichloropropane	25.0	24.4	25.2	97.8	101	72.0-124			2.90	20
1,2,3-Trimethylbenzene	25.0	24.1	24.5	96.3	98.1	75.0-120			1.92	20
1,2,4-Trimethylbenzene	25.0	24.4	24.5	97.7	97.9	75.0-120			0.220	20
1,3,5-Trimethylbenzene	25.0	24.4	24.5	97.6	98.1	75.0-120			0.460	20
Vinyl chloride	25.0	24.9	24.3	99.7	97.2	64.0-133			2.50	20
Xylenes, Total	75.0	70.3	70.1	93.7	93.5	77.0-120			0.290	20
(S) Toluene-d8				99.9	100	80.0-120				
(S) Dibromofluoromethane				107	106	76.0-123				
(S) 4-Bromofluorobenzene				105	104	80.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

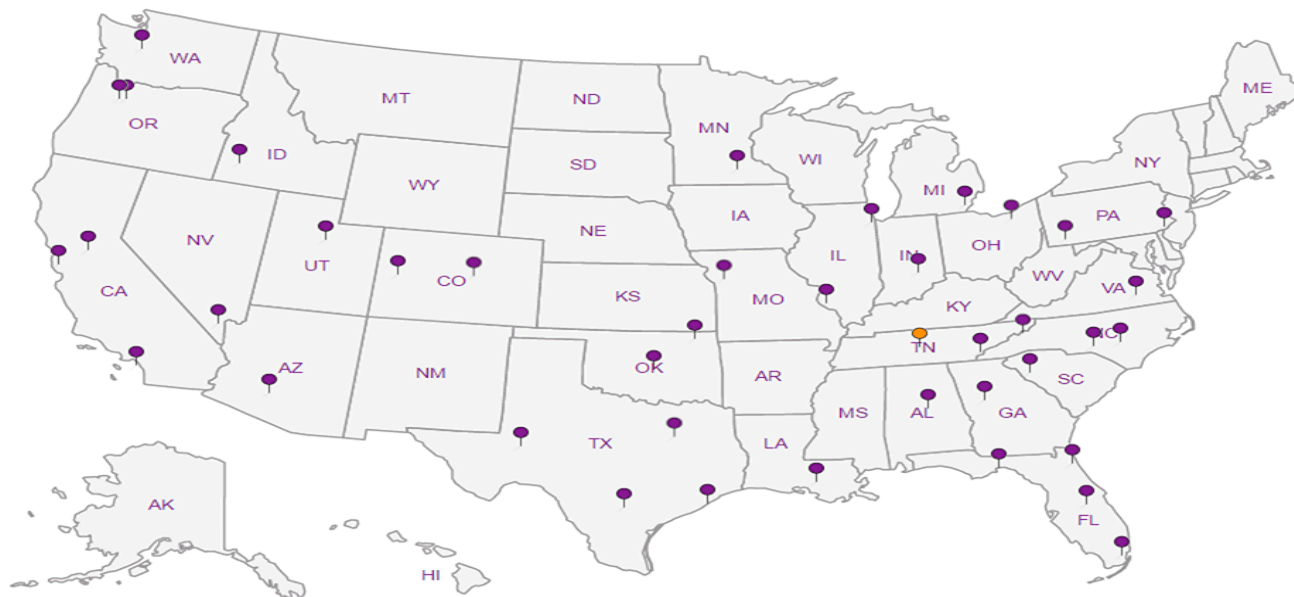
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



MEMORANDUM

TO: Project File **DATE:** August 7, 2017
FROM: Jessie Compeau
SUBJECT: Laboratory Data Validation Review
PROJECT: Manhattan Village Shopping Center
PROJECT #: 1358.001.01.003
TASK: July 18-19, 2017 Groundwater Samples
LAB: ECS Lab Sciences Request No. L923868

Seventeen groundwater samples (including a field duplicate), one waste sample (one sample collected from a purge drum), associated equipment and trip blanks were collected as part of a remediation system performance groundwater sampling at the Manhattan Village Shopping Centre site in Normandy Park, Washington on July 18 and 19 of 2017. The samples were analyzed for VOCs by USEPA Method 8260C. Laboratory analytical services were provided by ESC Lab Sciences (ESC) of Mt. Juliet, Tennessee (ESC Report: L923868).

The quality assurance review of the laboratory data are summarized below.

DATA QUALIFICATIONS

Guidelines established by USEPA for review of analytical data were used to validate the data. The comments presented in this memorandum refer to the laboratory's performance in meeting the quality control criteria outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (USEPA, 2017).

DATA VALIDATION

Completeness

All samples were collected and analyzed as requested. No concerns, issues, or anomalies were identified in the laboratory report.

Sample Collection and Preservation

The samples were stored on ice in the cooler and delivered in good condition to the laboratory. Cooler temperature at the time of receipt was measured at 5.4 degrees Centigrade (°C). The cooler temperatures were within EPA's recommended temperature preservation range of less than 6.0 °C. No data qualifications were warranted.

Trip blank was prepared by ESC on May 1, 2017 but not submitted for analysis until July 22, 2017. No action was taken other than to note this.

Holding Times

All samples were analyzed for VOCs within the EPA recommended holding time of 14 days (preserved water). All holding time criteria were met.

Initial and Continuing Calibration

Hard copies of the calibration data for this project are not required in the data deliverable and are typically not reported. The laboratory is required to discuss discrepancies in calibration results associated with the project analyses if they occur. No calibration issues were reported; therefore no data qualifications were warranted.

Method Blank Results

A laboratory method blank was included with the analytical batch per method requirement. The target analytes (VOCs) were not detected in the method blank at a concentration at or above the method reporting limits (MRLs) with one exception:

- Low levels of hexachloro-1,3-butadiene and 1,2,3-trichlorobenzene were detected in the method blank. No action was taken as these compounds were not detected in the associated samples.

Trip Blank Results

A trip blank was collected and analyzed for VOCs. No target analytes (VOCs) were detected in the trip blank at a concentration at or above the MRLs. No qualifications of the data were made due to the results of the trip blank analyses.

Equipment Blank Results

Equipment blank sample EQ-1-071917 was collected and analyzed for VOCs. No target analytes (VOCs) were detected in the equipment blank at a concentration at or above the MRLs. No qualifications of the data were made due to the results of the equipment blank analyses.

Field Duplicate Analyses

Field duplicate samples (MW-11-071917 and MW-101-071917) were collected and analyzed for VOCs. Results were comparable with relative percent difference (RPDs) of less than 20%.

Laboratory Duplicate Analyses

Laboratory duplicate analysis was not performed. Refer to field duplicate and laboratory control sample results for precision data.

Surrogate Recoveries

The surrogate percent recovery (%R) results for the samples, method blank, and laboratory control samples were within the laboratory surrogate control limits. No data qualifications were warranted.

Laboratory Control Samples

The laboratory control sample and sample duplicate (LCS/LCSD) %R's and relative percent differences (RPDs) were within the laboratory control limits with the following exception:

- LCS (Batch WG1001635) spike compound acrolein was recovered (187%) above ESC's acceptance criteria (10-160%). RPD for compound acrolein is above the laboratory acceptance criteria (20%) and qualified by the laboratory (J3). ESC qualified (J4) all associated acrolein results to indicate that LCS was recovered above acceptance criteria. No action is taken since LCSD % recovery was within criteria and acrolein was not detected in associated samples.
- LCS/LCSD (Batch WG1001635) RPD for compound 1,2,3-trichlorobenzene is above the laboratory acceptance criteria (20%) and qualified by the laboratory (J3). No action was taken on this basis as LCS/LCSD percent recovery results are recovered wide but are both within control limits.

Matrix Spike/Matrix Spike Duplicates

A matrix spike and matrix spike duplicate (MS/MSD) analysis was not performed. Refer to LCS/LCSD and field duplicate results for accuracy and precision data.

Other Quality Control Issues

No other laboratory quality control issues were identified in the laboratory report.

Quantitation Limits

Results of the USEPA 8260 VOC analyses were reported based on laboratory MRLs. The MRLs indicate the minimum quantity of a target analyte that can be confidently determined by the reference method. The MRLs were acceptable for the project; therefore, no data qualifications were warranted.

Data Assessment

No data were qualified. All data are judged to be acceptable for their intended use.



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

LABORATORY REPORT

August 31, 2017

Matt Dahl
PES Environmental
1215 Fourth Avenue, Suite 1350
Seattle, WA 98161

RE: MVSC / 1358.001.01

Dear Matt:

Enclosed are the results of the sample submitted to our laboratory on August 22, 2017. For your reference, these analyses have been assigned our service request number P1704102.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

Kate Kaneko
By Kate Kaneko at 9:10 am, 08/31/17

Kate Kaneko
Project Manager



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: PES Environmental
Project: MVSC / 1358.001.01

Service Request No: P1704102

CASE NARRATIVE

The sample was received intact under chain of custody on August 22, 2017 and was stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the sample at the time of sample receipt.

Volatile Organic Compound Analysis

The sample was analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The container was cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.



2655 Park Center Dr., Suite A
 Simi Valley, CA 93065
 T: +1 805 526 7161
 F: +1 805 526 7270
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1177034
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-004
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-17-8
Utah DOH (NELAP)	http://health.utah.gov/lab/environmental-lab-certification/	CA016272017-8
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

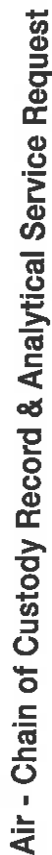
Client: PES Environmental
Project ID: MVSC / 1358.001.01

Service Request: P1704102

Date Received: 8/22/2017
Time Received: 09:30

TO-15 - VOC Cans

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	
SYS-0817	P1704102-001	Air	8/18/2017	09:15	SC01499	-0.71	3.62	X

Page 1 of 1

Air - Chain of Custody Record & Analytical Service Request

5 of 22

ALS Environmental Sample Acceptance Check Form

Client: PES Environmental Work order: P1704102
 Project: MVSC / 1358.001.01
 Sample(s) received on: 8/22/17 Date opened: 8/22/17 by: E.PEREZ

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

	Yes	No	N/A
1 Were sample containers properly marked with client sample ID?	☒	☐	☐
2 Did sample containers arrive in good condition?	☒	☐	☐
3 Were chain-of-custody papers used and filled out?	☒	☐	☐
4 Did sample container labels and/or tags agree with custody papers?	☒	☐	☐
5 Was sample volume received adequate for analysis?	☒	☐	☐
6 Are samples within specified holding times?	☒	☐	☐
7 Was proper temperature (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8 Were custody seals on outside of cooler/Box/Container?	☐	☒	☐
Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
Were signature and date included?	☐	☐	☒
Were seals intact?	☐	☐	☒
9 Do containers have appropriate preservation , according to method/SOP or Client specified information?	☐	☐	☒
Is there a client indication that the submitted samples are pH preserved?	☐	☐	☒
Were VOA vials checked for presence/absence of air bubbles?	☐	☐	☒
Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it?	☐	☐	☒
10 Tubes: Are the tubes capped and intact?	☐	☐	☒
11 Badges: Are the badges properly capped and intact?	☐	☐	☒
Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1704102-001.01	6.0 L Source Can					

Explain any discrepancies: (include lab sample ID numbers): _____

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: PES Environmental
Client Sample ID: SYS-0817
Client Project ID: MVSC / 1358.001.01

ALS Project ID: P1704102
 ALS Sample ID: P1704102-001

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
 Analyst: Lusine Hakobyan
 Sample Type: 6.0 L Summa Canister
 Test Notes:
 Container ID: SC01499

Date Collected: 8/18/17
 Date Received: 8/22/17
 Date Analyzed: 8/24 - 8/25/17
 Volume(s) Analyzed: 1.00 Liter(s)
 0.10 Liter(s)

Initial Pressure (psig): -0.71 Final Pressure (psig): 3.62

Container Dilution Factor: 1.31

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.66	ND	0.38	
75-71-8	Dichlorodifluoromethane (CFC 12)	3.0	0.66	0.62	0.13	
74-87-3	Chloromethane	ND	0.66	ND	0.32	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.66	ND	0.094	
75-01-4	Vinyl Chloride	ND	0.66	ND	0.26	
106-99-0	1,3-Butadiene	ND	0.66	ND	0.30	
74-83-9	Bromomethane	ND	0.66	ND	0.17	
75-00-3	Chloroethane	ND	0.66	ND	0.25	
64-17-5	Ethanol	ND	6.6	ND	3.5	
75-05-8	Acetonitrile	ND	0.66	ND	0.39	
107-02-8	Acrolein	ND	2.6	ND	1.1	
67-64-1	Acetone	ND	6.6	ND	2.8	
75-69-4	Trichlorofluoromethane (CFC 11)	2.4	0.66	0.42	0.12	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	6.6	ND	2.7	
107-13-1	Acrylonitrile	ND	0.66	ND	0.30	
75-35-4	1,1-Dichloroethene	ND	0.66	ND	0.17	
75-09-2	Methylene Chloride	ND	0.66	ND	0.19	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.66	ND	0.21	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.66	ND	0.086	
75-15-0	Carbon Disulfide	ND	6.6	ND	2.1	
156-60-5	trans-1,2-Dichloroethene	ND	0.66	ND	0.17	
75-34-3	1,1-Dichloroethane	ND	0.66	ND	0.16	
1634-04-4	Methyl tert-Butyl Ether	ND	0.66	ND	0.18	
108-05-4	Vinyl Acetate	ND	6.6	ND	1.9	
78-93-3	2-Butanone (MEK)	ND	6.6	ND	2.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: PES Environmental
Client Sample ID: SYS-0817
Client Project ID: MVSC / 1358.001.01

ALS Project ID: P1704102
 ALS Sample ID: P1704102-001

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
 Analyst: Lusine Hakobyan
 Sample Type: 6.0 L Summa Canister
 Test Notes:
 Container ID: SC01499

Date Collected: 8/18/17
 Date Received: 8/22/17
 Date Analyzed: 8/24 - 8/25/17
 Volume(s) Analyzed: 1.00 Liter(s)
 0.10 Liter(s)

Initial Pressure (psig): -0.71 Final Pressure (psig): 3.62

Container Dilution Factor: 1.31

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	2.2	0.66	0.55	0.17	
141-78-6	Ethyl Acetate	ND	1.3	ND	0.36	
110-54-3	n-Hexane	ND	0.66	ND	0.19	
67-66-3	Chloroform	4.0	0.66	0.81	0.13	
109-99-9	Tetrahydrofuran (THF)	ND	0.66	ND	0.22	
107-06-2	1,2-Dichloroethane	ND	0.66	ND	0.16	
71-55-6	1,1,1-Trichloroethane	ND	0.66	ND	0.12	
71-43-2	Benzene	ND	0.66	ND	0.21	
56-23-5	Carbon Tetrachloride	ND	0.66	ND	0.10	
110-82-7	Cyclohexane	ND	1.3	ND	0.38	
78-87-5	1,2-Dichloropropane	ND	0.66	ND	0.14	
75-27-4	Bromodichloromethane	ND	0.66	ND	0.098	
79-01-6	Trichloroethene	3.9	0.66	0.74	0.12	
123-91-1	1,4-Dioxane	ND	0.66	ND	0.18	
80-62-6	Methyl Methacrylate	ND	1.3	ND	0.32	
142-82-5	n-Heptane	ND	0.66	ND	0.16	
10061-01-5	cis-1,3-Dichloropropene	ND	0.66	ND	0.14	
108-10-1	4-Methyl-2-pentanone	ND	0.66	ND	0.16	
10061-02-6	trans-1,3-Dichloropropene	ND	0.66	ND	0.14	
79-00-5	1,1,2-Trichloroethane	ND	0.66	ND	0.12	
108-88-3	Toluene	0.99	0.66	0.26	0.17	
591-78-6	2-Hexanone	ND	0.66	ND	0.16	
124-48-1	Dibromochloromethane	ND	0.66	ND	0.077	
106-93-4	1,2-Dibromoethane	ND	0.66	ND	0.085	
123-86-4	n-Butyl Acetate	ND	0.66	ND	0.14	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: PES Environmental
Client Sample ID: SYS-0817
Client Project ID: MVSC / 1358.001.01

ALS Project ID: P1704102
 ALS Sample ID: P1704102-001

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
 Analyst: Lusine Hakobyan
 Sample Type: 6.0 L Summa Canister
 Test Notes:
 Container ID: SC01499

Date Collected: 8/18/17
 Date Received: 8/22/17
 Date Analyzed: 8/24 - 8/25/17
 Volume(s) Analyzed: 1.00 Liter(s)
 0.10 Liter(s)

Initial Pressure (psig): -0.71 Final Pressure (psig): 3.62

Container Dilution Factor: 1.31

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.66	ND	0.14	
127-18-4	Tetrachloroethene	910	6.6	130	0.97	D
108-90-7	Chlorobenzene	ND	0.66	ND	0.14	
100-41-4	Ethylbenzene	ND	0.66	ND	0.15	
179601-23-1	m,p-Xylenes	ND	1.3	ND	0.30	
75-25-2	Bromoform	ND	0.66	ND	0.063	
100-42-5	Styrene	ND	0.66	ND	0.15	
95-47-6	o-Xylene	ND	0.66	ND	0.15	
111-84-2	n-Nonane	ND	0.66	ND	0.12	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.66	ND	0.095	
98-82-8	Cumene	ND	0.66	ND	0.13	
80-56-8	alpha-Pinene	ND	0.66	ND	0.12	
103-65-1	n-Propylbenzene	ND	0.66	ND	0.13	
622-96-8	4-Ethyltoluene	ND	0.66	ND	0.13	
108-67-8	1,3,5-Trimethylbenzene	ND	0.66	ND	0.13	
95-63-6	1,2,4-Trimethylbenzene	ND	0.66	ND	0.13	
100-44-7	Benzyl Chloride	ND	0.66	ND	0.13	
541-73-1	1,3-Dichlorobenzene	ND	0.66	ND	0.11	
106-46-7	1,4-Dichlorobenzene	ND	0.66	ND	0.11	
95-50-1	1,2-Dichlorobenzene	ND	0.66	ND	0.11	
5989-27-5	d-Limonene	ND	0.66	ND	0.12	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.66	ND	0.068	
120-82-1	1,2,4-Trichlorobenzene	ND	0.66	ND	0.088	
91-20-3	Naphthalene	ND	0.66	ND	0.13	
87-68-3	Hexachlorobutadiene	ND	0.66	ND	0.061	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

D = The reported result is from a dilution.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: PES Environmental

Client Sample ID: Method Blank

Client Project ID: MVSC / 1358.001.01

ALS Project ID: P1704102

ALS Sample ID: P170824-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 8/24/17

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.50	ND	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.50	ND	0.10	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.50	ND	0.072	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	0.50	ND	0.30	
107-02-8	Acrolein	ND	2.0	ND	0.87	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.50	ND	0.089	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5.0	ND	2.0	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.50	ND	0.16	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: PES Environmental

Client Sample ID: Method Blank

Client Project ID: MVSC / 1358.001.01

ALS Project ID: P1704102

ALS Sample ID: P170824-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 8/24/17

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.0	ND	0.28	
110-54-3	n-Hexane	ND	0.50	ND	0.14	
67-66-3	Chloroform	ND	0.50	ND	0.10	
109-99-9	Tetrahydrofuran (THF)	ND	0.50	ND	0.17	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
123-91-1	1,4-Dioxane	ND	0.50	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.0	ND	0.24	
142-82-5	n-Heptane	ND	0.50	ND	0.12	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
123-86-4	n-Butyl Acetate	ND	0.50	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: PES Environmental

Client Sample ID: Method Blank

Client Project ID: MVSC / 1358.001.01

ALS Project ID: P1704102

ALS Sample ID: P170824-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 8/24/17

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.50	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
111-84-2	n-Nonane	ND	0.50	ND	0.095	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
98-82-8	Cumene	ND	0.50	ND	0.10	
80-56-8	alpha-Pinene	ND	0.50	ND	0.090	
103-65-1	n-Propylbenzene	ND	0.50	ND	0.10	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	ND	0.10	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	ND	0.10	
100-44-7	Benzyl Chloride	ND	0.50	ND	0.097	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50	ND	0.052	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	ND	0.067	
91-20-3	Naphthalene	ND	0.50	ND	0.095	
87-68-3	Hexachlorobutadiene	ND	0.50	ND	0.047	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: PES Environmental

Client Sample ID: Method Blank

Client Project ID: MVSC / 1358.001.01

ALS Project ID: P1704102

ALS Sample ID: P170825-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 8/25/17

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.50	ND	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.50	ND	0.10	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.50	ND	0.072	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	0.50	ND	0.30	
107-02-8	Acrolein	ND	2.0	ND	0.87	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.50	ND	0.089	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5.0	ND	2.0	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.50	ND	0.16	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: PES Environmental

Client Sample ID: Method Blank

Client Project ID: MVSC / 1358.001.01

ALS Project ID: P1704102

ALS Sample ID: P170825-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 8/25/17

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.0	ND	0.28	
110-54-3	n-Hexane	ND	0.50	ND	0.14	
67-66-3	Chloroform	ND	0.50	ND	0.10	
109-99-9	Tetrahydrofuran (THF)	ND	0.50	ND	0.17	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
123-91-1	1,4-Dioxane	ND	0.50	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.0	ND	0.24	
142-82-5	n-Heptane	ND	0.50	ND	0.12	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
123-86-4	n-Butyl Acetate	ND	0.50	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: PES Environmental

Client Sample ID: Method Blank

Client Project ID: MVSC / 1358.001.01

ALS Project ID: P1704102

ALS Sample ID: P170825-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 8/25/17

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.50	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
111-84-2	n-Nonane	ND	0.50	ND	0.095	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
98-82-8	Cumene	ND	0.50	ND	0.10	
80-56-8	alpha-Pinene	ND	0.50	ND	0.090	
103-65-1	n-Propylbenzene	ND	0.50	ND	0.10	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	ND	0.10	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	ND	0.10	
100-44-7	Benzyl Chloride	ND	0.50	ND	0.097	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50	ND	0.052	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	ND	0.067	
91-20-3	Naphthalene	ND	0.50	ND	0.095	
87-68-3	Hexachlorobutadiene	ND	0.50	ND	0.047	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Page 1 of 1

Client: PES Environmental
Client Project ID: MVSC / 1358.001.01

ALS Project ID: P1704102

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Summa Canister(s)
Test Notes:

Date(s) Collected: 8/18/17
Date(s) Received: 8/22/17
Date(s) Analyzed: 8/24 - 8/25/17

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4	Toluene-d8	Bromofluorobenzene	Acceptance Limits	Data Qualifier
		Percent Recovered	Percent Recovered	Percent Recovered		
Method Blank	P170824-MB	75	106	110	70-130	
Method Blank	P170825-MB	76	105	110	70-130	
Lab Control Sample	P170824-LCS	75	104	110	70-130	
Lab Control Sample	P170825-LCS	75	105	110	70-130	
SYS-0817	P1704102-001	76	104	109	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

Client: PES Environmental

Client Sample ID: Lab Control Sample

Client Project ID: MVSC / 1358.001.01

ALS Project ID: P1704102

ALS Sample ID: P170824-LCS

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 8/24/17

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS Acceptance Limits	Data Qualifier
115-07-1	Propene	210	206	98	52-127	
75-71-8	Dichlorodifluoromethane (CFC 12)	210	188	90	68-109	
74-87-3	Chloromethane	210	207	99	51-130	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	211	213	101	66-114	
75-01-4	Vinyl Chloride	210	231	110	61-125	
106-99-0	1,3-Butadiene	210	213	101	62-144	
74-83-9	Bromomethane	210	199	95	73-123	
75-00-3	Chloroethane	210	197	94	69-122	
64-17-5	Ethanol	1,060	817	77	62-124	
75-05-8	Acetonitrile	213	166	78	57-114	
107-02-8	Acrolein	212	173	82	62-116	
67-64-1	Acetone	1,060	848	80	57-117	
75-69-4	Trichlorofluoromethane (CFC 11)	210	163	78	63-98	
67-63-0	2-Propanol (Isopropyl Alcohol)	424	316	75	66-121	
107-13-1	Acrylonitrile	213	188	88	68-123	
75-35-4	1,1-Dichloroethene	213	194	91	76-118	
75-09-2	Methylene Chloride	212	192	91	60-118	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	212	155	73	65-126	
76-13-1	Trichlorotrifluoroethane (CFC 113)	212	195	92	73-114	
75-15-0	Carbon Disulfide	213	199	93	57-102	
156-60-5	trans-1,2-Dichloroethene	213	184	86	74-123	
75-34-3	1,1-Dichloroethane	212	182	86	69-111	
1634-04-4	Methyl tert-Butyl Ether	213	172	81	69-113	
108-05-4	Vinyl Acetate	1,060	987	93	76-128	
78-93-3	2-Butanone (MEK)	212	191	90	63-127	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 2 of 3

Client: PES Environmental
Client Sample ID: Lab Control Sample
Client Project ID: MVSC / 1358.001.01

ALS Project ID: P1704102
 ALS Sample ID: P170824-LCS

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
 Analyst: Lusine Hakobyan
 Sample Type: 6.0 L Summa Canister
 Test Notes:

Date Collected: NA
 Date Received: NA
 Date Analyzed: 8/24/17
 Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS Acceptance Limits	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	212	178	84	72-117	
141-78-6	Ethyl Acetate	426	358	84	68-127	
110-54-3	n-Hexane	213	172	81	55-116	
67-66-3	Chloroform	212	170	80	70-109	
109-99-9	Tetrahydrofuran (THF)	213	182	85	72-113	
107-06-2	1,2-Dichloroethane	212	148	70	69-113	
71-55-6	1,1,1-Trichloroethane	212	162	76	72-115	
71-43-2	Benzene	212	184	87	65-107	
56-23-5	Carbon Tetrachloride	213	165	77	71-113	
110-82-7	Cyclohexane	425	375	88	71-115	
78-87-5	1,2-Dichloropropane	212	194	92	71-115	
75-27-4	Bromodichloromethane	214	171	80	75-118	
79-01-6	Trichloroethene	212	195	92	68-114	
123-91-1	1,4-Dioxane	213	195	92	81-131	
80-62-6	Methyl Methacrylate	424	383	90	72-130	
142-82-5	n-Heptane	213	193	91	68-116	
10061-01-5	cis-1,3-Dichloropropene	210	188	90	77-126	
108-10-1	4-Methyl-2-pentanone	213	183	86	69-126	
10061-02-6	trans-1,3-Dichloropropene	213	185	87	79-125	
79-00-5	1,1,2-Trichloroethane	212	196	92	75-119	
108-88-3	Toluene	212	206	97	59-118	
591-78-6	2-Hexanone	213	164	77	69-129	
124-48-1	Dibromochloromethane	213	197	92	74-136	
106-93-4	1,2-Dibromoethane	212	205	97	73-131	
123-86-4	n-Butyl Acetate	216	167	77	69-130	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 3 of 3

Client: PES Environmental
Client Sample ID: Lab Control Sample
Client Project ID: MVSC / 1358.001.01

ALS Project ID: P1704102
 ALS Sample ID: P170824-LCS

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
 Analyst: Lusine Hakobyan
 Sample Type: 6.0 L Summa Canister
 Test Notes:

Date Collected: NA
 Date Received: NA
 Date Analyzed: 8/24/17
 Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS Acceptance Limits	Data Qualifier
111-65-9	n-Octane	212	182	86	66-120	
127-18-4	Tetrachloroethene	213	211	99	65-130	
108-90-7	Chlorobenzene	212	208	98	68-120	
100-41-4	Ethylbenzene	212	195	92	68-122	
179601-23-1	m,p-Xylenes	424	378	89	68-123	
75-25-2	Bromoform	212	202	95	69-130	
100-42-5	Styrene	212	212	100	71-133	
95-47-6	o-Xylene	212	189	89	68-122	
111-84-2	n-Nonane	212	168	79	65-120	
79-34-5	1,1,2,2-Tetrachloroethane	212	202	95	69-130	
98-82-8	Cumene	212	196	92	70-123	
80-56-8	alpha-Pinene	213	203	95	70-128	
103-65-1	n-Propylbenzene	214	205	96	69-125	
622-96-8	4-Ethyltoluene	212	205	97	67-130	
108-67-8	1,3,5-Trimethylbenzene	212	196	92	67-124	
95-63-6	1,2,4-Trimethylbenzene	212	186	88	67-129	
100-44-7	Benzyl Chloride	212	196	92	79-138	
541-73-1	1,3-Dichlorobenzene	212	209	99	65-136	
106-46-7	1,4-Dichlorobenzene	213	215	101	66-141	
95-50-1	1,2-Dichlorobenzene	212	211	100	67-136	
5989-27-5	d-Limonene	212	195	92	71-134	
96-12-8	1,2-Dibromo-3-chloropropane	212	235	111	73-136	
120-82-1	1,2,4-Trichlorobenzene	212	249	117	64-134	
91-20-3	Naphthalene	214	262	122	62-136	
87-68-3	Hexachlorobutadiene	213	217	102	60-133	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

Client: PES Environmental
Client Sample ID: Lab Control Sample
Client Project ID: MVSC / 1358.001.01

ALS Project ID: P1704102
 ALS Sample ID: P170825-LCS

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
 Analyst: Lusine Hakobyan
 Sample Type: 6.0 L Summa Canister
 Test Notes:

Date Collected: NA
 Date Received: NA
 Date Analyzed: 8/25/17
 Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS Acceptance Limits	Data Qualifier
115-07-1	Propene	210	202	96	52-127	
75-71-8	Dichlorodifluoromethane (CFC 12)	210	186	89	68-109	
74-87-3	Chloromethane	210	204	97	51-130	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	211	213	101	66-114	
75-01-4	Vinyl Chloride	210	229	109	61-125	
106-99-0	1,3-Butadiene	210	209	100	62-144	
74-83-9	Bromomethane	210	205	98	73-123	
75-00-3	Chloroethane	210	195	93	69-122	
64-17-5	Ethanol	1,060	814	77	62-124	
75-05-8	Acetonitrile	213	165	77	57-114	
107-02-8	Acrolein	212	170	80	62-116	
67-64-1	Acetone	1,060	839	79	57-117	
75-69-4	Trichlorofluoromethane (CFC 11)	210	160	76	63-98	
67-63-0	2-Propanol (Isopropyl Alcohol)	424	314	74	66-121	
107-13-1	Acrylonitrile	213	187	88	68-123	
75-35-4	1,1-Dichloroethene	213	192	90	76-118	
75-09-2	Methylene Chloride	212	191	90	60-118	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	212	156	74	65-126	
76-13-1	Trichlorotrifluoroethane (CFC 113)	212	194	92	73-114	
75-15-0	Carbon Disulfide	213	198	93	57-102	
156-60-5	trans-1,2-Dichloroethene	213	183	86	74-123	
75-34-3	1,1-Dichloroethane	212	180	85	69-111	
1634-04-4	Methyl tert-Butyl Ether	213	171	80	69-113	
108-05-4	Vinyl Acetate	1,060	980	92	76-128	
78-93-3	2-Butanone (MEK)	212	191	90	63-127	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 2 of 3

Client: PES Environmental
Client Sample ID: Lab Control Sample
Client Project ID: MVSC / 1358.001.01

ALS Project ID: P1704102
 ALS Sample ID: P170825-LCS

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
 Analyst: Lusine Hakobyan
 Sample Type: 6.0 L Summa Canister
 Test Notes:

Date Collected: NA
 Date Received: NA
 Date Analyzed: 8/25/17
 Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS Acceptance Limits	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	212	175	83	72-117	
141-78-6	Ethyl Acetate	426	360	85	68-127	
110-54-3	n-Hexane	213	177	83	55-116	
67-66-3	Chloroform	212	170	80	70-109	
109-99-9	Tetrahydrofuran (THF)	213	180	85	72-113	
107-06-2	1,2-Dichloroethane	212	148	70	69-113	
71-55-6	1,1,1-Trichloroethane	212	161	76	72-115	
71-43-2	Benzene	212	182	86	65-107	
56-23-5	Carbon Tetrachloride	213	164	77	71-113	
110-82-7	Cyclohexane	425	372	88	71-115	
78-87-5	1,2-Dichloropropane	212	194	92	71-115	
75-27-4	Bromodichloromethane	214	170	79	75-118	
79-01-6	Trichloroethene	212	194	92	68-114	
123-91-1	1,4-Dioxane	213	192	90	81-131	
80-62-6	Methyl Methacrylate	424	382	90	72-130	
142-82-5	n-Heptane	213	191	90	68-116	
10061-01-5	cis-1,3-Dichloropropene	210	187	89	77-126	
108-10-1	4-Methyl-2-pentanone	213	188	88	69-126	
10061-02-6	trans-1,3-Dichloropropene	213	184	86	79-125	
79-00-5	1,1,2-Trichloroethane	212	195	92	75-119	
108-88-3	Toluene	212	210	99	59-118	
591-78-6	2-Hexanone	213	167	78	69-129	
124-48-1	Dibromochloromethane	213	199	93	74-136	
106-93-4	1,2-Dibromoethane	212	204	96	73-131	
123-86-4	n-Butyl Acetate	216	166	77	69-130	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 3 of 3

Client: PES Environmental
Client Sample ID: Lab Control Sample
Client Project ID: MVSC / 1358.001.01

ALS Project ID: P1704102
 ALS Sample ID: P170825-LCS

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
 Analyst: Lusine Hakobyan
 Sample Type: 6.0 L Summa Canister
 Test Notes:

Date Collected: NA
 Date Received: NA
 Date Analyzed: 8/25/17
 Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS Acceptance Limits	Data Qualifier
111-65-9	n-Octane	212	182	86	66-120	
127-18-4	Tetrachloroethene	213	209	98	65-130	
108-90-7	Chlorobenzene	212	209	99	68-120	
100-41-4	Ethylbenzene	212	194	92	68-122	
179601-23-1	m,p-Xylenes	424	378	89	68-123	
75-25-2	Bromoform	212	204	96	69-130	
100-42-5	Styrene	212	212	100	71-133	
95-47-6	o-Xylene	212	189	89	68-122	
111-84-2	n-Nonane	212	171	81	65-120	
79-34-5	1,1,2,2-Tetrachloroethane	212	203	96	69-130	
98-82-8	Cumene	212	197	93	70-123	
80-56-8	alpha-Pinene	213	205	96	70-128	
103-65-1	n-Propylbenzene	214	207	97	69-125	
622-96-8	4-Ethyltoluene	212	206	97	67-130	
108-67-8	1,3,5-Trimethylbenzene	212	195	92	67-124	
95-63-6	1,2,4-Trimethylbenzene	212	190	90	67-129	
100-44-7	Benzyl Chloride	212	203	96	79-138	
541-73-1	1,3-Dichlorobenzene	212	217	102	65-136	
106-46-7	1,4-Dichlorobenzene	213	223	105	66-141	
95-50-1	1,2-Dichlorobenzene	212	210	99	67-136	
5989-27-5	d-Limonene	212	196	92	71-134	
96-12-8	1,2-Dibromo-3-chloropropane	212	239	113	73-136	
120-82-1	1,2,4-Trichlorobenzene	212	248	117	64-134	
91-20-3	Naphthalene	214	261	122	62-136	
87-68-3	Hexachlorobutadiene	213	229	108	60-133	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

MEMORANDUM

TO: Project File **DATE:** September 8, 2017
FROM: Jessie Compeau
SUBJECT: Laboratory Data Validation Review
PROJECT: Manhattan Village Shopping Center - Soil Vapor Extraction System Performance Data Review
PROJECT #: 1358.001.01.007
TASK: August 18, 2017 Air Sample
LAB: ALS Environmental P1704102

One SVE system stack discharge air sample was collected as part of SVE system O&M at the Manhattan Village Shopping Center in Normandy Park, Washington, on August 18, 2017. The air sample was analyzed for VOCs by USEPA Method TO-15 (*Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air*, Second Edition, EPA/625/R-96/010B, January, 1999). Laboratory analytical services were provided by ALS Environmental (ALS) (also known as ALS Global (ALS)) of Simi Valley, California. Analytical data are reported under ALS's service request number P1704102.

The quality assurance review of the laboratory data is summarized below.

DATA QUALIFICATIONS

Guidelines established by USEPA for review of analytical data were used to validate the data. The comments presented in this memorandum refer to the laboratory's performance in meeting the quality control criteria outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (USEPA, 2017).

DATA VALIDATION

Completeness

All samples were collected and analyzed as requested. No concerns, issues, or anomalies were identified in the laboratory report.

Sample Collection and Preservation

The laboratory supplied a Summa canister (6 Liter) for the air sample. The samples were shipped and delivered by FedEx and received in good condition by the laboratory. Summa canisters do not require preservation or cooling. The sample was collected, handled, and delivered in an appropriate manner with the following discussion:

- ALS's Sample Acceptance Check Form indicates that chain of custody seals were not placed on the outside of the shipping container. Chain of custody seals are recommended since the sample was shipped using a courier. No action is taken in this case since the Sample Acceptance Check Form indicates that the container was received in good condition.

No data qualifications were warranted based upon sampling and preservation techniques.

Holding Times

The analysis for VOCs by TO-15 was performed within six to seven days of sample collection. This is within the 30-day recommended holding time limit for air samples collected in a Summa canister. No data was qualified based upon holding times.

Initial and Continuing Calibration

Initial and continuing calibration data for this project are retained by the laboratory and available for review if necessary. Case narrative and laboratory notes do not indicate that there are any issues with calibration.

Method Blank Results

Laboratory method blanks were included with the analytical batch per method requirement. The method blank results did not report any compounds at concentrations at or above the MRLs.

Trip Blank Results

A trip blank was not required for the VOCs by TO-15 analyses. No qualifications were warranted due to the lack of a trip blank for this method.

Field Duplicate Analyses

No field duplicates were required or collected during this field event.

Laboratory Duplicate/Replicate Analyses

A laboratory replicate was not performed. Refer to the Laboratory Control Sample section for additional information.

Surrogate Recoveries

The surrogate percent recovery (% R) results for the VOCs by TO-15 air sample, method blank, and laboratory control samples are within the laboratory surrogate control limits of 70 -130% R. No data qualifications were warranted.

Laboratory Control Samples

A laboratory control sample (LCS) was analyzed for the VOCs by TO-15 along with each analytical batch. The LCS recovery results for all control compounds met the % R acceptance criteria with the following discussion:

No measure of precision was provided. An LCS Duplicate (LCSD) or a replicate analysis may be requested in the future to assess precision.

Matrix Spike/Matrix Spike Duplicates

A MS/MSD is not required for the VOCs by TO-15 method.

Other Quality Control Issues

No other laboratory quality control issues were identified in the laboratory report.

Quantitation Limits

Results of the VOCs by TO-15 analysis were reported based on laboratory MRLs (assuming standard temperature and pressure is equal to 24.45) and reported in units of ppbv and $\mu\text{g}/\text{m}^3$. ALS confirmed the container dilution factor and volume analyzed during the data validation process.

The MRLs indicate the minimum quantity of a target analyte that can be confidently determined by the reference method. The MRLs were acceptable for the project; therefore, no data qualifications were warranted.

Data Assessment

No data qualifiers were assigned. All data are judged to be acceptable for their intended use.



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

LABORATORY REPORT

October 10, 2017

Karsten Springstead
PES Environmental
1215 Fourth Avenue, Suite 1350
Seattle, WA 98161

RE: MVSC / 1358.001.01.007

Dear Karsten:

Enclosed are the results of the sample submitted to our laboratory on September 26, 2017. For your reference, this analysis has been assigned our service request number P1704737.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Kate Kaneko at 4:33 pm, 10/10/17

Kate Kaneko
Project Manager



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: PES Environmental
Project: MVSC / 1358.001.01.007

Service Request No: P1704737

CASE NARRATIVE

The sample was received intact under chain of custody on September 26, 2017 and was stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the sample at the time of sample receipt.

Volatile Organic Compound Analysis

The sample was analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The spike recoveries of acetonitrile and trichlorofluoromethane (CFC 11) in the Laboratory Control Sample (LCS) were outside the laboratory generated control criteria. The recovery errors equate to a potential high bias. However, the recoveries in question were within the method criteria, therefore the data quality has not been significantly affected. No corrective action was taken.

The container was cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1177034
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-004
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-17-8
Utah DOH (NELAP)	http://health.utah.gov/lab/environmental-lab-certification/	CA016272017-8
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: PES Environmental
Project ID: MVSC / 1358.001.01.007

Service Request: P1704737

Date Received: 9/26/2017
Time Received: 09:30

TO-15 - VOC Cans

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	
SYS-0917	P1704737-001	Air	9/22/2017	10:30	SC00790	0.06	3.91	X



Air - Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Page 1 of 1

Requested Turnaround Time in Business Days (Surcharges) please circle: 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard				ALS Project No 41104737					
Company Name & Address (Reporting Information) PES Environmental, INC 1215 Fifth Ave STE 1350 Santa Ana CA 92706				ALS Contact: K. K. Analysis Method					
Project Name MVSC				7-15					
Project Number 1358-001-01-007									
P.O. # / Billing Information 1358-001-01-007									
Sampler (Print & Sign) Kasten Springstead				Comments e.g. Actual Preservative or specific instructions					
Client Sample ID 545-0917	Laboratory ID Number	Date Collected 9-22-17	Time Collected 1030	Canister ID (Bar code # - AC, SC, etc.) 5C00790	Flow Controller ID (Bar code # - FC #) NA	Canister Start Pressure +Hg 28	Canister End Pressure +Hg/psig 2	Sample Volume 6L	
Report Tier Levels - please select Tier I - Results (Default in not specified) ☒ Tier II (Results + QC Summaries) ☐ Tier III (Results + QC & Calibration Summaries) ☐ Tier IV (Date Validation Package) 10% Surcharge ☐				Chain of Custody Seal: (Circle) INTACT ☐ BROKEN ☐ ABSENT ☐					
Relinquished by: (Signature) [Signature]				Received by: (Signature) [Signature]					
Relinquished by: (Signature) [Signature]				Received by: (Signature) [Signature]					
Date: 9-22-17				Date: 9-26-17					
Time: 1045				Time: 0830					
Cooler / Blank Temperature				Cooler / Blank Temperature					

ALS Environmental Sample Acceptance Check Form

Client: PES Environmental

Work order: P1704737

Project: MVSC / 1358.001.01.007

Sample(s) received on: 9/26/17

Date opened: 9/26/17by: E.PEREZ

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were sample containers properly marked with client sample ID?	☒	☐	☐
2	Did sample containers arrive in good condition?	☒	☐	☐
3	Were chain-of-custody papers used and filled out?	☒	☐	☐
4	Did sample container labels and/or tags agree with custody papers?	☒	☐	☐
5	Was sample volume received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper temperature (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were custody seals on outside of cooler/Box/Container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate preservation , according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are pH preserved?	☐	☐	☒
	Were VOA vials checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it?	☐	☐	☒
10	Tubes: Are the tubes capped and intact?	☐	☐	☒
11	Badges: Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

[illegible]

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO₂, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: PES Environmental
Client Sample ID: SYS-0917
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1704737
 ALS Sample ID: P1704737-001

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
 Analyst: Wida Ang
 Sample Type: 6.0 L Summa Canister
 Test Notes:
 Container ID: SC00790

Date Collected: 9/22/17
 Date Received: 9/26/17
 Date Analyzed: 10/7/17
 Volume(s) Analyzed: 1.00 Liter(s)
 0.10 Liter(s)

Initial Pressure (psig): 0.06 Final Pressure (psig): 3.91

Container Dilution Factor: 1.26

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.63	ND	0.37	
75-71-8	Dichlorodifluoromethane (CFC 12)	4.7	0.63	0.95	0.13	
74-87-3	Chloromethane	ND	0.63	ND	0.31	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.63	ND	0.090	
75-01-4	Vinyl Chloride	ND	0.63	ND	0.25	
106-99-0	1,3-Butadiene	ND	0.63	ND	0.28	
74-83-9	Bromomethane	ND	0.63	ND	0.16	
75-00-3	Chloroethane	ND	0.63	ND	0.24	
64-17-5	Ethanol	ND	6.3	ND	3.3	
75-05-8	Acetonitrile	0.83	0.63	0.49	0.38	
107-02-8	Acrolein	ND	2.5	ND	1.1	
67-64-1	Acetone	6.4	6.3	2.7	2.7	
75-69-4	Trichlorofluoromethane (CFC 11)	3.9	0.63	0.70	0.11	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	6.3	ND	2.6	
107-13-1	Acrylonitrile	ND	0.63	ND	0.29	
75-35-4	1,1-Dichloroethene	ND	0.63	ND	0.16	
75-09-2	Methylene Chloride	ND	0.63	ND	0.18	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.63	ND	0.20	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.63	ND	0.082	
75-15-0	Carbon Disulfide	ND	6.3	ND	2.0	
156-60-5	trans-1,2-Dichloroethene	ND	0.63	ND	0.16	
75-34-3	1,1-Dichloroethane	ND	0.63	ND	0.16	
1634-04-4	Methyl tert-Butyl Ether	ND	0.63	ND	0.17	
108-05-4	Vinyl Acetate	ND	6.3	ND	1.8	
78-93-3	2-Butanone (MEK)	ND	6.3	ND	2.1	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: PES Environmental
Client Sample ID: SYS-0917
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1704737
 ALS Sample ID: P1704737-001

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
 Analyst: Wida Ang
 Sample Type: 6.0 L Summa Canister
 Test Notes:
 Container ID: SC00790

Date Collected: 9/22/17
 Date Received: 9/26/17
 Date Analyzed: 10/7/17
 Volume(s) Analyzed: 1.00 Liter(s)
 0.10 Liter(s)

Initial Pressure (psig): 0.06 Final Pressure (psig): 3.91

Container Dilution Factor: 1.26

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	0.94	0.63	0.24	0.16	
141-78-6	Ethyl Acetate	ND	1.3	ND	0.35	
110-54-3	n-Hexane	ND	0.63	ND	0.18	
67-66-3	Chloroform	4.6	0.63	0.94	0.13	
109-99-9	Tetrahydrofuran (THF)	0.69	0.63	0.24	0.21	
107-06-2	1,2-Dichloroethane	ND	0.63	ND	0.16	
71-55-6	1,1,1-Trichloroethane	ND	0.63	ND	0.12	
71-43-2	Benzene	ND	0.63	ND	0.20	
56-23-5	Carbon Tetrachloride	ND	0.63	ND	0.10	
110-82-7	Cyclohexane	ND	1.3	ND	0.37	
78-87-5	1,2-Dichloropropane	ND	0.63	ND	0.14	
75-27-4	Bromodichloromethane	0.72	0.63	0.11	0.094	
79-01-6	Trichloroethene	2.3	0.63	0.43	0.12	
123-91-1	1,4-Dioxane	ND	0.63	ND	0.17	
80-62-6	Methyl Methacrylate	ND	1.3	ND	0.31	
142-82-5	n-Heptane	ND	0.63	ND	0.15	
10061-01-5	cis-1,3-Dichloropropene	ND	0.63	ND	0.14	
108-10-1	4-Methyl-2-pentanone	ND	0.63	ND	0.15	
10061-02-6	trans-1,3-Dichloropropene	ND	0.63	ND	0.14	
79-00-5	1,1,2-Trichloroethane	ND	0.63	ND	0.12	
108-88-3	Toluene	0.85	0.63	0.23	0.17	
591-78-6	2-Hexanone	ND	0.63	ND	0.15	
124-48-1	Dibromochloromethane	ND	0.63	ND	0.074	
106-93-4	1,2-Dibromoethane	ND	0.63	ND	0.082	
123-86-4	n-Butyl Acetate	ND	0.63	ND	0.13	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: PES Environmental
Client Sample ID: SYS-0917
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1704737
 ALS Sample ID: P1704737-001

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
 Analyst: Wida Ang
 Sample Type: 6.0 L Summa Canister
 Test Notes:
 Container ID: SC00790

Date Collected: 9/22/17
 Date Received: 9/26/17
 Date Analyzed: 10/7/17
 Volume(s) Analyzed: 1.00 Liter(s)
 0.10 Liter(s)

Initial Pressure (psig): 0.06 Final Pressure (psig): 3.91

Container Dilution Factor: 1.26

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.63	ND	0.13	
127-18-4	Tetrachloroethene	590	6.3	87	0.93	D
108-90-7	Chlorobenzene	ND	0.63	ND	0.14	
100-41-4	Ethylbenzene	ND	0.63	ND	0.15	
179601-23-1	m,p-Xylenes	ND	1.3	ND	0.29	
75-25-2	Bromoform	ND	0.63	ND	0.061	
100-42-5	Styrene	ND	0.63	ND	0.15	
95-47-6	o-Xylene	ND	0.63	ND	0.15	
111-84-2	n-Nonane	ND	0.63	ND	0.12	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.63	ND	0.092	
98-82-8	Cumene	ND	0.63	ND	0.13	
80-56-8	alpha-Pinene	ND	0.63	ND	0.11	
103-65-1	n-Propylbenzene	ND	0.63	ND	0.13	
622-96-8	4-Ethyltoluene	ND	0.63	ND	0.13	
108-67-8	1,3,5-Trimethylbenzene	ND	0.63	ND	0.13	
95-63-6	1,2,4-Trimethylbenzene	ND	0.63	ND	0.13	
100-44-7	Benzyl Chloride	ND	0.63	ND	0.12	
541-73-1	1,3-Dichlorobenzene	ND	0.63	ND	0.10	
106-46-7	1,4-Dichlorobenzene	ND	0.63	ND	0.10	
95-50-1	1,2-Dichlorobenzene	ND	0.63	ND	0.10	
5989-27-5	d-Limonene	1.4	0.63	0.24	0.11	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.63	ND	0.065	
120-82-1	1,2,4-Trichlorobenzene	ND	0.63	ND	0.085	
91-20-3	Naphthalene	ND	0.63	ND	0.12	
87-68-3	Hexachlorobutadiene	ND	0.63	ND	0.059	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

D = The reported result is from a dilution.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: PES Environmental
Client Sample ID: Method Blank
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1704737
 ALS Sample ID: P171006-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 10/6/17
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.50	ND	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.50	ND	0.10	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.50	ND	0.072	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	0.50	ND	0.30	
107-02-8	Acrolein	ND	2.0	ND	0.87	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.50	ND	0.089	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5.0	ND	2.0	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.50	ND	0.16	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: PES Environmental
Client Sample ID: Method Blank
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1704737
 ALS Sample ID: P171006-MB

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
 Analyst: Wida Ang
 Sample Type: 6.0 L Summa Canister
 Test Notes:

Date Collected: NA
 Date Received: NA
 Date Analyzed: 10/6/17
 Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.0	ND	0.28	
110-54-3	n-Hexane	ND	0.50	ND	0.14	
67-66-3	Chloroform	ND	0.50	ND	0.10	
109-99-9	Tetrahydrofuran (THF)	ND	0.50	ND	0.17	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
123-91-1	1,4-Dioxane	ND	0.50	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.0	ND	0.24	
142-82-5	n-Heptane	ND	0.50	ND	0.12	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
123-86-4	n-Butyl Acetate	ND	0.50	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: PES Environmental
Client Sample ID: Method Blank
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1704737
 ALS Sample ID: P171006-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 10/6/17
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.50	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
111-84-2	n-Nonane	ND	0.50	ND	0.095	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
98-82-8	Cumene	ND	0.50	ND	0.10	
80-56-8	alpha-Pinene	ND	0.50	ND	0.090	
103-65-1	n-Propylbenzene	ND	0.50	ND	0.10	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	ND	0.10	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	ND	0.10	
100-44-7	Benzyl Chloride	ND	0.50	ND	0.097	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50	ND	0.052	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	ND	0.067	
91-20-3	Naphthalene	ND	0.50	ND	0.095	
87-68-3	Hexachlorobutadiene	ND	0.50	ND	0.047	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Page 1 of 1

Client: PES Environmental
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1704737

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Summa Canister(s)
Test Notes:

Date(s) Collected: 9/22/17
Date(s) Received: 9/26/17
Date(s) Analyzed: 10/6 - 10/7/17

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4	Toluene-d8	Bromofluorobenzene	Acceptance Limits	Data Qualifier
		Percent Recovered	Percent Recovered	Percent Recovered		
Method Blank	P171006-MB	110	104	83	70-130	
Lab Control Sample	P171006-LCS	116	95	92	70-130	
Duplicate Lab Control Sample	P171006-DLCS	105	96	95	70-130	
SYS-0917	P1704737-001	121	93	91	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

Client: PES Environmental
Client Sample ID: Duplicate Lab Control Sample
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1704737
 ALS Sample ID: P171006-DLCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 10/6/17
Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		ALS	RPD	RPD	Data
		LCS / DLCS µg/m³	LCS µg/m³	DLCS µg/m³	LCS	DLCS	Acceptance Limits			
115-07-1	Propene	210	223	205	106	98	52-127	8	25	
75-71-8	Dichlorodifluoromethane (CFC 12)	213	218	203	102	95	68-109	7	25	
74-87-3	Chloromethane	210	216	219	103	104	51-130	1	25	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	211	193	205	91	97	66-114	6	25	
75-01-4	Vinyl Chloride	211	212	220	100	104	61-125	4	25	
106-99-0	1,3-Butadiene	210	218	219	104	104	62-144	0	25	
74-83-9	Bromomethane	210	207	208	99	99	73-123	0	25	
75-00-3	Chloroethane	210	218	215	104	102	69-122	2	25	
64-17-5	Ethanol	1,040	1120	1070	108	103	62-124	5	25	
75-05-8	Acetonitrile	210	245	230	117	110	57-114	6	25	L
107-02-8	Acrolein	209	215	208	103	100	62-116	3	25	
67-64-1	Acetone	1,050	1040	1010	99	96	57-117	3	25	
75-69-4	Trichlorofluoromethane (CFC 11)	208	214	202	103	97	63-98	6	25	L
67-63-0	2-Propanol (Isopropyl Alcohol)	422	476	449	113	106	66-121	6	25	
107-13-1	Acrylonitrile	212	229	219	108	103	68-123	5	25	
75-35-4	1,1-Dichloroethene	213	205	207	96	97	76-118	1	25	
75-09-2	Methylene Chloride	213	178	178	84	84	60-118	0	25	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	212	256	239	121	113	65-126	7	25	
76-13-1	Trichlorotrifluoroethane (CFC 113)	214	194	198	91	93	73-114	2	25	
75-15-0	Carbon Disulfide	214	189	186	88	87	57-102	1	25	
156-60-5	trans-1,2-Dichloroethene	214	235	228	110	107	74-123	3	25	
75-34-3	1,1-Dichloroethane	212	217	209	102	99	69-111	3	25	
1634-04-4	Methyl tert-Butyl Ether	213	220	213	103	100	69-113	3	25	
108-05-4	Vinyl Acetate	1,060	1100	1110	104	105	76-128	1	25	
78-93-3	2-Butanone (MEK)	212	213	211	100	100	63-127	0	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.
 L = Laboratory control sample recovery outside the specified limits, results may be biased high.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 2 of 3

Client: PES Environmental
Client Sample ID: Duplicate Lab Control Sample
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1704737
 ALS Sample ID: P171006-DLCS

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
 Analyst: Wida Ang
 Sample Type: 6.0 L Summa Canister
 Test Notes:

Date Collected: NA
 Date Received: NA
 Date Analyzed: 10/6/17
 Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		ALS	RPD	RPD	Data
		LCS / DLCS µg/m³	LCS µg/m³	DLCS µg/m³	LCS	DLCS	Acceptance Limits			
156-59-2	cis-1,2-Dichloroethene	212	229	218	108	103	72-117	5	25	
141-78-6	Ethyl Acetate	426	457	452	107	106	68-127	0.9	25	
110-54-3	n-Hexane	213	207	202	97	95	55-116	2	25	
67-66-3	Chloroform	212	218	208	103	98	70-109	5	25	
109-99-9	Tetrahydrofuran (THF)	212	197	193	93	91	72-113	2	25	
107-06-2	1,2-Dichloroethane	212	236	216	111	102	69-113	8	25	
71-55-6	1,1,1-Trichloroethane	212	225	212	106	100	72-115	6	25	
71-43-2	Benzene	213	226	205	106	96	65-107	10	25	
56-23-5	Carbon Tetrachloride	214	229	215	107	100	71-113	7	25	
110-82-7	Cyclohexane	425	418	419	98	99	71-115	1	25	
78-87-5	1,2-Dichloropropane	212	225	221	106	104	71-115	2	25	
75-27-4	Bromodichloromethane	214	230	219	107	102	75-118	5	25	
79-01-6	Trichloroethene	212	197	199	93	94	68-114	1	25	
123-91-1	1,4-Dioxane	213	220	218	103	102	81-131	1	25	
80-62-6	Methyl Methacrylate	424	399	402	94	95	72-130	1	25	
142-82-5	n-Heptane	213	211	208	99	98	68-116	1	25	
10061-01-5	cis-1,3-Dichloropropene	208	224	218	108	105	77-126	3	25	
108-10-1	4-Methyl-2-pentanone	213	235	228	110	107	69-126	3	25	
10061-02-6	trans-1,3-Dichloropropene	213	240	227	113	107	79-125	5	25	
79-00-5	1,1,2-Trichloroethane	212	215	211	101	100	75-119	1	25	
108-88-3	Toluene	211	186	192	88	91	59-118	3	25	
591-78-6	2-Hexanone	211	229	221	109	105	69-129	4	25	
124-48-1	Dibromochloromethane	212	202	205	95	97	74-136	2	25	
106-93-4	1,2-Dibromoethane	211	202	206	96	98	73-131	2	25	
123-86-4	n-Butyl Acetate	215	233	226	108	105	69-130	3	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 3 of 3

Client: PES Environmental
Client Sample ID: Duplicate Lab Control Sample
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1704737
 ALS Sample ID: P171006-DLCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sample Type: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 10/6/17
Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		ALS	RPD	RPD	Data
		LCS / DLCS µg/m³	LCS µg/m³	DLCS µg/m³	LCS	DLCS	Acceptance Limits			
111-65-9	n-Octane	212	205	204	97	96	66-120	1	25	
127-18-4	Tetrachloroethene	212	182	189	86	89	65-130	3	25	
108-90-7	Chlorobenzene	212	186	192	88	91	68-120	3	25	
100-41-4	Ethylbenzene	212	193	196	91	92	68-122	1	25	
179601-23-1	m,p-Xylenes	424	393	389	93	92	68-123	1	25	
75-25-2	Bromoform	212	198	199	93	94	69-130	1	25	
100-42-5	Styrene	211	195	200	92	95	71-133	3	25	
95-47-6	o-Xylene	211	196	198	93	94	68-122	1	25	
111-84-2	n-Nonane	212	219	213	103	100	65-120	3	25	
79-34-5	1,1,2,2-Tetrachloroethane	212	203	206	96	97	69-130	1	25	
98-82-8	Cumene	212	193	197	91	93	70-123	2	25	
80-56-8	alpha-Pinene	213	201	202	94	95	70-128	1	25	
103-65-1	n-Propylbenzene	214	201	202	94	94	69-125	0	25	
622-96-8	4-Ethyltoluene	211	203	206	96	98	67-130	2	25	
108-67-8	1,3,5-Trimethylbenzene	212	195	198	92	93	67-124	1	25	
95-63-6	1,2,4-Trimethylbenzene	212	203	202	96	95	67-129	1	25	
100-44-7	Benzyl Chloride	212	218	212	103	100	79-138	3	25	
541-73-1	1,3-Dichlorobenzene	212	194	197	92	93	65-136	1	25	
106-46-7	1,4-Dichlorobenzene	214	192	195	90	91	66-141	1	25	
95-50-1	1,2-Dichlorobenzene	214	199	200	93	93	67-136	0	25	
5989-27-5	d-Limonene	213	219	215	103	101	71-134	2	25	
96-12-8	1,2-Dibromo-3-chloropropane	210	211	211	100	100	73-136	0	25	
120-82-1	1,2,4-Trichlorobenzene	218	229	228	105	105	64-134	0	25	
91-20-3	Naphthalene	209	214	211	102	101	62-136	1	25	
87-68-3	Hexachlorobutadiene	212	194	191	92	90	60-133	2	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

MEMORANDUM

TO: Project File **DATE:** October 23, 2017
FROM: Jessie Compeau
SUBJECT: Laboratory Data Validation Review
PROJECT: Manhattan Village Shopping Center - Soil Vapor Extraction System Performance Data Review
PROJECT #: 1358.001.01.007
TASK: September 22, 2017 SVE Stack Air Sample
LAB: ALS Environmental Service Request No. P1704737

One SVE system stack discharge air sample was collected as part of SVE system O&M at the Manhattan Village Shopping Center in Normandy Park, Washington, on September 22, 2017. The air sample was analyzed for VOCs by USEPA Method TO-15. Laboratory analytical services were provided by ALS Environmental (ALS) of Simi Valley, California. Analytical data are reported under ALS project number P1704737.

The quality assurance review of the laboratory data is summarized below.

DATA QUALIFICATIONS

Guidelines established by USEPA for review of analytical data were used to validate the data. The comments presented in this memorandum refer to the laboratory's performance in meeting the quality control criteria outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review (USEPA, 2017).

DATA VALIDATION

Completeness

All samples were collected and analyzed as requested. No concerns, issues, or anomalies are identified in the laboratory report.

Sample Collection and Preservation

The laboratory supplied a Summa canister (6 Liter) for the air sample. The sample was shipped by courier and received in good condition by the laboratory. Summa canisters do not require preservation or cooling. The sample was collected, handled, and delivered in an appropriate manner. No data qualifications were warranted based upon sampling and preservation techniques.

Holding Times

The analysis for VOCs by TO-15 was performed between four and seven days of sample collection. This is within the 30-day recommended holding time limit for air samples collected in a Summa canister. No data was qualified based upon holding times.

Initial and Continuing Calibration

Initial and continuing calibration data for this project are retained by the laboratory and available for review if necessary. The case narrative did not indicate any issues with calibration; therefore no qualifications were warranted.

Method Blank Results

A laboratory method blank was included with the analytical batch per method requirement. The method blank results did not report any compounds at concentrations at or above the MRLs.

Trip Blank Results

A trip blank was not required for the VOCs by TO-15 analyses. No qualifications were warranted due to the lack of a trip blank for this method.

Field Duplicate Analyses

No field duplicates were required or collected during this field event.

Laboratory Duplicate/Replicate Analyses

A laboratory replicate was not performed. Refer to laboratory control sample results for precision data.

Surrogate Recoveries

The surrogate percent recovery (% R) results for the VOCs by TO-15 air sample, method blank, and laboratory control samples are within the laboratory surrogate control limits of 70 -130% R. No data qualifications were warranted.

Laboratory Control Samples

A laboratory control sample and laboratory control sample duplicate (LCS/LCSD) were analyzed for VOCs by TO-15. The LCS/LCSD spike % Rs and relative percent differences (RPDs) for all control compounds met laboratory acceptance criteria with the following exceptions:

Two LCS spike compound (acetonitrile and trichlorofluoromethane (CFC 11)) % Rs are slightly above laboratory control limit criteria. For Sample SYS-0917 both results were detected above the MRL, are estimated, and qualified (J) due to a potential high bias.

Matrix Spike/Matrix Spike Duplicates

A matrix spike/matrix spike duplicate (MS/MSD) is not required for the VOCs by TO-15 method.

Other Quality Control Issues

No other laboratory quality control issues were identified in the laboratory report.

Quantitation Limits

Results of the VOCs by TO-15 analysis were reported based on laboratory MRLs (assuming standard temperature and pressure is equal to 24.45) and reported in units of ppbv and $\mu\text{g}/\text{m}^3$. The MRLs indicate the minimum quantity of a target analyte that can be confidently determined by the reference method. Sample SYS-0917 was diluted for one analyte (tetrachloroethene) due to an elevated concentration. The MRLs were acceptable for the project; therefore, no data qualifications were warranted.

Data Assessment

Data qualifiers were assigned and laboratory report pages with qualifiers are attached. All data are judged to be acceptable for their intended use.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: PES Environmental
Client Sample ID: SYS-0917
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1704737
 ALS Sample ID: P1704737-001

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
 Analyst: Wida Ang
 Sample Type: 6.0 L Summa Canister
 Test Notes:
 Container ID: SC00790

Date Collected: 9/22/17
 Date Received: 9/26/17
 Date Analyzed: 10/7/17
 Volume(s) Analyzed: 1.00 Liter(s)
 0.10 Liter(s)

Initial Pressure (psig): 0.06 Final Pressure (psig): 3.91

Container Dilution Factor: 1.26

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.63	ND	0.37	
75-71-8	Dichlorodifluoromethane (CFC 12)	4.7	0.63	0.95	0.13	
74-87-3	Chloromethane	ND	0.63	ND	0.31	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.63	ND	0.090	
75-01-4	Vinyl Chloride	ND	0.63	ND	0.25	
106-99-0	1,3-Butadiene	ND	0.63	ND	0.28	
74-83-9	Bromomethane	ND	0.63	ND	0.16	
75-00-3	Chloroethane	ND	0.63	ND	0.24	
64-17-5	Ethanol	ND	6.3	ND	3.3	
75-05-8	Acetonitrile	0.83 J	0.63	0.49 J	0.38	
107-02-8	Acrolein	ND	2.5	ND	1.1	
67-64-1	Acetone	6.4	6.3	2.7	2.7	
75-69-4	Trichlorofluoromethane (CFC 11)	3.9 J	0.63	0.70 J	0.11	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	6.3	ND	2.6	
107-13-1	Acrylonitrile	ND	0.63	ND	0.29	
75-35-4	1,1-Dichloroethene	ND	0.63	ND	0.16	
75-09-2	Methylene Chloride	ND	0.63	ND	0.18	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.63	ND	0.20	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.63	ND	0.082	
75-15-0	Carbon Disulfide	ND	6.3	ND	2.0	
156-60-5	trans-1,2-Dichloroethene	ND	0.63	ND	0.16	
75-34-3	1,1-Dichloroethane	ND	0.63	ND	0.16	
1634-04-4	Methyl tert-Butyl Ether	ND	0.63	ND	0.17	
108-05-4	Vinyl Acetate	ND	6.3	ND	1.8	
78-93-3	2-Butanone (MEK)	ND	6.3	ND	2.1	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

JC 10/23/17

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: PES Environmental
Client Sample ID: SYS-0917
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1704737
 ALS Sample ID: P1704737-001

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
 Analyst: Wida Ang
 Sample Type: 6.0 L Summa Canister
 Test Notes:
 Container ID: SC00790

Date Collected: 9/22/17
 Date Received: 9/26/17
 Date Analyzed: 10/7/17
 Volume(s) Analyzed: 1.00 Liter(s)
 0.10 Liter(s)

Initial Pressure (psig): 0.06 Final Pressure (psig): 3.91

Container Dilution Factor: 1.26

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	0.94	0.63	0.24	0.16	
141-78-6	Ethyl Acetate	ND	1.3	ND	0.35	
110-54-3	n-Hexane	ND	0.63	ND	0.18	
67-66-3	Chloroform	4.6	0.63	0.94	0.13	
109-99-9	Tetrahydrofuran (THF)	0.69	0.63	0.24	0.21	
107-06-2	1,2-Dichloroethane	ND	0.63	ND	0.16	
71-55-6	1,1,1-Trichloroethane	ND	0.63	ND	0.12	
71-43-2	Benzene	ND	0.63	ND	0.20	
56-23-5	Carbon Tetrachloride	ND	0.63	ND	0.10	
110-82-7	Cyclohexane	ND	1.3	ND	0.37	
78-87-5	1,2-Dichloropropane	ND	0.63	ND	0.14	
75-27-4	Bromodichloromethane	0.72	0.63	0.11	0.094	
79-01-6	Trichloroethene	2.3	0.63	0.43	0.12	
123-91-1	1,4-Dioxane	ND	0.63	ND	0.17	
80-62-6	Methyl Methacrylate	ND	1.3	ND	0.31	
142-82-5	n-Heptane	ND	0.63	ND	0.15	
10061-01-5	cis-1,3-Dichloropropene	ND	0.63	ND	0.14	
108-10-1	4-Methyl-2-pentanone	ND	0.63	ND	0.15	
10061-02-6	trans-1,3-Dichloropropene	ND	0.63	ND	0.14	
79-00-5	1,1,2-Trichloroethane	ND	0.63	ND	0.12	
108-88-3	Toluene	0.85	0.63	0.23	0.17	
591-78-6	2-Hexanone	ND	0.63	ND	0.15	
124-48-1	Dibromochloromethane	ND	0.63	ND	0.074	
106-93-4	1,2-Dibromoethane	ND	0.63	ND	0.082	
123-86-4	n-Butyl Acetate	ND	0.63	ND	0.13	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

JC 10/23/17

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: PES Environmental
Client Sample ID: SYS-0917
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1704737
 ALS Sample ID: P1704737-001

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
 Analyst: Wida Ang
 Sample Type: 6.0 L Summa Canister
 Test Notes:
 Container ID: SC00790

Date Collected: 9/22/17
 Date Received: 9/26/17
 Date Analyzed: 10/7/17
 Volume(s) Analyzed: 1.00 Liter(s)
 0.10 Liter(s)

Initial Pressure (psig): 0.06 Final Pressure (psig): 3.91

Container Dilution Factor: 1.26

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.63	ND	0.13	
127-18-4	Tetrachloroethene	590	6.3	87	0.93	D
108-90-7	Chlorobenzene	ND	0.63	ND	0.14	
100-41-4	Ethylbenzene	ND	0.63	ND	0.15	
179601-23-1	m,p-Xylenes	ND	1.3	ND	0.29	
75-25-2	Bromoform	ND	0.63	ND	0.061	
100-42-5	Styrene	ND	0.63	ND	0.15	
95-47-6	o-Xylene	ND	0.63	ND	0.15	
111-84-2	n-Nonane	ND	0.63	ND	0.12	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.63	ND	0.092	
98-82-8	Cumene	ND	0.63	ND	0.13	
80-56-8	alpha-Pinene	ND	0.63	ND	0.11	
103-65-1	n-Propylbenzene	ND	0.63	ND	0.13	
622-96-8	4-Ethyltoluene	ND	0.63	ND	0.13	
108-67-8	1,3,5-Trimethylbenzene	ND	0.63	ND	0.13	
95-63-6	1,2,4-Trimethylbenzene	ND	0.63	ND	0.13	
100-44-7	Benzyl Chloride	ND	0.63	ND	0.12	
541-73-1	1,3-Dichlorobenzene	ND	0.63	ND	0.10	
106-46-7	1,4-Dichlorobenzene	ND	0.63	ND	0.10	
95-50-1	1,2-Dichlorobenzene	ND	0.63	ND	0.10	
5989-27-5	d-Limonene	1.4	0.63	0.24	0.11	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.63	ND	0.065	
120-82-1	1,2,4-Trichlorobenzene	ND	0.63	ND	0.085	
91-20-3	Naphthalene	ND	0.63	ND	0.12	
87-68-3	Hexachlorobutadiene	ND	0.63	ND	0.059	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

D = The reported result is from a dilution.

JC 10/23/17



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

LABORATORY REPORT

November 2, 2017

Matt Dahl
PES Environmental
1215 Fourth Avenue, Suite 1350
Seattle, WA 98161

RE: MVSC / 1358.001.01.007

Dear Matt:

Enclosed are the results of the sample submitted to our laboratory on October 19, 2017. For your reference, this analysis has been assigned our service request number P1705189.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 11:42 am, Nov 02, 2017

For Kate Kaneko
Project Manager



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: PES Environmental
Project: MVSC / 1358.001.01.007

Service Request No: P1705189

CASE NARRATIVE

The sample was received intact under chain of custody on October 19, 2017 and was stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the sample at the time of sample receipt.

Volatile Organic Compound Analysis

The sample was analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The container was cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1177034
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-004
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-17-8
Utah DOH (NELAP)	http://health.utah.gov/lab/environmental-lab-certification/	CA016272017-8
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: PES Environmental
Project ID: MVSC / 1358.001.01.007

Service Request: P1705189

Date Received: 10/19/2017
Time Received: 09:30

TO-15 - VOC Cans

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	
SYS-1017	P1705189-001	Air	10/17/2017	10:30	SSC00432	-0.23	3.61	X

Page 1 of 2

Air - Chain of Custody Record & Analytical Service Request

[illegible]

ALS Environmental Sample Acceptance Check Form

Client: PES Environmental Work order: P1705189
 Project: MVSC / 1358.001.01.007
 Sample(s) received on: 10/19/17 Date opened: 10/19/17 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

	Yes	No	N/A
1 Were sample containers properly marked with client sample ID?	☒	☐	☐
2 Did sample containers arrive in good condition?	☒	☐	☐
3 Were chain-of-custody papers used and filled out?	☒	☐	☐
4 Did sample container labels and/or tags agree with custody papers?	☒	☐	☐
5 Was sample volume received adequate for analysis?	☒	☐	☐
6 Are samples within specified holding times?	☒	☐	☐
7 Was proper temperature (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8 Were custody seals on outside of cooler/Box/Container?	☐	☒	☐
Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
Were signature and date included?	☐	☐	☒
Were seals intact?	☐	☐	☒
9 Do containers have appropriate preservation , according to method/SOP or Client specified information?	☐	☐	☒
Is there a client indication that the submitted samples are pH preserved?	☐	☐	☒
Were VOA vials checked for presence/absence of air bubbles?	☐	☐	☒
Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it?	☐	☐	☒
10 Tubes: Are the tubes capped and intact?	☐	☐	☒
11 Badges: Are the badges properly capped and intact?	☐	☐	☒
Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1705189-001.01	6.0 L Silonite Can					

Explain any discrepancies: (include lab sample ID numbers): _____

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: PES Environmental
Client Sample ID: SYS-1017
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1705189
 ALS Sample ID: P1705189-001

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
 Analyst: Lusine Hakobyan
 Sample Type: 6.0 L Silonite Canister
 Test Notes:
 Container ID: SSC00432

Date Collected: 10/17/17
 Date Received: 10/19/17
 Date Analyzed: 10/27 - 10/28/17
 Volume(s) Analyzed: 1.00 Liter(s)
 0.10 Liter(s)

Initial Pressure (psig): -0.23 Final Pressure (psig): 3.61

Container Dilution Factor: 1.27

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	0.64	0.64	0.37	0.37	
75-71-8	Dichlorodifluoromethane (CFC 12)	3.6	0.64	0.72	0.13	
74-87-3	Chloromethane	ND	0.64	ND	0.31	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.64	ND	0.091	
75-01-4	Vinyl Chloride	ND	0.64	ND	0.25	
106-99-0	1,3-Butadiene	ND	0.64	ND	0.29	
74-83-9	Bromomethane	ND	0.64	ND	0.16	
75-00-3	Chloroethane	ND	0.64	ND	0.24	
64-17-5	Ethanol	ND	6.4	ND	3.4	
75-05-8	Acetonitrile	ND	0.64	ND	0.38	
107-02-8	Acrolein	ND	2.5	ND	1.1	
67-64-1	Acetone	ND	6.4	ND	2.7	
75-69-4	Trichlorofluoromethane (CFC 11)	3.0	0.64	0.54	0.11	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	6.4	ND	2.6	
107-13-1	Acrylonitrile	ND	0.64	ND	0.29	
75-35-4	1,1-Dichloroethene	ND	0.64	ND	0.16	
75-09-2	Methylene Chloride	ND	0.64	ND	0.18	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.64	ND	0.20	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.64	ND	0.083	
75-15-0	Carbon Disulfide	16	6.4	5.3	2.0	
156-60-5	trans-1,2-Dichloroethene	ND	0.64	ND	0.16	
75-34-3	1,1-Dichloroethane	ND	0.64	ND	0.16	
1634-04-4	Methyl tert-Butyl Ether	ND	0.64	ND	0.18	
108-05-4	Vinyl Acetate	ND	6.4	ND	1.8	
78-93-3	2-Butanone (MEK)	ND	6.4	ND	2.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: PES Environmental
Client Sample ID: SYS-1017
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1705189
 ALS Sample ID: P1705189-001

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
 Analyst: Lusine Hakobyan
 Sample Type: 6.0 L Silonite Canister
 Test Notes:
 Container ID: SSC00432

Date Collected: 10/17/17
 Date Received: 10/19/17
 Date Analyzed: 10/27 - 10/28/17
 Volume(s) Analyzed: 1.00 Liter(s)
 0.10 Liter(s)

Initial Pressure (psig): -0.23 Final Pressure (psig): 3.61

Container Dilution Factor: 1.27

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.64	ND	0.16	
141-78-6	Ethyl Acetate	ND	1.3	ND	0.35	
110-54-3	n-Hexane	ND	0.64	ND	0.18	
67-66-3	Chloroform	3.8	0.64	0.78	0.13	
109-99-9	Tetrahydrofuran (THF)	0.80	0.64	0.27	0.22	
107-06-2	1,2-Dichloroethane	ND	0.64	ND	0.16	
71-55-6	1,1,1-Trichloroethane	ND	0.64	ND	0.12	
71-43-2	Benzene	ND	0.64	ND	0.20	
56-23-5	Carbon Tetrachloride	ND	0.64	ND	0.10	
110-82-7	Cyclohexane	ND	1.3	ND	0.37	
78-87-5	1,2-Dichloropropane	ND	0.64	ND	0.14	
75-27-4	Bromodichloromethane	ND	0.64	ND	0.095	
79-01-6	Trichloroethene	0.92	0.64	0.17	0.12	
123-91-1	1,4-Dioxane	0.73	0.64	0.20	0.18	
80-62-6	Methyl Methacrylate	ND	1.3	ND	0.31	
142-82-5	n-Heptane	ND	0.64	ND	0.16	
10061-01-5	cis-1,3-Dichloropropene	ND	0.64	ND	0.14	
108-10-1	4-Methyl-2-pentanone	ND	0.64	ND	0.16	
10061-02-6	trans-1,3-Dichloropropene	ND	0.64	ND	0.14	
79-00-5	1,1,2-Trichloroethane	ND	0.64	ND	0.12	
108-88-3	Toluene	1.1	0.64	0.30	0.17	
591-78-6	2-Hexanone	ND	0.64	ND	0.16	
124-48-1	Dibromochloromethane	ND	0.64	ND	0.075	
106-93-4	1,2-Dibromoethane	ND	0.64	ND	0.083	
123-86-4	n-Butyl Acetate	ND	0.64	ND	0.13	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: PES Environmental
Client Sample ID: SYS-1017
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1705189
 ALS Sample ID: P1705189-001

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
 Analyst: Lusine Hakobyan
 Sample Type: 6.0 L Silonite Canister
 Test Notes:
 Container ID: SSC00432

Date Collected: 10/17/17
 Date Received: 10/19/17
 Date Analyzed: 10/27 - 10/28/17
 Volume(s) Analyzed: 1.00 Liter(s)
 0.10 Liter(s)

Initial Pressure (psig): -0.23 Final Pressure (psig): 3.61

Container Dilution Factor: 1.27

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.64	ND	0.14	
127-18-4	Tetrachloroethene	310	6.4	46	0.94	D
108-90-7	Chlorobenzene	ND	0.64	ND	0.14	
100-41-4	Ethylbenzene	ND	0.64	ND	0.15	
179601-23-1	m,p-Xylenes	ND	1.3	ND	0.29	
75-25-2	Bromoform	ND	0.64	ND	0.061	
100-42-5	Styrene	ND	0.64	ND	0.15	
95-47-6	o-Xylene	ND	0.64	ND	0.15	
111-84-2	n-Nonane	ND	0.64	ND	0.12	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.64	ND	0.093	
98-82-8	Cumene	ND	0.64	ND	0.13	
80-56-8	alpha-Pinene	ND	0.64	ND	0.11	
103-65-1	n-Propylbenzene	ND	0.64	ND	0.13	
622-96-8	4-Ethyltoluene	ND	0.64	ND	0.13	
108-67-8	1,3,5-Trimethylbenzene	ND	0.64	ND	0.13	
95-63-6	1,2,4-Trimethylbenzene	ND	0.64	ND	0.13	
100-44-7	Benzyl Chloride	ND	1.3	ND	0.25	
541-73-1	1,3-Dichlorobenzene	ND	0.64	ND	0.11	
106-46-7	1,4-Dichlorobenzene	ND	0.64	ND	0.11	
95-50-1	1,2-Dichlorobenzene	ND	0.64	ND	0.11	
5989-27-5	d-Limonene	ND	0.64	ND	0.11	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.64	ND	0.066	
120-82-1	1,2,4-Trichlorobenzene	ND	0.64	ND	0.086	
91-20-3	Naphthalene	ND	0.64	ND	0.12	
87-68-3	Hexachlorobutadiene	ND	0.64	ND	0.060	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

D = The reported result is from a dilution.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: PES Environmental
Client Sample ID: Method Blank
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1705189
 ALS Sample ID: P171027-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 10/27/17
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.50	ND	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.50	ND	0.10	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.50	ND	0.072	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	0.50	ND	0.30	
107-02-8	Acrolein	ND	2.0	ND	0.87	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.50	ND	0.089	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5.0	ND	2.0	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.50	ND	0.16	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: PES Environmental
Client Sample ID: Method Blank
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1705189
 ALS Sample ID: P171027-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 10/27/17
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.0	ND	0.28	
110-54-3	n-Hexane	ND	0.50	ND	0.14	
67-66-3	Chloroform	ND	0.50	ND	0.10	
109-99-9	Tetrahydrofuran (THF)	ND	0.50	ND	0.17	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
123-91-1	1,4-Dioxane	ND	0.50	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.0	ND	0.24	
142-82-5	n-Heptane	ND	0.50	ND	0.12	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
123-86-4	n-Butyl Acetate	ND	0.50	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: PES Environmental
Client Sample ID: Method Blank
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1705189
 ALS Sample ID: P171027-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 10/27/17
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.50	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
111-84-2	n-Nonane	ND	0.50	ND	0.095	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
98-82-8	Cumene	ND	0.50	ND	0.10	
80-56-8	alpha-Pinene	ND	0.50	ND	0.090	
103-65-1	n-Propylbenzene	ND	0.50	ND	0.10	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	ND	0.10	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	ND	0.10	
100-44-7	Benzyl Chloride	ND	1.0	ND	0.19	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50	ND	0.052	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	ND	0.067	
91-20-3	Naphthalene	ND	0.50	ND	0.095	
87-68-3	Hexachlorobutadiene	ND	0.50	ND	0.047	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: PES Environmental
Client Sample ID: Method Blank
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1705189
 ALS Sample ID: P171028-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 10/28/17
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.50	ND	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.50	ND	0.10	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.50	ND	0.072	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	0.50	ND	0.30	
107-02-8	Acrolein	ND	2.0	ND	0.87	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.50	ND	0.089	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5.0	ND	2.0	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.50	ND	0.16	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: PES Environmental
Client Sample ID: Method Blank
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1705189
 ALS Sample ID: P171028-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 10/28/17
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.0	ND	0.28	
110-54-3	n-Hexane	ND	0.50	ND	0.14	
67-66-3	Chloroform	ND	0.50	ND	0.10	
109-99-9	Tetrahydrofuran (THF)	ND	0.50	ND	0.17	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
123-91-1	1,4-Dioxane	ND	0.50	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.0	ND	0.24	
142-82-5	n-Heptane	ND	0.50	ND	0.12	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
123-86-4	n-Butyl Acetate	ND	0.50	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: PES Environmental
Client Sample ID: Method Blank
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1705189
 ALS Sample ID: P171028-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 10/28/17
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.50	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
111-84-2	n-Nonane	ND	0.50	ND	0.095	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
98-82-8	Cumene	ND	0.50	ND	0.10	
80-56-8	alpha-Pinene	ND	0.50	ND	0.090	
103-65-1	n-Propylbenzene	ND	0.50	ND	0.10	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	ND	0.10	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	ND	0.10	
100-44-7	Benzyl Chloride	ND	1.0	ND	0.19	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50	ND	0.052	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	ND	0.067	
91-20-3	Naphthalene	ND	0.50	ND	0.095	
87-68-3	Hexachlorobutadiene	ND	0.50	ND	0.047	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Page 1 of 1

Client: PES Environmental
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1705189

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister(s)
Test Notes:

Date(s) Collected: 10/17/17
Date(s) Received: 10/19/17
Date(s) Analyzed: 10/27 - 10/28/17

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4	Toluene-d8	Bromofluorobenzene	Acceptance Limits	Data Qualifier
		Percent Recovered	Percent Recovered	Percent Recovered		
Method Blank	P171027-MB	93	102	109	70-130	
Method Blank	P171028-MB	92	103	110	70-130	
Lab Control Sample	P171027-LCS	91	103	112	70-130	
Lab Control Sample	P171028-LCS	92	102	111	70-130	
Duplicate Lab Control Sample	P171027-DLCS	91	102	109	70-130	
Duplicate Lab Control Sample	P171028-DLCS	91	102	110	70-130	
SYS-1017	P1705189-001	92	101	111	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

Client: PES Environmental
Client Sample ID: Duplicate Lab Control Sample
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1705189
 ALS Sample ID: P171027-DLCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 10/27/17
Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		ALS	RPD	RPD	Data
		LCS / DLCS µg/m³	LCS µg/m³	DLCS µg/m³	LCS	DLCS	Acceptance Limits			
115-07-1	Propene	210	168	161	80	77	52-127	4	25	
75-71-8	Dichlorodifluoromethane (CFC 12)	213	173	171	81	80	68-109	1	25	
74-87-3	Chloromethane	210	177	164	84	78	51-130	7	25	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	211	191	184	91	87	66-114	4	25	
75-01-4	Vinyl Chloride	211	188	175	89	83	61-125	7	25	
106-99-0	1,3-Butadiene	210	196	197	93	94	62-144	1	25	
74-83-9	Bromomethane	210	186	182	89	87	73-123	2	25	
75-00-3	Chloroethane	210	180	177	86	84	69-122	2	25	
64-17-5	Ethanol	1,040	868	864	83	83	62-124	0	25	
75-05-8	Acetonitrile	210	171	169	81	80	57-114	1	25	
107-02-8	Acrolein	209	184	182	88	87	62-116	1	25	
67-64-1	Acetone	1,050	815	808	78	77	57-117	1	25	
75-69-4	Trichlorofluoromethane (CFC 11)	208	175	174	84	84	63-98	0	25	
67-63-0	2-Propanol (Isopropyl Alcohol)	422	352	353	83	84	66-121	1	25	
107-13-1	Acrylonitrile	212	185	183	87	86	68-123	1	25	
75-35-4	1,1-Dichloroethene	213	190	188	89	88	76-118	1	25	
75-09-2	Methylene Chloride	213	194	193	91	91	60-118	0	25	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	212	177	177	83	83	65-126	0	25	
76-13-1	Trichlorotrifluoroethane (CFC 113)	214	190	188	89	88	73-114	1	25	
75-15-0	Carbon Disulfide	214	200	198	93	93	57-102	0	25	
156-60-5	trans-1,2-Dichloroethene	214	188	187	88	87	74-123	1	25	
75-34-3	1,1-Dichloroethane	212	176	174	83	82	69-111	1	25	
1634-04-4	Methyl tert-Butyl Ether	213	183	182	86	85	69-113	1	25	
108-05-4	Vinyl Acetate	1,060	1060	1040	100	98	76-128	2	25	
78-93-3	2-Butanone (MEK)	212	186	183	88	86	63-127	2	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 2 of 3

Client: PES Environmental
Client Sample ID: Duplicate Lab Control Sample
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1705189
 ALS Sample ID: P171027-DLCS

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
 Analyst: Lusine Hakobyan
 Sample Type: 6.0 L Silonite Canister
 Test Notes:

Date Collected: NA
 Date Received: NA
 Date Analyzed: 10/27/17
 Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		ALS	RPD	RPD	Data
		LCS / DLCS µg/m³	LCS µg/m³	DLCS µg/m³	LCS	DLCS	Acceptance Limits			
156-59-2	cis-1,2-Dichloroethene	212	180	178	85	84	72-117	1	25	
141-78-6	Ethyl Acetate	426	372	367	87	86	68-127	1	25	
110-54-3	n-Hexane	213	161	161	76	76	55-116	0	25	
67-66-3	Chloroform	212	179	177	84	83	70-109	1	25	
109-99-9	Tetrahydrofuran (THF)	212	189	188	89	89	72-113	0	25	
107-06-2	1,2-Dichloroethane	212	173	173	82	82	69-113	0	25	
71-55-6	1,1,1-Trichloroethane	212	181	181	85	85	72-115	0	25	
71-43-2	Benzene	213	162	162	76	76	65-107	0	25	
56-23-5	Carbon Tetrachloride	214	185	185	86	86	71-113	0	25	
110-82-7	Cyclohexane	425	359	360	84	85	71-115	1	25	
78-87-5	1,2-Dichloropropane	212	178	177	84	83	71-115	1	25	
75-27-4	Bromodichloromethane	214	191	191	89	89	75-118	0	25	
79-01-6	Trichloroethene	212	185	185	87	87	68-114	0	25	
123-91-1	1,4-Dioxane	213	192	192	90	90	81-131	0	25	
80-62-6	Methyl Methacrylate	424	394	395	93	93	72-130	0	25	
142-82-5	n-Heptane	213	172	173	81	81	68-116	0	25	
10061-01-5	cis-1,3-Dichloropropene	208	200	200	96	96	77-126	0	25	
108-10-1	4-Methyl-2-pentanone	213	185	186	87	87	69-126	0	25	
10061-02-6	trans-1,3-Dichloropropene	213	225	225	106	106	79-125	0	25	
79-00-5	1,1,2-Trichloroethane	212	190	189	90	89	75-119	1	25	
108-88-3	Toluene	211	201	201	95	95	59-118	0	25	
591-78-6	2-Hexanone	211	188	187	89	89	69-129	0	25	
124-48-1	Dibromochloromethane	212	217	215	102	101	74-136	1	25	
106-93-4	1,2-Dibromoethane	211	210	208	100	99	73-131	1	25	
123-86-4	n-Butyl Acetate	215	199	198	93	92	69-130	1	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 3 of 3

Client: PES Environmental
Client Sample ID: Duplicate Lab Control Sample
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1705189
 ALS Sample ID: P171027-DLCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 10/27/17
Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		ALS	RPD	RPD	Data
		LCS / DLCS µg/m³	LCS µg/m³	DLCS µg/m³	LCS	DLCS	Acceptance Limits			
111-65-9	n-Octane	212	181	179	85	84	66-120	1	25	
127-18-4	Tetrachloroethene	212	204	202	96	95	65-130	1	25	
108-90-7	Chlorobenzene	212	195	193	92	91	68-120	1	25	
100-41-4	Ethylbenzene	212	191	191	90	90	68-122	0	25	
179601-23-1	m,p-Xylenes	424	382	377	90	89	68-123	1	25	
75-25-2	Bromoform	212	235	231	111	109	69-130	2	25	
100-42-5	Styrene	211	207	199	98	94	71-133	4	25	
95-47-6	o-Xylene	211	190	184	90	87	68-122	3	25	
111-84-2	n-Nonane	212	177	171	83	81	65-120	2	25	
79-34-5	1,1,2,2-Tetrachloroethane	212	207	197	98	93	69-130	5	25	
98-82-8	Cumene	212	195	185	92	87	70-123	6	25	
80-56-8	alpha-Pinene	213	203	194	95	91	70-128	4	25	
103-65-1	n-Propylbenzene	214	197	187	92	87	69-125	6	25	
622-96-8	4-Ethyltoluene	211	197	189	93	90	67-130	3	25	
108-67-8	1,3,5-Trimethylbenzene	212	193	185	91	87	67-124	4	25	
95-63-6	1,2,4-Trimethylbenzene	212	197	196	93	92	67-129	1	25	
100-44-7	Benzyl Chloride	212	274	270	129	127	79-138	2	25	
541-73-1	1,3-Dichlorobenzene	212	208	207	98	98	65-136	0	25	
106-46-7	1,4-Dichlorobenzene	214	205	199	96	93	66-141	3	25	
95-50-1	1,2-Dichlorobenzene	214	209	209	98	98	67-136	0	25	
5989-27-5	d-Limonene	213	201	198	94	93	71-134	1	25	
96-12-8	1,2-Dibromo-3-chloropropane	210	260	249	124	119	73-136	4	25	
120-82-1	1,2,4-Trichlorobenzene	218	241	234	111	107	64-134	4	25	
91-20-3	Naphthalene	209	214	206	102	99	62-136	3	25	
87-68-3	Hexachlorobutadiene	212	217	212	102	100	60-133	2	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

Client: PES Environmental
Client Sample ID: Duplicate Lab Control Sample
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1705189
 ALS Sample ID: P171028-DLCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 10/28/17
Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		ALS	RPD	RPD	Data
		LCS / DLCS µg/m³	LCS µg/m³	DLCS µg/m³	LCS	DLCS	Acceptance Limits			
115-07-1	Propene	210	170	163	81	78	52-127	4	25	
75-71-8	Dichlorodifluoromethane (CFC 12)	213	173	168	81	79	68-109	3	25	
74-87-3	Chloromethane	210	171	158	81	75	51-130	8	25	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	211	190	182	90	86	66-114	5	25	
75-01-4	Vinyl Chloride	211	187	173	89	82	61-125	8	25	
106-99-0	1,3-Butadiene	210	211	197	100	94	62-144	6	25	
74-83-9	Bromomethane	210	180	181	86	86	73-123	0	25	
75-00-3	Chloroethane	210	175	176	83	84	69-122	1	25	
64-17-5	Ethanol	1,040	868	859	83	83	62-124	0	25	
75-05-8	Acetonitrile	210	171	169	81	80	57-114	1	25	
107-02-8	Acrolein	209	184	182	88	87	62-116	1	25	
67-64-1	Acetone	1,050	821	801	78	76	57-117	3	25	
75-69-4	Trichlorofluoromethane (CFC 11)	208	175	172	84	83	63-98	1	25	
67-63-0	2-Propanol (Isopropyl Alcohol)	422	350	348	83	82	66-121	1	25	
107-13-1	Acrylonitrile	212	185	182	87	86	68-123	1	25	
75-35-4	1,1-Dichloroethene	213	189	186	89	87	76-118	2	25	
75-09-2	Methylene Chloride	213	194	191	91	90	60-118	1	25	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	212	176	174	83	82	65-126	1	25	
76-13-1	Trichlorotrifluoroethane (CFC 113)	214	188	186	88	87	73-114	1	25	
75-15-0	Carbon Disulfide	214	199	196	93	92	57-102	1	25	
156-60-5	trans-1,2-Dichloroethene	214	188	186	88	87	74-123	1	25	
75-34-3	1,1-Dichloroethane	212	176	173	83	82	69-111	1	25	
1634-04-4	Methyl tert-Butyl Ether	213	181	180	85	85	69-113	0	25	
108-05-4	Vinyl Acetate	1,060	1060	1050	100	99	76-128	1	25	
78-93-3	2-Butanone (MEK)	212	185	182	87	86	63-127	1	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 2 of 3

Client: PES Environmental
Client Sample ID: Duplicate Lab Control Sample
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1705189
 ALS Sample ID: P171028-DLCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 10/28/17
Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		ALS	RPD	RPD	Data
		LCS / DLCS µg/m³	LCS µg/m³	DLCS µg/m³	LCS	DLCS	Acceptance Limits			
156-59-2	cis-1,2-Dichloroethene	212	180	177	85	83	72-117	2	25	
141-78-6	Ethyl Acetate	426	369	364	87	85	68-127	2	25	
110-54-3	n-Hexane	213	160	157	75	74	55-116	1	25	
67-66-3	Chloroform	212	178	175	84	83	70-109	1	25	
109-99-9	Tetrahydrofuran (THF)	212	187	185	88	87	72-113	1	25	
107-06-2	1,2-Dichloroethane	212	174	171	82	81	69-113	1	25	
71-55-6	1,1,1-Trichloroethane	212	178	178	84	84	72-115	0	25	
71-43-2	Benzene	213	160	159	75	75	65-107	0	25	
56-23-5	Carbon Tetrachloride	214	183	182	86	85	71-113	1	25	
110-82-7	Cyclohexane	425	358	355	84	84	71-115	0	25	
78-87-5	1,2-Dichloropropane	212	175	174	83	82	71-115	1	25	
75-27-4	Bromodichloromethane	214	190	188	89	88	75-118	1	25	
79-01-6	Trichloroethene	212	182	181	86	85	68-114	1	25	
123-91-1	1,4-Dioxane	213	190	189	89	89	81-131	0	25	
80-62-6	Methyl Methacrylate	424	389	387	92	91	72-130	1	25	
142-82-5	n-Heptane	213	169	169	79	79	68-116	0	25	
10061-01-5	cis-1,3-Dichloropropene	208	197	197	95	95	77-126	0	25	
108-10-1	4-Methyl-2-pentanone	213	183	183	86	86	69-126	0	25	
10061-02-6	trans-1,3-Dichloropropene	213	222	223	104	105	79-125	1	25	
79-00-5	1,1,2-Trichloroethane	212	187	187	88	88	75-119	0	25	
108-88-3	Toluene	211	199	199	94	94	59-118	0	25	
591-78-6	2-Hexanone	211	186	186	88	88	69-129	0	25	
124-48-1	Dibromochloromethane	212	214	214	101	101	74-136	0	25	
106-93-4	1,2-Dibromoethane	211	207	206	98	98	73-131	0	25	
123-86-4	n-Butyl Acetate	215	196	196	91	91	69-130	0	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 3 of 3

Client: PES Environmental
Client Sample ID: Duplicate Lab Control Sample
Client Project ID: MVSC / 1358.001.01.007

ALS Project ID: P1705189
 ALS Sample ID: P171028-DLCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 10/28/17
Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		ALS	RPD	RPD	Data
		LCS / DLCS µg/m³	LCS µg/m³	DLCS µg/m³	LCS	DLCS	Acceptance Limits			
111-65-9	n-Octane	212	178	178	84	84	66-120	0	25	
127-18-4	Tetrachloroethene	212	201	201	95	95	65-130	0	25	
108-90-7	Chlorobenzene	212	191	191	90	90	68-120	0	25	
100-41-4	Ethylbenzene	212	189	189	89	89	68-122	0	25	
179601-23-1	m,p-Xylenes	424	376	378	89	89	68-123	0	25	
75-25-2	Bromoform	212	231	231	109	109	69-130	0	25	
100-42-5	Styrene	211	205	204	97	97	71-133	0	25	
95-47-6	o-Xylene	211	188	189	89	90	68-122	1	25	
111-84-2	n-Nonane	212	174	169	82	80	65-120	2	25	
79-34-5	1,1,2,2-Tetrachloroethane	212	205	204	97	96	69-130	1	25	
98-82-8	Cumene	212	192	190	91	90	70-123	1	25	
80-56-8	alpha-Pinene	213	201	202	94	95	70-128	1	25	
103-65-1	n-Propylbenzene	214	195	186	91	87	69-125	4	25	
622-96-8	4-Ethyltoluene	211	195	205	92	97	67-130	5	25	
108-67-8	1,3,5-Trimethylbenzene	212	191	183	90	86	67-124	5	25	
95-63-6	1,2,4-Trimethylbenzene	212	195	188	92	89	67-129	3	25	
100-44-7	Benzyl Chloride	212	270	261	127	123	79-138	3	25	
541-73-1	1,3-Dichlorobenzene	212	205	200	97	94	65-136	3	25	
106-46-7	1,4-Dichlorobenzene	214	202	197	94	92	66-141	2	25	
95-50-1	1,2-Dichlorobenzene	214	207	201	97	94	67-136	3	25	
5989-27-5	d-Limonene	213	197	185	92	87	71-134	6	25	
96-12-8	1,2-Dibromo-3-chloropropane	210	257	251	122	120	73-136	2	25	
120-82-1	1,2,4-Trichlorobenzene	218	237	237	109	109	64-134	0	25	
91-20-3	Naphthalene	209	211	204	101	98	62-136	3	25	
87-68-3	Hexachlorobutadiene	212	215	209	101	99	60-133	2	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

MEMORANDUM

TO: Project File **DATE:** November 6, 2017
FROM: Jessie Compeau
SUBJECT: Laboratory Data Validation Review
PROJECT: Manhattan Village Shopping Center - Soil Vapor Extraction System Performance Data Review
PROJECT #: 1358.001.01.007
TASK: October 17, 2017 Air Sample
LAB: ALS Environmental P1705189

One SVE system stack discharge air sample was collected as part of SVE system O&M at the Manhattan Village Shopping Center in Normandy Park, Washington, on October 17, 2017. The air sample was analyzed for 75 VOCs by USEPA Method TO-15 (*Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air*, Second Edition, EPA/625/R-96/010B, January, 1999). Laboratory analytical services were provided by ALS Environmental (ALS) (also known as ALS Global (ALS)) of Simi Valley, California. Analytical data are reported under ALS's service request number P1705189.

The quality assurance review of the laboratory data is summarized below.

DATA QUALIFICATIONS

Guidelines established by USEPA for review of analytical data were used to validate the data. The comments presented in this memorandum refer to the laboratory's performance in meeting the quality control criteria outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (USEPA, 2017).

DATA VALIDATION

Completeness

All samples were collected and analyzed as requested. No concerns, issues, or anomalies were identified in the laboratory report.

Sample Collection and Preservation

The laboratory supplied a SiloniteTM canister (6 Liter) for the air sample. The sample was shipped and delivered by FedEx and received in good condition by the laboratory. Silonite canisters do not require preservation or cooling. The sample was collected, handled, and delivered in an appropriate manner with the following discussion:

- ALS's Sample Acceptance Check Form indicates that chain of custody seals were not placed on the outside of the shipping container. Chain of custody seals are recommended since the sample was shipped using a courier. No action is taken in this case since the Sample Acceptance Check Form indicates that the container was received in good condition.

No data qualifications were warranted based upon sampling and preservation techniques.

Holding Times

The analysis for VOCs by TO-15 was performed within ten to eleven days of sample collection. This is within the 30-day recommended holding time limit for air samples collected in a Summa canister. No data was qualified based upon holding times.

Initial and Continuing Calibration

Initial and continuing calibration data for this project are retained by the laboratory and available for review if necessary. Case narrative and laboratory notes do not indicate that there are any issues with calibration.

Method Blank Results

Laboratory method blanks were included with the analytical batches per method requirement. The method blank results did not report any compounds at concentrations at or above the MRLs.

Trip Blank Results

A trip blank was not required for the VOCs by TO-15 analyses. No qualifications were warranted due to the lack of a trip blank for this method.

Field Duplicate Analyses

No field duplicates were required or collected during this field event.

Laboratory Duplicate/Replicate Analyses

A laboratory replicate was not performed. Refer to the Laboratory Control Sample section for additional information.

Surrogate Recoveries

The surrogate percent recovery (% R) results for the VOCs by TO-15 air sample, method blank, and laboratory control samples are within the laboratory surrogate control limits of 70 -130% R. No data qualifications were warranted.

Laboratory Control Samples

Laboratory control sample/laboratory control sample duplicate (LCS/LCSDs) were analyzed for the VOCs by TO-15 along with each analytical batch. The LCS/LCSD recovery results for all control compounds met the % R and relative percent difference (RPD) laboratory acceptance criteria.

Matrix Spike/Matrix Spike Duplicates

A MS/MSD is not required for the VOCs by TO-15 method.

Other Quality Control Issues

No other laboratory quality control issues were identified in the laboratory report.

Quantitation Limits

Results of the VOCs by TO-15 analysis were reported based on laboratory MRLs (assuming standard temperature and pressure is equal to 24.45) and reported in units of ppbv and $\mu\text{g}/\text{m}^3$.

The MRLs indicate the minimum quantity of a target analyte that can be confidently determined by the reference method. The MRLs were acceptable for the project; therefore, no data qualifications were warranted.

Data Assessment

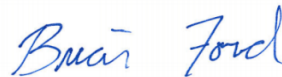
No data qualifiers were assigned. All data are judged to be acceptable for their intended use.

November 01, 2017

PES Environmental, Inc.- WA

Sample Delivery Group: L946305
Samples Received: 10/25/2017
Project Number: 1358.001.01.003
Description: MVSC
Site: MVSC
Report To: Karsten Springstead
1215 Fourth Ave., Suite 1350
Seattle, WA 98161

Entire Report Reviewed By:



Brian Ford
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	5
Sr: Sample Results	6
MW-101-102317 L946305-01	6
DC-15-102317 L946305-02	8
DC-8-102317 L946305-03	10
DC-7-102317 L946305-04	12
DC-17-102317 L946305-05	14
MW-9-102317 L946305-06	16
MW-10-102317 L946305-07	18
MW-12-102317 L946305-08	20
MW-13-102317 L946305-09	22
MW-15-102417 L946305-10	24
MW-16-102417 L946305-11	26
MW-14-102417 L946305-12	28
DC-3-102417 L946305-13	30
Qc: Quality Control Summary	32
Volatile Organic Compounds (GC/MS) by Method 8260C	32
Gl: Glossary of Terms	36
Al: Accreditations & Locations	37
Sc: Sample Chain of Custody	38



SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



MW-101-102317 L946305-01 GW

			Collected by C. DeBoer	Collected date/time 10/23/17 07:45	Received date/time 10/25/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/26/17 13:19	10/26/17 13:19	JHH
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/31/17 18:57	10/31/17 18:57	BMB

¹ Cp

² Tc

³ Ss

DC-15-102317 L946305-02 GW

			Collected by C. DeBoer	Collected date/time 10/23/17 09:15	Received date/time 10/25/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/26/17 13:39	10/26/17 13:39	JHH
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/31/17 19:16	10/31/17 19:16	BMB

⁴ Cn

⁵ Sr

⁶ Qc

DC-8-102317 L946305-03 GW

			Collected by C. DeBoer	Collected date/time 10/23/17 10:35	Received date/time 10/25/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/26/17 13:59	10/26/17 13:59	JHH
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/31/17 19:36	10/31/17 19:36	BMB

⁷ Gl

⁸ Al

⁹ Sc

DC-7-102317 L946305-04 GW

			Collected by C. DeBoer	Collected date/time 10/23/17 11:30	Received date/time 10/25/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/26/17 14:20	10/26/17 14:20	JHH
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/31/17 19:56	10/31/17 19:56	BMB

DC-17-102317 L946305-05 GW

			Collected by C. DeBoer	Collected date/time 10/23/17 12:45	Received date/time 10/25/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/26/17 14:41	10/26/17 14:41	JHH
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/31/17 20:15	10/31/17 20:15	BMB

MW-9-102317 L946305-06 GW

			Collected by C. DeBoer	Collected date/time 10/23/17 13:25	Received date/time 10/25/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/26/17 15:02	10/26/17 15:02	JHH
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/31/17 20:35	10/31/17 20:35	BMB

MW-10-102317 L946305-07 GW

			Collected by C. DeBoer	Collected date/time 10/23/17 14:30	Received date/time 10/25/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/26/17 15:22	10/26/17 15:22	JHH
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/31/17 20:55	10/31/17 20:55	BMB

ACCOUNT:

PES Environmental, Inc.- WA

PROJECT:

1358.001.01.003

SDG:

L946305

DATE/TIME:

11/01/17 11:18

PAGE:

3 of 39

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



MW-12-102317 L946305-08 GW

			Collected by C. DeBoer	Collected date/time 10/23/17 15:30	Received date/time 10/25/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/26/17 15:42	10/26/17 15:42	JHH
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/31/17 21:15	10/31/17 21:15	BMB

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

MW-13-102317 L946305-09 GW

			Collected by C. DeBoer	Collected date/time 10/23/17 16:45	Received date/time 10/25/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/26/17 16:02	10/26/17 16:02	JHH
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/31/17 21:34	10/31/17 21:34	BMB

MW-15-102417 L946305-10 GW

			Collected by C. DeBoer	Collected date/time 10/24/17 08:40	Received date/time 10/25/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/26/17 16:22	10/26/17 16:22	JHH
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/31/17 21:54	10/31/17 21:54	BMB

MW-16-102417 L946305-11 GW

			Collected by C. DeBoer	Collected date/time 10/24/17 09:25	Received date/time 10/25/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/26/17 16:42	10/26/17 16:42	JHH
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/31/17 22:13	10/31/17 22:13	BMB

MW-14-102417 L946305-12 GW

			Collected by C. DeBoer	Collected date/time 10/24/17 10:25	Received date/time 10/25/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/26/17 17:02	10/26/17 17:02	JHH
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/31/17 22:33	10/31/17 22:33	BMB

DC-3-102417 L946305-13 GW

			Collected by C. DeBoer	Collected date/time 10/24/17 12:25	Received date/time 10/25/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/26/17 17:23	10/26/17 17:23	JHH
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1035727	1	10/31/17 22:52	10/31/17 22:52	BMB



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND		25.0	1	10/26/2017 13:19	WG1035727
Acrylonitrile	ND		5.00	1	10/26/2017 13:19	WG1035727
Benzene	ND		0.500	1	10/26/2017 13:19	WG1035727
Bromobenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
Bromodichloromethane	ND		0.500	1	10/26/2017 13:19	WG1035727
Bromochloromethane	ND		0.500	1	10/26/2017 13:19	WG1035727
Bromoform	ND		0.500	1	10/26/2017 13:19	WG1035727
Bromomethane	ND		2.50	1	10/26/2017 13:19	WG1035727
n-Butylbenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
sec-Butylbenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
tert-Butylbenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
Carbon disulfide	ND		0.500	1	10/26/2017 13:19	WG1035727
Carbon tetrachloride	ND		0.500	1	10/26/2017 13:19	WG1035727
Chlorobenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
Chlorodibromomethane	ND		0.500	1	10/26/2017 13:19	WG1035727
Chloroethane	ND		2.50	1	10/26/2017 13:19	WG1035727
Chloroform	ND		0.500	1	10/26/2017 13:19	WG1035727
Chloromethane	ND		1.25	1	10/26/2017 13:19	WG1035727
2-Chlorotoluene	ND		0.500	1	10/26/2017 13:19	WG1035727
4-Chlorotoluene	ND		0.500	1	10/26/2017 13:19	WG1035727
1,2-Dibromo-3-Chloropropane	ND		2.50	1	10/26/2017 13:19	WG1035727
1,2-Dibromoethane	ND		0.500	1	10/26/2017 13:19	WG1035727
Dibromomethane	ND		0.500	1	10/26/2017 13:19	WG1035727
1,2-Dichlorobenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
1,3-Dichlorobenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
1,4-Dichlorobenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
Dichlorodifluoromethane	ND		2.50	1	10/26/2017 13:19	WG1035727
1,1-Dichloroethane	ND		0.500	1	10/26/2017 13:19	WG1035727
1,2-Dichloroethane	ND		0.500	1	10/26/2017 13:19	WG1035727
1,1-Dichloroethene	ND		0.500	1	10/26/2017 13:19	WG1035727
cis-1,2-Dichloroethene	ND		0.500	1	10/26/2017 13:19	WG1035727
trans-1,2-Dichloroethene	ND		0.500	1	10/26/2017 13:19	WG1035727
1,2-Dichloropropane	ND		0.500	1	10/26/2017 13:19	WG1035727
1,1-Dichloropropene	ND		0.500	1	10/26/2017 13:19	WG1035727
1,3-Dichloropropane	ND		1.00	1	10/26/2017 13:19	WG1035727
cis-1,3-Dichloropropene	ND		0.500	1	10/26/2017 13:19	WG1035727
trans-1,3-Dichloropropene	ND		0.500	1	10/26/2017 13:19	WG1035727
trans-1,4-Dichloro-2-butene	ND		5.00	1	10/26/2017 13:19	WG1035727
2,2-Dichloropropane	ND		0.500	1	10/26/2017 13:19	WG1035727
Di-isopropyl ether	ND		0.500	1	10/26/2017 13:19	WG1035727
Ethylbenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
Hexachloro-1,3-butadiene	ND		1.00	1	10/26/2017 13:19	WG1035727
2-Hexanone	ND		5.00	1	10/26/2017 13:19	WG1035727
n-Hexane	ND		5.00	1	10/26/2017 13:19	WG1035727
Iodomethane	ND		10.0	1	10/26/2017 13:19	WG1035727
Isopropylbenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
p-Isopropyltoluene	ND		0.500	1	10/26/2017 13:19	WG1035727
2-Butanone (MEK)	ND		5.00	1	10/26/2017 13:19	WG1035727
Methylene Chloride	ND		2.50	1	10/26/2017 13:19	WG1035727
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	10/26/2017 13:19	WG1035727
Methyl tert-butyl ether	ND		0.500	1	10/26/2017 13:19	WG1035727
Naphthalene	ND		2.50	1	10/31/2017 18:57	WG1035727
n-Propylbenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
Styrene	ND		0.500	1	10/26/2017 13:19	WG1035727
1,1,1,2-Tetrachloroethane	ND		0.500	1	10/26/2017 13:19	WG1035727
1,1,2,2-Tetrachloroethane	ND		0.500	1	10/26/2017 13:19	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	10/26/2017 13:19	WG1035727
Tetrachloroethene	16.5		0.500	1	10/26/2017 13:19	WG1035727
Toluene	ND		0.500	1	10/26/2017 13:19	WG1035727
1,2,3-Trichlorobenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
1,2,4-Trichlorobenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
1,1,1-Trichloroethane	ND		0.500	1	10/26/2017 13:19	WG1035727
1,1,2-Trichloroethane	ND		0.500	1	10/26/2017 13:19	WG1035727
Trichloroethene	ND		0.500	1	10/26/2017 13:19	WG1035727
Trichlorofluoromethane	ND		2.50	1	10/26/2017 13:19	WG1035727
1,2,3-Trichloropropane	ND		2.50	1	10/26/2017 13:19	WG1035727
1,2,4-Trimethylbenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
1,2,3-Trimethylbenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
1,3,5-Trimethylbenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
Vinyl acetate	ND		5.00	1	10/26/2017 13:19	WG1035727
Vinyl chloride	ND		0.500	1	10/26/2017 13:19	WG1035727
Xylenes, Total	ND		1.50	1	10/26/2017 13:19	WG1035727
(S) Toluene-d8	101		80.0-120		10/31/2017 18:57	WG1035727
(S) Toluene-d8	109		80.0-120		10/26/2017 13:19	WG1035727
(S) Dibromofluoromethane	97.8		76.0-123		10/26/2017 13:19	WG1035727
(S) Dibromofluoromethane	107		76.0-123		10/31/2017 18:57	WG1035727
(S) 4-Bromofluorobenzene	102		80.0-120		10/31/2017 18:57	WG1035727
(S) 4-Bromofluorobenzene	98.3		80.0-120		10/26/2017 13:19	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		25.0	1	10/26/2017 13:39	WG1035727
Acrylonitrile	ND		5.00	1	10/26/2017 13:39	WG1035727
Benzene	ND		0.500	1	10/26/2017 13:39	WG1035727
Bromobenzene	ND		0.500	1	10/26/2017 13:39	WG1035727
Bromodichloromethane	ND		0.500	1	10/26/2017 13:39	WG1035727
Bromochloromethane	ND		0.500	1	10/26/2017 13:39	WG1035727
Bromoform	ND		0.500	1	10/26/2017 13:39	WG1035727
Bromomethane	ND		2.50	1	10/26/2017 13:39	WG1035727
n-Butylbenzene	ND		0.500	1	10/26/2017 13:39	WG1035727
sec-Butylbenzene	ND		0.500	1	10/26/2017 13:39	WG1035727
tert-Butylbenzene	ND		0.500	1	10/26/2017 13:39	WG1035727
Carbon disulfide	ND		0.500	1	10/26/2017 13:39	WG1035727
Carbon tetrachloride	ND		0.500	1	10/26/2017 13:39	WG1035727
Chlorobenzene	ND		0.500	1	10/26/2017 13:39	WG1035727
Chlorodibromomethane	ND		0.500	1	10/26/2017 13:39	WG1035727
Chloroethane	ND		2.50	1	10/26/2017 13:39	WG1035727
Chloroform	ND		0.500	1	10/26/2017 13:39	WG1035727
Chloromethane	ND		1.25	1	10/26/2017 13:39	WG1035727
2-Chlorotoluene	ND		0.500	1	10/26/2017 13:39	WG1035727
4-Chlorotoluene	ND		0.500	1	10/26/2017 13:39	WG1035727
1,2-Dibromo-3-Chloropropane	ND		2.50	1	10/26/2017 13:39	WG1035727
1,2-Dibromoethane	ND		0.500	1	10/26/2017 13:39	WG1035727
Dibromomethane	ND		0.500	1	10/26/2017 13:39	WG1035727
1,2-Dichlorobenzene	ND		0.500	1	10/26/2017 13:39	WG1035727
1,3-Dichlorobenzene	ND		0.500	1	10/26/2017 13:39	WG1035727
1,4-Dichlorobenzene	ND		0.500	1	10/26/2017 13:39	WG1035727
Dichlorodifluoromethane	ND		2.50	1	10/26/2017 13:39	WG1035727
1,1-Dichloroethane	ND		0.500	1	10/26/2017 13:39	WG1035727
1,2-Dichloroethane	ND		0.500	1	10/26/2017 13:39	WG1035727
1,1-Dichloroethene	ND		0.500	1	10/26/2017 13:39	WG1035727
cis-1,2-Dichloroethene	ND		0.500	1	10/26/2017 13:39	WG1035727
trans-1,2-Dichloroethene	ND		0.500	1	10/26/2017 13:39	WG1035727
1,2-Dichloropropane	ND		0.500	1	10/26/2017 13:39	WG1035727
1,1-Dichloropropene	ND		0.500	1	10/26/2017 13:39	WG1035727
1,3-Dichloropropane	ND		1.00	1	10/26/2017 13:39	WG1035727
cis-1,3-Dichloropropene	ND		0.500	1	10/26/2017 13:39	WG1035727
trans-1,3-Dichloropropene	ND		0.500	1	10/26/2017 13:39	WG1035727
trans-1,4-Dichloro-2-butene	ND		5.00	1	10/26/2017 13:39	WG1035727
2,2-Dichloropropane	ND		0.500	1	10/26/2017 13:39	WG1035727
Di-isopropyl ether	ND		0.500	1	10/26/2017 13:39	WG1035727
Ethylbenzene	ND		0.500	1	10/26/2017 13:39	WG1035727
Hexachloro-1,3-butadiene	ND		1.00	1	10/26/2017 13:39	WG1035727
2-Hexanone	ND		5.00	1	10/26/2017 13:39	WG1035727
n-Hexane	ND		5.00	1	10/26/2017 13:39	WG1035727
Iodomethane	ND		10.0	1	10/26/2017 13:39	WG1035727
Isopropylbenzene	ND		0.500	1	10/26/2017 13:39	WG1035727
p-Isopropyltoluene	ND		0.500	1	10/26/2017 13:39	WG1035727
2-Butanone (MEK)	ND		5.00	1	10/26/2017 13:39	WG1035727
Methylene Chloride	ND		2.50	1	10/26/2017 13:39	WG1035727
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	10/26/2017 13:39	WG1035727
Methyl tert-butyl ether	ND		0.500	1	10/26/2017 13:39	WG1035727
Naphthalene	ND		2.50	1	10/31/2017 19:16	WG1035727
n-Propylbenzene	ND		0.500	1	10/26/2017 13:39	WG1035727
Styrene	ND		0.500	1	10/26/2017 13:39	WG1035727
1,1,1,2-Tetrachloroethane	ND		0.500	1	10/26/2017 13:39	WG1035727
1,1,2,2-Tetrachloroethane	ND		0.500	1	10/26/2017 13:39	WG1035727

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	10/26/2017 13:39	WG1035727
Tetrachloroethene	7.42		0.500	1	10/26/2017 13:39	WG1035727
Toluene	ND		0.500	1	10/26/2017 13:39	WG1035727
1,2,3-Trichlorobenzene	ND		0.500	1	10/26/2017 13:39	WG1035727
1,2,4-Trichlorobenzene	ND		0.500	1	10/26/2017 13:39	WG1035727
1,1,1-Trichloroethane	ND		0.500	1	10/26/2017 13:39	WG1035727
1,1,2-Trichloroethane	ND		0.500	1	10/26/2017 13:39	WG1035727
Trichloroethene	ND		0.500	1	10/26/2017 13:39	WG1035727
Trichlorofluoromethane	ND		2.50	1	10/26/2017 13:39	WG1035727
1,2,3-Trichloropropane	ND		2.50	1	10/26/2017 13:39	WG1035727
1,2,4-Trimethylbenzene	ND		0.500	1	10/26/2017 13:39	WG1035727
1,2,3-Trimethylbenzene	ND		0.500	1	10/26/2017 13:39	WG1035727
1,3,5-Trimethylbenzene	ND		0.500	1	10/26/2017 13:39	WG1035727
Vinyl acetate	ND		5.00	1	10/26/2017 13:39	WG1035727
Vinyl chloride	ND		0.500	1	10/26/2017 13:39	WG1035727
Xylenes, Total	ND		1.50	1	10/26/2017 13:39	WG1035727
(S) Toluene-d8	108		80.0-120		10/26/2017 13:39	WG1035727
(S) Toluene-d8	99.7		80.0-120		10/31/2017 19:16	WG1035727
(S) Dibromofluoromethane	98.4		76.0-123		10/26/2017 13:39	WG1035727
(S) Dibromofluoromethane	106		76.0-123		10/31/2017 19:16	WG1035727
(S) 4-Bromofluorobenzene	97.4		80.0-120		10/26/2017 13:39	WG1035727
(S) 4-Bromofluorobenzene	103		80.0-120		10/31/2017 19:16	WG1035727

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		25.0	1	10/26/2017 13:59	WG1035727
Acrylonitrile	ND		5.00	1	10/26/2017 13:59	WG1035727
Benzene	ND		0.500	1	10/26/2017 13:59	WG1035727
Bromobenzene	ND		0.500	1	10/26/2017 13:59	WG1035727
Bromodichloromethane	ND		0.500	1	10/26/2017 13:59	WG1035727
Bromochloromethane	ND		0.500	1	10/26/2017 13:59	WG1035727
Bromoform	ND		0.500	1	10/26/2017 13:59	WG1035727
Bromomethane	ND		2.50	1	10/26/2017 13:59	WG1035727
n-Butylbenzene	ND		0.500	1	10/26/2017 13:59	WG1035727
sec-Butylbenzene	ND		0.500	1	10/26/2017 13:59	WG1035727
tert-Butylbenzene	ND		0.500	1	10/26/2017 13:59	WG1035727
Carbon disulfide	ND		0.500	1	10/26/2017 13:59	WG1035727
Carbon tetrachloride	ND		0.500	1	10/26/2017 13:59	WG1035727
Chlorobenzene	ND		0.500	1	10/26/2017 13:59	WG1035727
Chlorodibromomethane	ND		0.500	1	10/26/2017 13:59	WG1035727
Chloroethane	ND		2.50	1	10/26/2017 13:59	WG1035727
Chloroform	ND		0.500	1	10/26/2017 13:59	WG1035727
Chloromethane	ND		1.25	1	10/26/2017 13:59	WG1035727
2-Chlorotoluene	ND		0.500	1	10/26/2017 13:59	WG1035727
4-Chlorotoluene	ND		0.500	1	10/26/2017 13:59	WG1035727
1,2-Dibromo-3-Chloropropane	ND		2.50	1	10/26/2017 13:59	WG1035727
1,2-Dibromoethane	ND		0.500	1	10/26/2017 13:59	WG1035727
Dibromomethane	ND		0.500	1	10/26/2017 13:59	WG1035727
1,2-Dichlorobenzene	ND		0.500	1	10/26/2017 13:59	WG1035727
1,3-Dichlorobenzene	ND		0.500	1	10/26/2017 13:59	WG1035727
1,4-Dichlorobenzene	ND		0.500	1	10/26/2017 13:59	WG1035727
Dichlorodifluoromethane	ND		2.50	1	10/26/2017 13:59	WG1035727
1,1-Dichloroethane	ND		0.500	1	10/26/2017 13:59	WG1035727
1,2-Dichloroethane	ND		0.500	1	10/26/2017 13:59	WG1035727
1,1-Dichloroethene	ND		0.500	1	10/26/2017 13:59	WG1035727
cis-1,2-Dichloroethene	ND		0.500	1	10/26/2017 13:59	WG1035727
trans-1,2-Dichloroethene	ND		0.500	1	10/26/2017 13:59	WG1035727
1,2-Dichloropropane	ND		0.500	1	10/26/2017 13:59	WG1035727
1,1-Dichloropropene	ND		0.500	1	10/26/2017 13:59	WG1035727
1,3-Dichloropropane	ND		1.00	1	10/26/2017 13:59	WG1035727
cis-1,3-Dichloropropene	ND		0.500	1	10/26/2017 13:59	WG1035727
trans-1,3-Dichloropropene	ND		0.500	1	10/26/2017 13:59	WG1035727
trans-1,4-Dichloro-2-butene	ND		5.00	1	10/26/2017 13:59	WG1035727
2,2-Dichloropropane	ND		0.500	1	10/26/2017 13:59	WG1035727
Di-isopropyl ether	ND		0.500	1	10/26/2017 13:59	WG1035727
Ethylbenzene	ND		0.500	1	10/26/2017 13:59	WG1035727
Hexachloro-1,3-butadiene	ND		1.00	1	10/26/2017 13:59	WG1035727
2-Hexanone	ND		5.00	1	10/26/2017 13:59	WG1035727
n-Hexane	ND		5.00	1	10/26/2017 13:59	WG1035727
Iodomethane	ND		10.0	1	10/26/2017 13:59	WG1035727
Isopropylbenzene	ND		0.500	1	10/26/2017 13:59	WG1035727
p-Isopropyltoluene	ND		0.500	1	10/26/2017 13:59	WG1035727
2-Butanone (MEK)	ND		5.00	1	10/26/2017 13:59	WG1035727
Methylene Chloride	ND		2.50	1	10/26/2017 13:59	WG1035727
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	10/26/2017 13:59	WG1035727
Methyl tert-butyl ether	ND		0.500	1	10/26/2017 13:59	WG1035727
Naphthalene	ND		2.50	1	10/31/2017 19:36	WG1035727
n-Propylbenzene	ND		0.500	1	10/26/2017 13:59	WG1035727
Styrene	ND		0.500	1	10/26/2017 13:59	WG1035727
1,1,1,2-Tetrachloroethane	ND		0.500	1	10/26/2017 13:59	WG1035727
1,1,2,2-Tetrachloroethane	ND		0.500	1	10/26/2017 13:59	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	10/26/2017 13:59	WG1035727
Tetrachloroethene	14.8		0.500	1	10/26/2017 13:59	WG1035727
Toluene	ND		0.500	1	10/26/2017 13:59	WG1035727
1,2,3-Trichlorobenzene	ND		0.500	1	10/26/2017 13:59	WG1035727
1,2,4-Trichlorobenzene	ND		0.500	1	10/26/2017 13:59	WG1035727
1,1,1-Trichloroethane	ND		0.500	1	10/26/2017 13:59	WG1035727
1,1,2-Trichloroethane	ND		0.500	1	10/26/2017 13:59	WG1035727
Trichloroethene	ND		0.500	1	10/26/2017 13:59	WG1035727
Trichlorofluoromethane	ND		2.50	1	10/26/2017 13:59	WG1035727
1,2,3-Trichloropropane	ND		2.50	1	10/26/2017 13:59	WG1035727
1,2,4-Trimethylbenzene	ND		0.500	1	10/26/2017 13:59	WG1035727
1,2,3-Trimethylbenzene	ND		0.500	1	10/26/2017 13:59	WG1035727
1,3,5-Trimethylbenzene	ND		0.500	1	10/26/2017 13:59	WG1035727
Vinyl acetate	ND		5.00	1	10/26/2017 13:59	WG1035727
Vinyl chloride	ND		0.500	1	10/26/2017 13:59	WG1035727
Xylenes, Total	ND		1.50	1	10/26/2017 13:59	WG1035727
(S) Toluene-d8	102		80.0-120		10/31/2017 19:36	WG1035727
(S) Toluene-d8	110		80.0-120		10/26/2017 13:59	WG1035727
(S) Dibromofluoromethane	97.3		76.0-123		10/26/2017 13:59	WG1035727
(S) Dibromofluoromethane	105		76.0-123		10/31/2017 19:36	WG1035727
(S) 4-Bromofluorobenzene	96.1		80.0-120		10/26/2017 13:59	WG1035727
(S) 4-Bromofluorobenzene	101		80.0-120		10/31/2017 19:36	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		25.0	1	10/26/2017 14:20	WG1035727
Acrylonitrile	ND		5.00	1	10/26/2017 14:20	WG1035727
Benzene	ND		0.500	1	10/26/2017 14:20	WG1035727
Bromobenzene	ND		0.500	1	10/26/2017 14:20	WG1035727
Bromodichloromethane	ND		0.500	1	10/26/2017 14:20	WG1035727
Bromochloromethane	ND		0.500	1	10/26/2017 14:20	WG1035727
Bromoform	ND		0.500	1	10/26/2017 14:20	WG1035727
Bromomethane	ND		2.50	1	10/26/2017 14:20	WG1035727
n-Butylbenzene	ND		0.500	1	10/26/2017 14:20	WG1035727
sec-Butylbenzene	ND		0.500	1	10/26/2017 14:20	WG1035727
tert-Butylbenzene	ND		0.500	1	10/26/2017 14:20	WG1035727
Carbon disulfide	ND		0.500	1	10/26/2017 14:20	WG1035727
Carbon tetrachloride	ND		0.500	1	10/26/2017 14:20	WG1035727
Chlorobenzene	ND		0.500	1	10/26/2017 14:20	WG1035727
Chlorodibromomethane	ND		0.500	1	10/26/2017 14:20	WG1035727
Chloroethane	ND		2.50	1	10/26/2017 14:20	WG1035727
Chloroform	ND		0.500	1	10/26/2017 14:20	WG1035727
Chloromethane	ND		1.25	1	10/26/2017 14:20	WG1035727
2-Chlorotoluene	ND		0.500	1	10/26/2017 14:20	WG1035727
4-Chlorotoluene	ND		0.500	1	10/26/2017 14:20	WG1035727
1,2-Dibromo-3-Chloropropane	ND		2.50	1	10/26/2017 14:20	WG1035727
1,2-Dibromoethane	ND		0.500	1	10/26/2017 14:20	WG1035727
Dibromomethane	ND		0.500	1	10/26/2017 14:20	WG1035727
1,2-Dichlorobenzene	ND		0.500	1	10/26/2017 14:20	WG1035727
1,3-Dichlorobenzene	ND		0.500	1	10/26/2017 14:20	WG1035727
1,4-Dichlorobenzene	ND		0.500	1	10/26/2017 14:20	WG1035727
Dichlorodifluoromethane	ND		2.50	1	10/26/2017 14:20	WG1035727
1,1-Dichloroethane	ND		0.500	1	10/26/2017 14:20	WG1035727
1,2-Dichloroethane	ND		0.500	1	10/26/2017 14:20	WG1035727
1,1-Dichloroethene	ND		0.500	1	10/26/2017 14:20	WG1035727
cis-1,2-Dichloroethene	ND		0.500	1	10/26/2017 14:20	WG1035727
trans-1,2-Dichloroethene	ND		0.500	1	10/26/2017 14:20	WG1035727
1,2-Dichloropropane	ND		0.500	1	10/26/2017 14:20	WG1035727
1,1-Dichloropropene	ND		0.500	1	10/26/2017 14:20	WG1035727
1,3-Dichloropropane	ND		1.00	1	10/26/2017 14:20	WG1035727
cis-1,3-Dichloropropene	ND		0.500	1	10/26/2017 14:20	WG1035727
trans-1,3-Dichloropropene	ND		0.500	1	10/26/2017 14:20	WG1035727
trans-1,4-Dichloro-2-butene	ND		5.00	1	10/26/2017 14:20	WG1035727
2,2-Dichloropropane	ND		0.500	1	10/26/2017 14:20	WG1035727
Di-isopropyl ether	ND		0.500	1	10/26/2017 14:20	WG1035727
Ethylbenzene	ND		0.500	1	10/26/2017 14:20	WG1035727
Hexachloro-1,3-butadiene	ND		1.00	1	10/26/2017 14:20	WG1035727
2-Hexanone	ND		5.00	1	10/26/2017 14:20	WG1035727
n-Hexane	ND		5.00	1	10/26/2017 14:20	WG1035727
Iodomethane	ND		10.0	1	10/26/2017 14:20	WG1035727
Isopropylbenzene	ND		0.500	1	10/26/2017 14:20	WG1035727
p-Isopropyltoluene	ND		0.500	1	10/26/2017 14:20	WG1035727
2-Butanone (MEK)	ND		5.00	1	10/26/2017 14:20	WG1035727
Methylene Chloride	ND		2.50	1	10/26/2017 14:20	WG1035727
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	10/26/2017 14:20	WG1035727
Methyl tert-butyl ether	ND		0.500	1	10/26/2017 14:20	WG1035727
Naphthalene	ND		2.50	1	10/31/2017 19:56	WG1035727
n-Propylbenzene	ND		0.500	1	10/26/2017 14:20	WG1035727
Styrene	ND		0.500	1	10/26/2017 14:20	WG1035727
1,1,1,2-Tetrachloroethane	ND		0.500	1	10/26/2017 14:20	WG1035727
1,1,2,2-Tetrachloroethane	ND		0.500	1	10/26/2017 14:20	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	10/26/2017 14:20	WG1035727
Tetrachloroethene	6.67		0.500	1	10/26/2017 14:20	WG1035727
Toluene	ND		0.500	1	10/26/2017 14:20	WG1035727
1,2,3-Trichlorobenzene	ND		0.500	1	10/26/2017 14:20	WG1035727
1,2,4-Trichlorobenzene	ND		0.500	1	10/26/2017 14:20	WG1035727
1,1,1-Trichloroethane	ND		0.500	1	10/26/2017 14:20	WG1035727
1,1,2-Trichloroethane	ND		0.500	1	10/26/2017 14:20	WG1035727
Trichloroethene	ND		0.500	1	10/26/2017 14:20	WG1035727
Trichlorofluoromethane	ND		2.50	1	10/26/2017 14:20	WG1035727
1,2,3-Trichloropropane	ND		2.50	1	10/26/2017 14:20	WG1035727
1,2,4-Trimethylbenzene	ND		0.500	1	10/26/2017 14:20	WG1035727
1,2,3-Trimethylbenzene	ND		0.500	1	10/26/2017 14:20	WG1035727
1,3,5-Trimethylbenzene	ND		0.500	1	10/26/2017 14:20	WG1035727
Vinyl acetate	ND		5.00	1	10/26/2017 14:20	WG1035727
Vinyl chloride	ND		0.500	1	10/26/2017 14:20	WG1035727
Xylenes, Total	ND		1.50	1	10/26/2017 14:20	WG1035727
(S) Toluene-d8	101		80.0-120		10/31/2017 19:56	WG1035727
(S) Toluene-d8	109		80.0-120		10/26/2017 14:20	WG1035727
(S) Dibromofluoromethane	107		76.0-123		10/31/2017 19:56	WG1035727
(S) Dibromofluoromethane	96.0		76.0-123		10/26/2017 14:20	WG1035727
(S) 4-Bromofluorobenzene	97.0		80.0-120		10/26/2017 14:20	WG1035727
(S) 4-Bromofluorobenzene	103		80.0-120		10/31/2017 19:56	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		25.0	1	10/26/2017 14:41	WG1035727
Acrylonitrile	ND		5.00	1	10/26/2017 14:41	WG1035727
Benzene	ND		0.500	1	10/26/2017 14:41	WG1035727
Bromobenzene	ND		0.500	1	10/26/2017 14:41	WG1035727
Bromodichloromethane	ND		0.500	1	10/26/2017 14:41	WG1035727
Bromochloromethane	ND		0.500	1	10/26/2017 14:41	WG1035727
Bromoform	ND		0.500	1	10/26/2017 14:41	WG1035727
Bromomethane	ND		2.50	1	10/26/2017 14:41	WG1035727
n-Butylbenzene	ND		0.500	1	10/26/2017 14:41	WG1035727
sec-Butylbenzene	ND		0.500	1	10/26/2017 14:41	WG1035727
tert-Butylbenzene	ND		0.500	1	10/26/2017 14:41	WG1035727
Carbon disulfide	ND		0.500	1	10/26/2017 14:41	WG1035727
Carbon tetrachloride	ND		0.500	1	10/26/2017 14:41	WG1035727
Chlorobenzene	ND		0.500	1	10/26/2017 14:41	WG1035727
Chlorodibromomethane	ND		0.500	1	10/26/2017 14:41	WG1035727
Chloroethane	ND		2.50	1	10/26/2017 14:41	WG1035727
Chloroform	ND		0.500	1	10/26/2017 14:41	WG1035727
Chloromethane	ND		1.25	1	10/26/2017 14:41	WG1035727
2-Chlorotoluene	ND		0.500	1	10/26/2017 14:41	WG1035727
4-Chlorotoluene	ND		0.500	1	10/26/2017 14:41	WG1035727
1,2-Dibromo-3-Chloropropane	ND		2.50	1	10/26/2017 14:41	WG1035727
1,2-Dibromoethane	ND		0.500	1	10/26/2017 14:41	WG1035727
Dibromomethane	ND		0.500	1	10/26/2017 14:41	WG1035727
1,2-Dichlorobenzene	ND		0.500	1	10/26/2017 14:41	WG1035727
1,3-Dichlorobenzene	ND		0.500	1	10/26/2017 14:41	WG1035727
1,4-Dichlorobenzene	ND		0.500	1	10/26/2017 14:41	WG1035727
Dichlorodifluoromethane	ND		2.50	1	10/26/2017 14:41	WG1035727
1,1-Dichloroethane	ND		0.500	1	10/26/2017 14:41	WG1035727
1,2-Dichloroethane	ND		0.500	1	10/26/2017 14:41	WG1035727
1,1-Dichloroethene	ND		0.500	1	10/26/2017 14:41	WG1035727
cis-1,2-Dichloroethene	ND		0.500	1	10/26/2017 14:41	WG1035727
trans-1,2-Dichloroethene	ND		0.500	1	10/26/2017 14:41	WG1035727
1,2-Dichloropropane	ND		0.500	1	10/26/2017 14:41	WG1035727
1,1-Dichloropropene	ND		0.500	1	10/26/2017 14:41	WG1035727
1,3-Dichloropropane	ND		1.00	1	10/26/2017 14:41	WG1035727
cis-1,3-Dichloropropene	ND		0.500	1	10/26/2017 14:41	WG1035727
trans-1,3-Dichloropropene	ND		0.500	1	10/26/2017 14:41	WG1035727
trans-1,4-Dichloro-2-butene	ND		5.00	1	10/26/2017 14:41	WG1035727
2,2-Dichloropropane	ND		0.500	1	10/26/2017 14:41	WG1035727
Di-isopropyl ether	ND		0.500	1	10/26/2017 14:41	WG1035727
Ethylbenzene	ND		0.500	1	10/26/2017 14:41	WG1035727
Hexachloro-1,3-butadiene	ND		1.00	1	10/26/2017 14:41	WG1035727
2-Hexanone	ND		5.00	1	10/26/2017 14:41	WG1035727
n-Hexane	ND		5.00	1	10/26/2017 14:41	WG1035727
Iodomethane	ND		10.0	1	10/26/2017 14:41	WG1035727
Isopropylbenzene	ND		0.500	1	10/26/2017 14:41	WG1035727
p-Isopropyltoluene	ND		0.500	1	10/26/2017 14:41	WG1035727
2-Butanone (MEK)	ND		5.00	1	10/26/2017 14:41	WG1035727
Methylene Chloride	ND		2.50	1	10/26/2017 14:41	WG1035727
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	10/26/2017 14:41	WG1035727
Methyl tert-butyl ether	ND		0.500	1	10/26/2017 14:41	WG1035727
Naphthalene	ND		2.50	1	10/31/2017 20:15	WG1035727
n-Propylbenzene	ND		0.500	1	10/26/2017 14:41	WG1035727
Styrene	ND		0.500	1	10/26/2017 14:41	WG1035727
1,1,1,2-Tetrachloroethane	ND		0.500	1	10/26/2017 14:41	WG1035727
1,1,2,2-Tetrachloroethane	ND		0.500	1	10/26/2017 14:41	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	10/26/2017 14:41	WG1035727
Tetrachloroethene	8.06		0.500	1	10/26/2017 14:41	WG1035727
Toluene	ND		0.500	1	10/26/2017 14:41	WG1035727
1,2,3-Trichlorobenzene	ND		0.500	1	10/26/2017 14:41	WG1035727
1,2,4-Trichlorobenzene	ND		0.500	1	10/26/2017 14:41	WG1035727
1,1,1-Trichloroethane	ND		0.500	1	10/26/2017 14:41	WG1035727
1,1,2-Trichloroethane	ND		0.500	1	10/26/2017 14:41	WG1035727
Trichloroethene	ND		0.500	1	10/26/2017 14:41	WG1035727
Trichlorofluoromethane	ND		2.50	1	10/26/2017 14:41	WG1035727
1,2,3-Trichloropropane	ND		2.50	1	10/26/2017 14:41	WG1035727
1,2,4-Trimethylbenzene	ND		0.500	1	10/26/2017 14:41	WG1035727
1,2,3-Trimethylbenzene	ND		0.500	1	10/26/2017 14:41	WG1035727
1,3,5-Trimethylbenzene	ND		0.500	1	10/26/2017 14:41	WG1035727
Vinyl acetate	ND		5.00	1	10/26/2017 14:41	WG1035727
Vinyl chloride	ND		0.500	1	10/26/2017 14:41	WG1035727
Xylenes, Total	ND		1.50	1	10/26/2017 14:41	WG1035727
(S) Toluene-d8	108		80.0-120		10/26/2017 14:41	WG1035727
(S) Toluene-d8	102		80.0-120		10/31/2017 20:15	WG1035727
(S) Dibromofluoromethane	106		76.0-123		10/31/2017 20:15	WG1035727
(S) Dibromofluoromethane	96.8		76.0-123		10/26/2017 14:41	WG1035727
(S) 4-Bromofluorobenzene	97.2		80.0-120		10/26/2017 14:41	WG1035727
(S) 4-Bromofluorobenzene	102		80.0-120		10/31/2017 20:15	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		25.0	1	10/26/2017 15:02	WG1035727
Acrylonitrile	ND		5.00	1	10/26/2017 15:02	WG1035727
Benzene	ND		0.500	1	10/26/2017 15:02	WG1035727
Bromobenzene	ND		0.500	1	10/26/2017 15:02	WG1035727
Bromodichloromethane	ND		0.500	1	10/26/2017 15:02	WG1035727
Bromochloromethane	ND		0.500	1	10/26/2017 15:02	WG1035727
Bromoform	ND		0.500	1	10/26/2017 15:02	WG1035727
Bromomethane	ND		2.50	1	10/26/2017 15:02	WG1035727
n-Butylbenzene	ND		0.500	1	10/26/2017 15:02	WG1035727
sec-Butylbenzene	ND		0.500	1	10/26/2017 15:02	WG1035727
tert-Butylbenzene	ND		0.500	1	10/26/2017 15:02	WG1035727
Carbon disulfide	ND		0.500	1	10/26/2017 15:02	WG1035727
Carbon tetrachloride	ND		0.500	1	10/26/2017 15:02	WG1035727
Chlorobenzene	ND		0.500	1	10/26/2017 15:02	WG1035727
Chlorodibromomethane	ND		0.500	1	10/26/2017 15:02	WG1035727
Chloroethane	ND		2.50	1	10/26/2017 15:02	WG1035727
Chloroform	ND		0.500	1	10/26/2017 15:02	WG1035727
Chloromethane	ND		1.25	1	10/26/2017 15:02	WG1035727
2-Chlorotoluene	ND		0.500	1	10/26/2017 15:02	WG1035727
4-Chlorotoluene	ND		0.500	1	10/26/2017 15:02	WG1035727
1,2-Dibromo-3-Chloropropane	ND		2.50	1	10/26/2017 15:02	WG1035727
1,2-Dibromoethane	ND		0.500	1	10/26/2017 15:02	WG1035727
Dibromomethane	ND		0.500	1	10/26/2017 15:02	WG1035727
1,2-Dichlorobenzene	ND		0.500	1	10/26/2017 15:02	WG1035727
1,3-Dichlorobenzene	ND		0.500	1	10/26/2017 15:02	WG1035727
1,4-Dichlorobenzene	ND		0.500	1	10/26/2017 15:02	WG1035727
Dichlorodifluoromethane	ND		2.50	1	10/26/2017 15:02	WG1035727
1,1-Dichloroethane	ND		0.500	1	10/26/2017 15:02	WG1035727
1,2-Dichloroethane	ND		0.500	1	10/26/2017 15:02	WG1035727
1,1-Dichloroethene	ND		0.500	1	10/26/2017 15:02	WG1035727
cis-1,2-Dichloroethene	ND		0.500	1	10/26/2017 15:02	WG1035727
trans-1,2-Dichloroethene	ND		0.500	1	10/26/2017 15:02	WG1035727
1,2-Dichloropropane	ND		0.500	1	10/26/2017 15:02	WG1035727
1,1-Dichloropropene	ND		0.500	1	10/26/2017 15:02	WG1035727
1,3-Dichloropropane	ND		1.00	1	10/26/2017 15:02	WG1035727
cis-1,3-Dichloropropene	ND		0.500	1	10/26/2017 15:02	WG1035727
trans-1,3-Dichloropropene	ND		0.500	1	10/26/2017 15:02	WG1035727
trans-1,4-Dichloro-2-butene	ND		5.00	1	10/26/2017 15:02	WG1035727
2,2-Dichloropropane	ND		0.500	1	10/26/2017 15:02	WG1035727
Di-isopropyl ether	ND		0.500	1	10/26/2017 15:02	WG1035727
Ethylbenzene	ND		0.500	1	10/26/2017 15:02	WG1035727
Hexachloro-1,3-butadiene	ND		1.00	1	10/26/2017 15:02	WG1035727
2-Hexanone	ND		5.00	1	10/26/2017 15:02	WG1035727
n-Hexane	ND		5.00	1	10/26/2017 15:02	WG1035727
Iodomethane	ND		10.0	1	10/26/2017 15:02	WG1035727
Isopropylbenzene	ND		0.500	1	10/26/2017 15:02	WG1035727
p-Isopropyltoluene	ND		0.500	1	10/26/2017 15:02	WG1035727
2-Butanone (MEK)	ND		5.00	1	10/26/2017 15:02	WG1035727
Methylene Chloride	ND		2.50	1	10/26/2017 15:02	WG1035727
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	10/26/2017 15:02	WG1035727
Methyl tert-butyl ether	ND		0.500	1	10/26/2017 15:02	WG1035727
Naphthalene	ND		2.50	1	10/31/2017 20:35	WG1035727
n-Propylbenzene	ND		0.500	1	10/26/2017 15:02	WG1035727
Styrene	ND		0.500	1	10/26/2017 15:02	WG1035727
1,1,1,2-Tetrachloroethane	ND		0.500	1	10/26/2017 15:02	WG1035727
1,1,2,2-Tetrachloroethane	ND		0.500	1	10/26/2017 15:02	WG1035727

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	10/26/2017 15:02	WG1035727
Tetrachloroethene	ND		0.500	1	10/26/2017 15:02	WG1035727
Toluene	ND		0.500	1	10/26/2017 15:02	WG1035727
1,2,3-Trichlorobenzene	ND		0.500	1	10/26/2017 15:02	WG1035727
1,2,4-Trichlorobenzene	ND		0.500	1	10/26/2017 15:02	WG1035727
1,1,1-Trichloroethane	ND		0.500	1	10/26/2017 15:02	WG1035727
1,1,2-Trichloroethane	ND		0.500	1	10/26/2017 15:02	WG1035727
Trichloroethene	ND		0.500	1	10/26/2017 15:02	WG1035727
Trichlorofluoromethane	ND		2.50	1	10/26/2017 15:02	WG1035727
1,2,3-Trichloropropane	ND		2.50	1	10/26/2017 15:02	WG1035727
1,2,4-Trimethylbenzene	ND		0.500	1	10/26/2017 15:02	WG1035727
1,2,3-Trimethylbenzene	ND		0.500	1	10/26/2017 15:02	WG1035727
1,3,5-Trimethylbenzene	ND		0.500	1	10/26/2017 15:02	WG1035727
Vinyl acetate	ND		5.00	1	10/26/2017 15:02	WG1035727
Vinyl chloride	ND		0.500	1	10/26/2017 15:02	WG1035727
Xylenes, Total	ND		1.50	1	10/26/2017 15:02	WG1035727
(S) Toluene-d8	99.9		80.0-120		10/31/2017 20:35	WG1035727
(S) Toluene-d8	109		80.0-120		10/26/2017 15:02	WG1035727
(S) Dibromofluoromethane	96.5		76.0-123		10/26/2017 15:02	WG1035727
(S) Dibromofluoromethane	109		76.0-123		10/31/2017 20:35	WG1035727
(S) 4-Bromofluorobenzene	97.2		80.0-120		10/26/2017 15:02	WG1035727
(S) 4-Bromofluorobenzene	101		80.0-120		10/31/2017 20:35	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND		25.0	1	10/26/2017 15:22	WG1035727
Acrylonitrile	ND		5.00	1	10/26/2017 15:22	WG1035727
Benzene	ND		0.500	1	10/26/2017 15:22	WG1035727
Bromobenzene	ND		0.500	1	10/26/2017 15:22	WG1035727
Bromodichloromethane	ND		0.500	1	10/26/2017 15:22	WG1035727
Bromochloromethane	ND		0.500	1	10/26/2017 15:22	WG1035727
Bromoform	ND		0.500	1	10/26/2017 15:22	WG1035727
Bromomethane	ND		2.50	1	10/26/2017 15:22	WG1035727
n-Butylbenzene	ND		0.500	1	10/26/2017 15:22	WG1035727
sec-Butylbenzene	ND		0.500	1	10/26/2017 15:22	WG1035727
tert-Butylbenzene	ND		0.500	1	10/26/2017 15:22	WG1035727
Carbon disulfide	ND		0.500	1	10/26/2017 15:22	WG1035727
Carbon tetrachloride	ND		0.500	1	10/26/2017 15:22	WG1035727
Chlorobenzene	ND		0.500	1	10/26/2017 15:22	WG1035727
Chlorodibromomethane	ND		0.500	1	10/26/2017 15:22	WG1035727
Chloroethane	ND		2.50	1	10/26/2017 15:22	WG1035727
Chloroform	ND		0.500	1	10/26/2017 15:22	WG1035727
Chloromethane	ND		1.25	1	10/26/2017 15:22	WG1035727
2-Chlorotoluene	ND		0.500	1	10/26/2017 15:22	WG1035727
4-Chlorotoluene	ND		0.500	1	10/26/2017 15:22	WG1035727
1,2-Dibromo-3-Chloropropane	ND		2.50	1	10/26/2017 15:22	WG1035727
1,2-Dibromoethane	ND		0.500	1	10/26/2017 15:22	WG1035727
Dibromomethane	ND		0.500	1	10/26/2017 15:22	WG1035727
1,2-Dichlorobenzene	ND		0.500	1	10/26/2017 15:22	WG1035727
1,3-Dichlorobenzene	ND		0.500	1	10/26/2017 15:22	WG1035727
1,4-Dichlorobenzene	ND		0.500	1	10/26/2017 15:22	WG1035727
Dichlorodifluoromethane	ND		2.50	1	10/26/2017 15:22	WG1035727
1,1-Dichloroethane	ND		0.500	1	10/26/2017 15:22	WG1035727
1,2-Dichloroethane	ND		0.500	1	10/26/2017 15:22	WG1035727
1,1-Dichloroethene	ND		0.500	1	10/26/2017 15:22	WG1035727
cis-1,2-Dichloroethene	ND		0.500	1	10/26/2017 15:22	WG1035727
trans-1,2-Dichloroethene	ND		0.500	1	10/26/2017 15:22	WG1035727
1,2-Dichloropropane	ND		0.500	1	10/26/2017 15:22	WG1035727
1,1-Dichloropropene	ND		0.500	1	10/26/2017 15:22	WG1035727
1,3-Dichloropropane	ND		1.00	1	10/26/2017 15:22	WG1035727
cis-1,3-Dichloropropene	ND		0.500	1	10/26/2017 15:22	WG1035727
trans-1,3-Dichloropropene	ND		0.500	1	10/26/2017 15:22	WG1035727
trans-1,4-Dichloro-2-butene	ND		5.00	1	10/26/2017 15:22	WG1035727
2,2-Dichloropropane	ND		0.500	1	10/26/2017 15:22	WG1035727
Di-isopropyl ether	ND		0.500	1	10/26/2017 15:22	WG1035727
Ethylbenzene	ND		0.500	1	10/26/2017 15:22	WG1035727
Hexachloro-1,3-butadiene	ND		1.00	1	10/26/2017 15:22	WG1035727
2-Hexanone	ND		5.00	1	10/26/2017 15:22	WG1035727
n-Hexane	ND		5.00	1	10/26/2017 15:22	WG1035727
Iodomethane	ND		10.0	1	10/26/2017 15:22	WG1035727
Isopropylbenzene	ND		0.500	1	10/26/2017 15:22	WG1035727
p-Isopropyltoluene	ND		0.500	1	10/26/2017 15:22	WG1035727
2-Butanone (MEK)	ND		5.00	1	10/26/2017 15:22	WG1035727
Methylene Chloride	ND		2.50	1	10/26/2017 15:22	WG1035727
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	10/26/2017 15:22	WG1035727
Methyl tert-butyl ether	ND		0.500	1	10/26/2017 15:22	WG1035727
Naphthalene	ND		2.50	1	10/31/2017 20:55	WG1035727
n-Propylbenzene	ND		0.500	1	10/26/2017 15:22	WG1035727
Styrene	ND		0.500	1	10/26/2017 15:22	WG1035727
1,1,1,2-Tetrachloroethane	ND		0.500	1	10/26/2017 15:22	WG1035727
1,1,2,2-Tetrachloroethane	ND		0.500	1	10/26/2017 15:22	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	10/26/2017 15:22	WG1035727
Tetrachloroethene	ND		0.500	1	10/26/2017 15:22	WG1035727
Toluene	ND		0.500	1	10/26/2017 15:22	WG1035727
1,2,3-Trichlorobenzene	ND		0.500	1	10/26/2017 15:22	WG1035727
1,2,4-Trichlorobenzene	ND		0.500	1	10/26/2017 15:22	WG1035727
1,1,1-Trichloroethane	ND		0.500	1	10/26/2017 15:22	WG1035727
1,1,2-Trichloroethane	ND		0.500	1	10/26/2017 15:22	WG1035727
Trichloroethene	ND		0.500	1	10/26/2017 15:22	WG1035727
Trichlorofluoromethane	ND		2.50	1	10/26/2017 15:22	WG1035727
1,2,3-Trichloropropane	ND		2.50	1	10/26/2017 15:22	WG1035727
1,2,4-Trimethylbenzene	ND		0.500	1	10/26/2017 15:22	WG1035727
1,2,3-Trimethylbenzene	ND		0.500	1	10/26/2017 15:22	WG1035727
1,3,5-Trimethylbenzene	ND		0.500	1	10/26/2017 15:22	WG1035727
Vinyl acetate	ND		5.00	1	10/26/2017 15:22	WG1035727
Vinyl chloride	ND		0.500	1	10/26/2017 15:22	WG1035727
Xylenes, Total	ND		1.50	1	10/26/2017 15:22	WG1035727
(S) Toluene-d8	101		80.0-120		10/31/2017 20:55	WG1035727
(S) Toluene-d8	108		80.0-120		10/26/2017 15:22	WG1035727
(S) Dibromofluoromethane	107		76.0-123		10/31/2017 20:55	WG1035727
(S) Dibromofluoromethane	96.1		76.0-123		10/26/2017 15:22	WG1035727
(S) 4-Bromofluorobenzene	96.7		80.0-120		10/26/2017 15:22	WG1035727
(S) 4-Bromofluorobenzene	103		80.0-120		10/31/2017 20:55	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		25.0	1	10/26/2017 15:42	WG1035727
Acrylonitrile	ND		5.00	1	10/26/2017 15:42	WG1035727
Benzene	ND		0.500	1	10/26/2017 15:42	WG1035727
Bromobenzene	ND		0.500	1	10/26/2017 15:42	WG1035727
Bromodichloromethane	ND		0.500	1	10/26/2017 15:42	WG1035727
Bromochloromethane	ND		0.500	1	10/26/2017 15:42	WG1035727
Bromoform	ND		0.500	1	10/26/2017 15:42	WG1035727
Bromomethane	ND		2.50	1	10/26/2017 15:42	WG1035727
n-Butylbenzene	ND		0.500	1	10/26/2017 15:42	WG1035727
sec-Butylbenzene	ND		0.500	1	10/26/2017 15:42	WG1035727
tert-Butylbenzene	ND		0.500	1	10/26/2017 15:42	WG1035727
Carbon disulfide	ND		0.500	1	10/26/2017 15:42	WG1035727
Carbon tetrachloride	ND		0.500	1	10/26/2017 15:42	WG1035727
Chlorobenzene	ND		0.500	1	10/26/2017 15:42	WG1035727
Chlorodibromomethane	ND		0.500	1	10/26/2017 15:42	WG1035727
Chloroethane	ND		2.50	1	10/26/2017 15:42	WG1035727
Chloroform	ND		0.500	1	10/26/2017 15:42	WG1035727
Chloromethane	ND		1.25	1	10/26/2017 15:42	WG1035727
2-Chlorotoluene	ND		0.500	1	10/26/2017 15:42	WG1035727
4-Chlorotoluene	ND		0.500	1	10/26/2017 15:42	WG1035727
1,2-Dibromo-3-Chloropropane	ND		2.50	1	10/26/2017 15:42	WG1035727
1,2-Dibromoethane	ND		0.500	1	10/26/2017 15:42	WG1035727
Dibromomethane	ND		0.500	1	10/26/2017 15:42	WG1035727
1,2-Dichlorobenzene	ND		0.500	1	10/26/2017 15:42	WG1035727
1,3-Dichlorobenzene	ND		0.500	1	10/26/2017 15:42	WG1035727
1,4-Dichlorobenzene	ND		0.500	1	10/26/2017 15:42	WG1035727
Dichlorodifluoromethane	ND		2.50	1	10/26/2017 15:42	WG1035727
1,1-Dichloroethane	ND		0.500	1	10/26/2017 15:42	WG1035727
1,2-Dichloroethane	ND		0.500	1	10/26/2017 15:42	WG1035727
1,1-Dichloroethene	ND		0.500	1	10/26/2017 15:42	WG1035727
cis-1,2-Dichloroethene	ND		0.500	1	10/26/2017 15:42	WG1035727
trans-1,2-Dichloroethene	ND		0.500	1	10/26/2017 15:42	WG1035727
1,2-Dichloropropane	ND		0.500	1	10/26/2017 15:42	WG1035727
1,1-Dichloropropene	ND		0.500	1	10/26/2017 15:42	WG1035727
1,3-Dichloropropane	ND		1.00	1	10/26/2017 15:42	WG1035727
cis-1,3-Dichloropropene	ND		0.500	1	10/26/2017 15:42	WG1035727
trans-1,3-Dichloropropene	ND		0.500	1	10/26/2017 15:42	WG1035727
trans-1,4-Dichloro-2-butene	ND		5.00	1	10/26/2017 15:42	WG1035727
2,2-Dichloropropane	ND		0.500	1	10/26/2017 15:42	WG1035727
Di-isopropyl ether	ND		0.500	1	10/26/2017 15:42	WG1035727
Ethylbenzene	ND		0.500	1	10/26/2017 15:42	WG1035727
Hexachloro-1,3-butadiene	ND		1.00	1	10/26/2017 15:42	WG1035727
2-Hexanone	ND		5.00	1	10/26/2017 15:42	WG1035727
n-Hexane	ND		5.00	1	10/26/2017 15:42	WG1035727
Iodomethane	ND		10.0	1	10/26/2017 15:42	WG1035727
Isopropylbenzene	ND		0.500	1	10/26/2017 15:42	WG1035727
p-Isopropyltoluene	ND		0.500	1	10/26/2017 15:42	WG1035727
2-Butanone (MEK)	ND		5.00	1	10/26/2017 15:42	WG1035727
Methylene Chloride	ND		2.50	1	10/26/2017 15:42	WG1035727
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	10/26/2017 15:42	WG1035727
Methyl tert-butyl ether	ND		0.500	1	10/26/2017 15:42	WG1035727
Naphthalene	ND		2.50	1	10/31/2017 21:15	WG1035727
n-Propylbenzene	ND		0.500	1	10/26/2017 15:42	WG1035727
Styrene	ND		0.500	1	10/26/2017 15:42	WG1035727
1,1,1,2-Tetrachloroethane	ND		0.500	1	10/26/2017 15:42	WG1035727
1,1,2,2-Tetrachloroethane	ND		0.500	1	10/26/2017 15:42	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	10/26/2017 15:42	WG1035727
Tetrachloroethene	ND		0.500	1	10/26/2017 15:42	WG1035727
Toluene	ND		0.500	1	10/26/2017 15:42	WG1035727
1,2,3-Trichlorobenzene	ND		0.500	1	10/26/2017 15:42	WG1035727
1,2,4-Trichlorobenzene	ND		0.500	1	10/26/2017 15:42	WG1035727
1,1,1-Trichloroethane	ND		0.500	1	10/26/2017 15:42	WG1035727
1,1,2-Trichloroethane	ND		0.500	1	10/26/2017 15:42	WG1035727
Trichloroethene	ND		0.500	1	10/26/2017 15:42	WG1035727
Trichlorofluoromethane	ND		2.50	1	10/26/2017 15:42	WG1035727
1,2,3-Trichloropropane	ND		2.50	1	10/26/2017 15:42	WG1035727
1,2,4-Trimethylbenzene	ND		0.500	1	10/26/2017 15:42	WG1035727
1,2,3-Trimethylbenzene	ND		0.500	1	10/26/2017 15:42	WG1035727
1,3,5-Trimethylbenzene	ND		0.500	1	10/26/2017 15:42	WG1035727
Vinyl acetate	ND		5.00	1	10/26/2017 15:42	WG1035727
Vinyl chloride	ND		0.500	1	10/26/2017 15:42	WG1035727
Xylenes, Total	ND		1.50	1	10/26/2017 15:42	WG1035727
(S) Toluene-d8	100		80.0-120		10/31/2017 21:15	WG1035727
(S) Toluene-d8	110		80.0-120		10/26/2017 15:42	WG1035727
(S) Dibromofluoromethane	97.7		76.0-123		10/26/2017 15:42	WG1035727
(S) Dibromofluoromethane	105		76.0-123		10/31/2017 21:15	WG1035727
(S) 4-Bromofluorobenzene	98.0		80.0-120		10/26/2017 15:42	WG1035727
(S) 4-Bromofluorobenzene	101		80.0-120		10/31/2017 21:15	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND		25.0	1	10/26/2017 16:02	WG1035727
Acrylonitrile	ND		5.00	1	10/26/2017 16:02	WG1035727
Benzene	ND		0.500	1	10/26/2017 16:02	WG1035727
Bromobenzene	ND		0.500	1	10/26/2017 16:02	WG1035727
Bromodichloromethane	ND		0.500	1	10/26/2017 16:02	WG1035727
Bromochloromethane	ND		0.500	1	10/26/2017 16:02	WG1035727
Bromoform	ND		0.500	1	10/26/2017 16:02	WG1035727
Bromomethane	ND		2.50	1	10/26/2017 16:02	WG1035727
n-Butylbenzene	ND		0.500	1	10/26/2017 16:02	WG1035727
sec-Butylbenzene	ND		0.500	1	10/26/2017 16:02	WG1035727
tert-Butylbenzene	ND		0.500	1	10/26/2017 16:02	WG1035727
Carbon disulfide	ND		0.500	1	10/26/2017 16:02	WG1035727
Carbon tetrachloride	ND		0.500	1	10/26/2017 16:02	WG1035727
Chlorobenzene	ND		0.500	1	10/26/2017 16:02	WG1035727
Chlorodibromomethane	ND		0.500	1	10/26/2017 16:02	WG1035727
Chloroethane	ND		2.50	1	10/26/2017 16:02	WG1035727
Chloroform	ND		0.500	1	10/26/2017 16:02	WG1035727
Chloromethane	ND		1.25	1	10/26/2017 16:02	WG1035727
2-Chlorotoluene	ND		0.500	1	10/26/2017 16:02	WG1035727
4-Chlorotoluene	ND		0.500	1	10/26/2017 16:02	WG1035727
1,2-Dibromo-3-Chloropropane	ND		2.50	1	10/26/2017 16:02	WG1035727
1,2-Dibromoethane	ND		0.500	1	10/26/2017 16:02	WG1035727
Dibromomethane	ND		0.500	1	10/26/2017 16:02	WG1035727
1,2-Dichlorobenzene	ND		0.500	1	10/26/2017 16:02	WG1035727
1,3-Dichlorobenzene	ND		0.500	1	10/26/2017 16:02	WG1035727
1,4-Dichlorobenzene	ND		0.500	1	10/26/2017 16:02	WG1035727
Dichlorodifluoromethane	ND		2.50	1	10/26/2017 16:02	WG1035727
1,1-Dichloroethane	ND		0.500	1	10/26/2017 16:02	WG1035727
1,2-Dichloroethane	ND		0.500	1	10/26/2017 16:02	WG1035727
1,1-Dichloroethene	ND		0.500	1	10/26/2017 16:02	WG1035727
cis-1,2-Dichloroethene	ND		0.500	1	10/26/2017 16:02	WG1035727
trans-1,2-Dichloroethene	ND		0.500	1	10/26/2017 16:02	WG1035727
1,2-Dichloropropane	ND		0.500	1	10/26/2017 16:02	WG1035727
1,1-Dichloropropene	ND		0.500	1	10/26/2017 16:02	WG1035727
1,3-Dichloropropane	ND		1.00	1	10/26/2017 16:02	WG1035727
cis-1,3-Dichloropropene	ND		0.500	1	10/26/2017 16:02	WG1035727
trans-1,3-Dichloropropene	ND		0.500	1	10/26/2017 16:02	WG1035727
trans-1,4-Dichloro-2-butene	ND		5.00	1	10/26/2017 16:02	WG1035727
2,2-Dichloropropane	ND		0.500	1	10/26/2017 16:02	WG1035727
Di-isopropyl ether	ND		0.500	1	10/26/2017 16:02	WG1035727
Ethylbenzene	ND		0.500	1	10/26/2017 16:02	WG1035727
Hexachloro-1,3-butadiene	ND		1.00	1	10/26/2017 16:02	WG1035727
2-Hexanone	ND		5.00	1	10/26/2017 16:02	WG1035727
n-Hexane	ND		5.00	1	10/26/2017 16:02	WG1035727
Iodomethane	ND		10.0	1	10/26/2017 16:02	WG1035727
Isopropylbenzene	ND		0.500	1	10/26/2017 16:02	WG1035727
p-Isopropyltoluene	ND		0.500	1	10/26/2017 16:02	WG1035727
2-Butanone (MEK)	ND		5.00	1	10/26/2017 16:02	WG1035727
Methylene Chloride	ND		2.50	1	10/26/2017 16:02	WG1035727
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	10/26/2017 16:02	WG1035727
Methyl tert-butyl ether	ND		0.500	1	10/26/2017 16:02	WG1035727
Naphthalene	ND		2.50	1	10/31/2017 21:34	WG1035727
n-Propylbenzene	ND		0.500	1	10/26/2017 16:02	WG1035727
Styrene	ND		0.500	1	10/26/2017 16:02	WG1035727
1,1,1,2-Tetrachloroethane	ND		0.500	1	10/26/2017 16:02	WG1035727
1,1,2,2-Tetrachloroethane	ND		0.500	1	10/26/2017 16:02	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	10/26/2017 16:02	WG1035727
Tetrachloroethene	ND		0.500	1	10/26/2017 16:02	WG1035727
Toluene	ND		0.500	1	10/26/2017 16:02	WG1035727
1,2,3-Trichlorobenzene	ND		0.500	1	10/26/2017 16:02	WG1035727
1,2,4-Trichlorobenzene	ND		0.500	1	10/26/2017 16:02	WG1035727
1,1,1-Trichloroethane	ND		0.500	1	10/26/2017 16:02	WG1035727
1,1,2-Trichloroethane	ND		0.500	1	10/26/2017 16:02	WG1035727
Trichloroethene	ND		0.500	1	10/26/2017 16:02	WG1035727
Trichlorofluoromethane	ND		2.50	1	10/26/2017 16:02	WG1035727
1,2,3-Trichloropropane	ND		2.50	1	10/26/2017 16:02	WG1035727
1,2,4-Trimethylbenzene	ND		0.500	1	10/26/2017 16:02	WG1035727
1,2,3-Trimethylbenzene	ND		0.500	1	10/26/2017 16:02	WG1035727
1,3,5-Trimethylbenzene	ND		0.500	1	10/26/2017 16:02	WG1035727
Vinyl acetate	ND		5.00	1	10/26/2017 16:02	WG1035727
Vinyl chloride	ND		0.500	1	10/26/2017 16:02	WG1035727
Xylenes, Total	ND		1.50	1	10/26/2017 16:02	WG1035727
(S) Toluene-d8	102		80.0-120		10/31/2017 21:34	WG1035727
(S) Toluene-d8	110		80.0-120		10/26/2017 16:02	WG1035727
(S) Dibromofluoromethane	98.6		76.0-123		10/26/2017 16:02	WG1035727
(S) Dibromofluoromethane	106		76.0-123		10/31/2017 21:34	WG1035727
(S) 4-Bromofluorobenzene	97.5		80.0-120		10/26/2017 16:02	WG1035727
(S) 4-Bromofluorobenzene	103		80.0-120		10/31/2017 21:34	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		25.0	1	10/26/2017 16:22	WG1035727
Acrylonitrile	ND		5.00	1	10/26/2017 16:22	WG1035727
Benzene	ND		0.500	1	10/26/2017 16:22	WG1035727
Bromobenzene	ND		0.500	1	10/26/2017 16:22	WG1035727
Bromodichloromethane	ND		0.500	1	10/26/2017 16:22	WG1035727
Bromochloromethane	ND		0.500	1	10/26/2017 16:22	WG1035727
Bromoform	ND		0.500	1	10/26/2017 16:22	WG1035727
Bromomethane	ND		2.50	1	10/26/2017 16:22	WG1035727
n-Butylbenzene	ND		0.500	1	10/26/2017 16:22	WG1035727
sec-Butylbenzene	ND		0.500	1	10/26/2017 16:22	WG1035727
tert-Butylbenzene	ND		0.500	1	10/26/2017 16:22	WG1035727
Carbon disulfide	ND		0.500	1	10/26/2017 16:22	WG1035727
Carbon tetrachloride	ND		0.500	1	10/26/2017 16:22	WG1035727
Chlorobenzene	ND		0.500	1	10/26/2017 16:22	WG1035727
Chlorodibromomethane	ND		0.500	1	10/26/2017 16:22	WG1035727
Chloroethane	ND		2.50	1	10/26/2017 16:22	WG1035727
Chloroform	ND		0.500	1	10/26/2017 16:22	WG1035727
Chloromethane	ND		1.25	1	10/26/2017 16:22	WG1035727
2-Chlorotoluene	ND		0.500	1	10/26/2017 16:22	WG1035727
4-Chlorotoluene	ND		0.500	1	10/26/2017 16:22	WG1035727
1,2-Dibromo-3-Chloropropane	ND		2.50	1	10/26/2017 16:22	WG1035727
1,2-Dibromoethane	ND		0.500	1	10/26/2017 16:22	WG1035727
Dibromomethane	ND		0.500	1	10/26/2017 16:22	WG1035727
1,2-Dichlorobenzene	ND		0.500	1	10/26/2017 16:22	WG1035727
1,3-Dichlorobenzene	ND		0.500	1	10/26/2017 16:22	WG1035727
1,4-Dichlorobenzene	ND		0.500	1	10/26/2017 16:22	WG1035727
Dichlorodifluoromethane	ND		2.50	1	10/26/2017 16:22	WG1035727
1,1-Dichloroethane	ND		0.500	1	10/26/2017 16:22	WG1035727
1,2-Dichloroethane	ND		0.500	1	10/26/2017 16:22	WG1035727
1,1-Dichloroethene	ND		0.500	1	10/26/2017 16:22	WG1035727
cis-1,2-Dichloroethene	ND		0.500	1	10/26/2017 16:22	WG1035727
trans-1,2-Dichloroethene	ND		0.500	1	10/26/2017 16:22	WG1035727
1,2-Dichloropropane	ND		0.500	1	10/26/2017 16:22	WG1035727
1,1-Dichloropropene	ND		0.500	1	10/26/2017 16:22	WG1035727
1,3-Dichloropropane	ND		1.00	1	10/26/2017 16:22	WG1035727
cis-1,3-Dichloropropene	ND		0.500	1	10/26/2017 16:22	WG1035727
trans-1,3-Dichloropropene	ND		0.500	1	10/26/2017 16:22	WG1035727
trans-1,4-Dichloro-2-butene	ND		5.00	1	10/26/2017 16:22	WG1035727
2,2-Dichloropropane	ND		0.500	1	10/26/2017 16:22	WG1035727
Di-isopropyl ether	ND		0.500	1	10/26/2017 16:22	WG1035727
Ethylbenzene	ND		0.500	1	10/26/2017 16:22	WG1035727
Hexachloro-1,3-butadiene	ND		1.00	1	10/26/2017 16:22	WG1035727
2-Hexanone	ND		5.00	1	10/26/2017 16:22	WG1035727
n-Hexane	ND		5.00	1	10/26/2017 16:22	WG1035727
Iodomethane	ND		10.0	1	10/26/2017 16:22	WG1035727
Isopropylbenzene	ND		0.500	1	10/26/2017 16:22	WG1035727
p-Isopropyltoluene	ND		0.500	1	10/26/2017 16:22	WG1035727
2-Butanone (MEK)	ND		5.00	1	10/26/2017 16:22	WG1035727
Methylene Chloride	ND		2.50	1	10/26/2017 16:22	WG1035727
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	10/26/2017 16:22	WG1035727
Methyl tert-butyl ether	ND		0.500	1	10/26/2017 16:22	WG1035727
Naphthalene	ND		2.50	1	10/31/2017 21:54	WG1035727
n-Propylbenzene	ND		0.500	1	10/26/2017 16:22	WG1035727
Styrene	ND		0.500	1	10/26/2017 16:22	WG1035727
1,1,1,2-Tetrachloroethane	ND		0.500	1	10/26/2017 16:22	WG1035727
1,1,2,2-Tetrachloroethane	ND		0.500	1	10/26/2017 16:22	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	10/26/2017 16:22	WG1035727
Tetrachloroethene	0.954		0.500	1	10/26/2017 16:22	WG1035727
Toluene	ND		0.500	1	10/26/2017 16:22	WG1035727
1,2,3-Trichlorobenzene	ND		0.500	1	10/26/2017 16:22	WG1035727
1,2,4-Trichlorobenzene	ND		0.500	1	10/26/2017 16:22	WG1035727
1,1,1-Trichloroethane	ND		0.500	1	10/26/2017 16:22	WG1035727
1,1,2-Trichloroethane	ND		0.500	1	10/26/2017 16:22	WG1035727
Trichloroethene	ND		0.500	1	10/26/2017 16:22	WG1035727
Trichlorofluoromethane	ND		2.50	1	10/26/2017 16:22	WG1035727
1,2,3-Trichloropropane	ND		2.50	1	10/26/2017 16:22	WG1035727
1,2,4-Trimethylbenzene	ND		0.500	1	10/26/2017 16:22	WG1035727
1,2,3-Trimethylbenzene	ND		0.500	1	10/26/2017 16:22	WG1035727
1,3,5-Trimethylbenzene	ND		0.500	1	10/26/2017 16:22	WG1035727
Vinyl acetate	ND		5.00	1	10/26/2017 16:22	WG1035727
Vinyl chloride	ND		0.500	1	10/26/2017 16:22	WG1035727
Xylenes, Total	ND		1.50	1	10/26/2017 16:22	WG1035727
(S) Toluene-d8	100		80.0-120		10/31/2017 21:54	WG1035727
(S) Toluene-d8	108		80.0-120		10/26/2017 16:22	WG1035727
(S) Dibromofluoromethane	99.5		76.0-123		10/26/2017 16:22	WG1035727
(S) Dibromofluoromethane	109		76.0-123		10/31/2017 21:54	WG1035727
(S) 4-Bromofluorobenzene	97.2		80.0-120		10/26/2017 16:22	WG1035727
(S) 4-Bromofluorobenzene	102		80.0-120		10/31/2017 21:54	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND		25.0	1	10/26/2017 16:42	WG1035727
Acrylonitrile	ND		5.00	1	10/26/2017 16:42	WG1035727
Benzene	ND		0.500	1	10/26/2017 16:42	WG1035727
Bromobenzene	ND		0.500	1	10/26/2017 16:42	WG1035727
Bromodichloromethane	ND		0.500	1	10/26/2017 16:42	WG1035727
Bromochloromethane	ND		0.500	1	10/26/2017 16:42	WG1035727
Bromoform	ND		0.500	1	10/26/2017 16:42	WG1035727
Bromomethane	ND		2.50	1	10/26/2017 16:42	WG1035727
n-Butylbenzene	ND		0.500	1	10/26/2017 16:42	WG1035727
sec-Butylbenzene	ND		0.500	1	10/26/2017 16:42	WG1035727
tert-Butylbenzene	ND		0.500	1	10/26/2017 16:42	WG1035727
Carbon disulfide	ND		0.500	1	10/26/2017 16:42	WG1035727
Carbon tetrachloride	ND		0.500	1	10/26/2017 16:42	WG1035727
Chlorobenzene	ND		0.500	1	10/26/2017 16:42	WG1035727
Chlorodibromomethane	ND		0.500	1	10/26/2017 16:42	WG1035727
Chloroethane	ND		2.50	1	10/26/2017 16:42	WG1035727
Chloroform	ND		0.500	1	10/26/2017 16:42	WG1035727
Chloromethane	ND		1.25	1	10/26/2017 16:42	WG1035727
2-Chlorotoluene	ND		0.500	1	10/26/2017 16:42	WG1035727
4-Chlorotoluene	ND		0.500	1	10/26/2017 16:42	WG1035727
1,2-Dibromo-3-Chloropropane	ND		2.50	1	10/26/2017 16:42	WG1035727
1,2-Dibromoethane	ND		0.500	1	10/26/2017 16:42	WG1035727
Dibromomethane	ND		0.500	1	10/26/2017 16:42	WG1035727
1,2-Dichlorobenzene	ND		0.500	1	10/26/2017 16:42	WG1035727
1,3-Dichlorobenzene	ND		0.500	1	10/26/2017 16:42	WG1035727
1,4-Dichlorobenzene	ND		0.500	1	10/26/2017 16:42	WG1035727
Dichlorodifluoromethane	ND		2.50	1	10/26/2017 16:42	WG1035727
1,1-Dichloroethane	ND		0.500	1	10/26/2017 16:42	WG1035727
1,2-Dichloroethane	ND		0.500	1	10/26/2017 16:42	WG1035727
1,1-Dichloroethene	ND		0.500	1	10/26/2017 16:42	WG1035727
cis-1,2-Dichloroethene	ND		0.500	1	10/26/2017 16:42	WG1035727
trans-1,2-Dichloroethene	ND		0.500	1	10/26/2017 16:42	WG1035727
1,2-Dichloropropane	ND		0.500	1	10/26/2017 16:42	WG1035727
1,1-Dichloropropene	ND		0.500	1	10/26/2017 16:42	WG1035727
1,3-Dichloropropane	ND		1.00	1	10/26/2017 16:42	WG1035727
cis-1,3-Dichloropropene	ND		0.500	1	10/26/2017 16:42	WG1035727
trans-1,3-Dichloropropene	ND		0.500	1	10/26/2017 16:42	WG1035727
trans-1,4-Dichloro-2-butene	ND		5.00	1	10/26/2017 16:42	WG1035727
2,2-Dichloropropane	ND		0.500	1	10/26/2017 16:42	WG1035727
Di-isopropyl ether	ND		0.500	1	10/26/2017 16:42	WG1035727
Ethylbenzene	ND		0.500	1	10/26/2017 16:42	WG1035727
Hexachloro-1,3-butadiene	ND		1.00	1	10/26/2017 16:42	WG1035727
2-Hexanone	ND		5.00	1	10/26/2017 16:42	WG1035727
n-Hexane	ND		5.00	1	10/26/2017 16:42	WG1035727
Iodomethane	ND		10.0	1	10/26/2017 16:42	WG1035727
Isopropylbenzene	ND		0.500	1	10/26/2017 16:42	WG1035727
p-Isopropyltoluene	ND		0.500	1	10/26/2017 16:42	WG1035727
2-Butanone (MEK)	ND		5.00	1	10/26/2017 16:42	WG1035727
Methylene Chloride	ND		2.50	1	10/26/2017 16:42	WG1035727
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	10/26/2017 16:42	WG1035727
Methyl tert-butyl ether	ND		0.500	1	10/26/2017 16:42	WG1035727
Naphthalene	ND		2.50	1	10/31/2017 22:13	WG1035727
n-Propylbenzene	ND		0.500	1	10/26/2017 16:42	WG1035727
Styrene	ND		0.500	1	10/26/2017 16:42	WG1035727
1,1,1,2-Tetrachloroethane	ND		0.500	1	10/26/2017 16:42	WG1035727
1,1,2,2-Tetrachloroethane	ND		0.500	1	10/26/2017 16:42	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	10/26/2017 16:42	WG1035727
Tetrachloroethene	1.26		0.500	1	10/26/2017 16:42	WG1035727
Toluene	ND		0.500	1	10/26/2017 16:42	WG1035727
1,2,3-Trichlorobenzene	ND		0.500	1	10/26/2017 16:42	WG1035727
1,2,4-Trichlorobenzene	ND		0.500	1	10/26/2017 16:42	WG1035727
1,1,1-Trichloroethane	ND		0.500	1	10/26/2017 16:42	WG1035727
1,1,2-Trichloroethane	ND		0.500	1	10/26/2017 16:42	WG1035727
Trichloroethene	ND		0.500	1	10/26/2017 16:42	WG1035727
Trichlorofluoromethane	ND		2.50	1	10/26/2017 16:42	WG1035727
1,2,3-Trichloropropane	ND		2.50	1	10/26/2017 16:42	WG1035727
1,2,4-Trimethylbenzene	ND		0.500	1	10/26/2017 16:42	WG1035727
1,2,3-Trimethylbenzene	ND		0.500	1	10/26/2017 16:42	WG1035727
1,3,5-Trimethylbenzene	ND		0.500	1	10/26/2017 16:42	WG1035727
Vinyl acetate	ND		5.00	1	10/26/2017 16:42	WG1035727
Vinyl chloride	ND		0.500	1	10/26/2017 16:42	WG1035727
Xylenes, Total	ND		1.50	1	10/26/2017 16:42	WG1035727
(S) Toluene-d8	109		80.0-120		10/26/2017 16:42	WG1035727
(S) Toluene-d8	99.1		80.0-120		10/31/2017 22:13	WG1035727
(S) Dibromofluoromethane	108		76.0-123		10/31/2017 22:13	WG1035727
(S) Dibromofluoromethane	98.3		76.0-123		10/26/2017 16:42	WG1035727
(S) 4-Bromofluorobenzene	97.4		80.0-120		10/26/2017 16:42	WG1035727
(S) 4-Bromofluorobenzene	102		80.0-120		10/31/2017 22:13	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND		25.0	1	10/26/2017 17:02	WG1035727
Acrylonitrile	ND		5.00	1	10/26/2017 17:02	WG1035727
Benzene	ND		0.500	1	10/26/2017 17:02	WG1035727
Bromobenzene	ND		0.500	1	10/26/2017 17:02	WG1035727
Bromodichloromethane	ND		0.500	1	10/26/2017 17:02	WG1035727
Bromochloromethane	ND		0.500	1	10/26/2017 17:02	WG1035727
Bromoform	ND		0.500	1	10/26/2017 17:02	WG1035727
Bromomethane	ND		2.50	1	10/26/2017 17:02	WG1035727
n-Butylbenzene	ND		0.500	1	10/26/2017 17:02	WG1035727
sec-Butylbenzene	ND		0.500	1	10/26/2017 17:02	WG1035727
tert-Butylbenzene	ND		0.500	1	10/26/2017 17:02	WG1035727
Carbon disulfide	ND		0.500	1	10/26/2017 17:02	WG1035727
Carbon tetrachloride	ND		0.500	1	10/26/2017 17:02	WG1035727
Chlorobenzene	ND		0.500	1	10/26/2017 17:02	WG1035727
Chlorodibromomethane	ND		0.500	1	10/26/2017 17:02	WG1035727
Chloroethane	ND		2.50	1	10/26/2017 17:02	WG1035727
Chloroform	ND		0.500	1	10/26/2017 17:02	WG1035727
Chloromethane	ND		1.25	1	10/26/2017 17:02	WG1035727
2-Chlorotoluene	ND		0.500	1	10/26/2017 17:02	WG1035727
4-Chlorotoluene	ND		0.500	1	10/26/2017 17:02	WG1035727
1,2-Dibromo-3-Chloropropane	ND		2.50	1	10/26/2017 17:02	WG1035727
1,2-Dibromoethane	ND		0.500	1	10/26/2017 17:02	WG1035727
Dibromomethane	ND		0.500	1	10/26/2017 17:02	WG1035727
1,2-Dichlorobenzene	ND		0.500	1	10/26/2017 17:02	WG1035727
1,3-Dichlorobenzene	ND		0.500	1	10/26/2017 17:02	WG1035727
1,4-Dichlorobenzene	ND		0.500	1	10/26/2017 17:02	WG1035727
Dichlorodifluoromethane	ND		2.50	1	10/26/2017 17:02	WG1035727
1,1-Dichloroethane	ND		0.500	1	10/26/2017 17:02	WG1035727
1,2-Dichloroethane	ND		0.500	1	10/26/2017 17:02	WG1035727
1,1-Dichloroethene	ND		0.500	1	10/26/2017 17:02	WG1035727
cis-1,2-Dichloroethene	ND		0.500	1	10/26/2017 17:02	WG1035727
trans-1,2-Dichloroethene	ND		0.500	1	10/26/2017 17:02	WG1035727
1,2-Dichloropropane	ND		0.500	1	10/26/2017 17:02	WG1035727
1,1-Dichloropropene	ND		0.500	1	10/26/2017 17:02	WG1035727
1,3-Dichloropropane	ND		1.00	1	10/26/2017 17:02	WG1035727
cis-1,3-Dichloropropene	ND		0.500	1	10/26/2017 17:02	WG1035727
trans-1,3-Dichloropropene	ND		0.500	1	10/26/2017 17:02	WG1035727
trans-1,4-Dichloro-2-butene	ND		5.00	1	10/26/2017 17:02	WG1035727
2,2-Dichloropropane	ND		0.500	1	10/26/2017 17:02	WG1035727
Di-isopropyl ether	ND		0.500	1	10/26/2017 17:02	WG1035727
Ethylbenzene	ND		0.500	1	10/26/2017 17:02	WG1035727
Hexachloro-1,3-butadiene	ND		1.00	1	10/26/2017 17:02	WG1035727
2-Hexanone	ND		5.00	1	10/26/2017 17:02	WG1035727
n-Hexane	ND		5.00	1	10/26/2017 17:02	WG1035727
Iodomethane	ND		10.0	1	10/26/2017 17:02	WG1035727
Isopropylbenzene	ND		0.500	1	10/26/2017 17:02	WG1035727
p-Isopropyltoluene	ND		0.500	1	10/26/2017 17:02	WG1035727
2-Butanone (MEK)	ND		5.00	1	10/26/2017 17:02	WG1035727
Methylene Chloride	ND		2.50	1	10/26/2017 17:02	WG1035727
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	10/26/2017 17:02	WG1035727
Methyl tert-butyl ether	ND		0.500	1	10/26/2017 17:02	WG1035727
Naphthalene	ND		2.50	1	10/31/2017 22:33	WG1035727
n-Propylbenzene	ND		0.500	1	10/26/2017 17:02	WG1035727
Styrene	ND		0.500	1	10/26/2017 17:02	WG1035727
1,1,1,2-Tetrachloroethane	ND		0.500	1	10/26/2017 17:02	WG1035727
1,1,2,2-Tetrachloroethane	ND		0.500	1	10/26/2017 17:02	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	10/26/2017 17:02	WG1035727
Tetrachloroethene	0.910		0.500	1	10/26/2017 17:02	WG1035727
Toluene	ND		0.500	1	10/26/2017 17:02	WG1035727
1,2,3-Trichlorobenzene	ND		0.500	1	10/26/2017 17:02	WG1035727
1,2,4-Trichlorobenzene	ND		0.500	1	10/26/2017 17:02	WG1035727
1,1,1-Trichloroethane	ND		0.500	1	10/26/2017 17:02	WG1035727
1,1,2-Trichloroethane	ND		0.500	1	10/26/2017 17:02	WG1035727
Trichloroethene	ND		0.500	1	10/26/2017 17:02	WG1035727
Trichlorofluoromethane	ND		2.50	1	10/26/2017 17:02	WG1035727
1,2,3-Trichloropropane	ND		2.50	1	10/26/2017 17:02	WG1035727
1,2,4-Trimethylbenzene	ND		0.500	1	10/26/2017 17:02	WG1035727
1,2,3-Trimethylbenzene	ND		0.500	1	10/26/2017 17:02	WG1035727
1,3,5-Trimethylbenzene	ND		0.500	1	10/26/2017 17:02	WG1035727
Vinyl acetate	ND		5.00	1	10/26/2017 17:02	WG1035727
Vinyl chloride	ND		0.500	1	10/26/2017 17:02	WG1035727
Xylenes, Total	ND		1.50	1	10/26/2017 17:02	WG1035727
(S) Toluene-d8	110		80.0-120		10/26/2017 17:02	WG1035727
(S) Toluene-d8	100		80.0-120		10/31/2017 22:33	WG1035727
(S) Dibromofluoromethane	96.6		76.0-123		10/26/2017 17:02	WG1035727
(S) Dibromofluoromethane	108		76.0-123		10/31/2017 22:33	WG1035727
(S) 4-Bromofluorobenzene	99.5		80.0-120		10/26/2017 17:02	WG1035727
(S) 4-Bromofluorobenzene	103		80.0-120		10/31/2017 22:33	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		25.0	1	10/26/2017 17:23	WG1035727
Acrylonitrile	ND		5.00	1	10/26/2017 17:23	WG1035727
Benzene	ND		0.500	1	10/26/2017 17:23	WG1035727
Bromobenzene	ND		0.500	1	10/26/2017 17:23	WG1035727
Bromodichloromethane	ND		0.500	1	10/26/2017 17:23	WG1035727
Bromochloromethane	ND		0.500	1	10/26/2017 17:23	WG1035727
Bromoform	ND		0.500	1	10/26/2017 17:23	WG1035727
Bromomethane	ND		2.50	1	10/26/2017 17:23	WG1035727
n-Butylbenzene	ND		0.500	1	10/26/2017 17:23	WG1035727
sec-Butylbenzene	ND		0.500	1	10/26/2017 17:23	WG1035727
tert-Butylbenzene	ND		0.500	1	10/26/2017 17:23	WG1035727
Carbon disulfide	ND		0.500	1	10/26/2017 17:23	WG1035727
Carbon tetrachloride	ND		0.500	1	10/26/2017 17:23	WG1035727
Chlorobenzene	ND		0.500	1	10/26/2017 17:23	WG1035727
Chlorodibromomethane	ND		0.500	1	10/26/2017 17:23	WG1035727
Chloroethane	ND		2.50	1	10/26/2017 17:23	WG1035727
Chloroform	ND		0.500	1	10/26/2017 17:23	WG1035727
Chloromethane	ND		1.25	1	10/26/2017 17:23	WG1035727
2-Chlorotoluene	ND		0.500	1	10/26/2017 17:23	WG1035727
4-Chlorotoluene	ND		0.500	1	10/26/2017 17:23	WG1035727
1,2-Dibromo-3-Chloropropane	ND		2.50	1	10/26/2017 17:23	WG1035727
1,2-Dibromoethane	ND		0.500	1	10/26/2017 17:23	WG1035727
Dibromomethane	ND		0.500	1	10/26/2017 17:23	WG1035727
1,2-Dichlorobenzene	ND		0.500	1	10/26/2017 17:23	WG1035727
1,3-Dichlorobenzene	ND		0.500	1	10/26/2017 17:23	WG1035727
1,4-Dichlorobenzene	ND		0.500	1	10/26/2017 17:23	WG1035727
Dichlorodifluoromethane	ND		2.50	1	10/26/2017 17:23	WG1035727
1,1-Dichloroethane	ND		0.500	1	10/26/2017 17:23	WG1035727
1,2-Dichloroethane	ND		0.500	1	10/26/2017 17:23	WG1035727
1,1-Dichloroethene	ND		0.500	1	10/26/2017 17:23	WG1035727
cis-1,2-Dichloroethene	ND		0.500	1	10/26/2017 17:23	WG1035727
trans-1,2-Dichloroethene	ND		0.500	1	10/26/2017 17:23	WG1035727
1,2-Dichloropropane	ND		0.500	1	10/26/2017 17:23	WG1035727
1,1-Dichloropropene	ND		0.500	1	10/26/2017 17:23	WG1035727
1,3-Dichloropropane	ND		1.00	1	10/26/2017 17:23	WG1035727
cis-1,3-Dichloropropene	ND		0.500	1	10/26/2017 17:23	WG1035727
trans-1,3-Dichloropropene	ND		0.500	1	10/26/2017 17:23	WG1035727
trans-1,4-Dichloro-2-butene	ND		5.00	1	10/26/2017 17:23	WG1035727
2,2-Dichloropropane	ND		0.500	1	10/26/2017 17:23	WG1035727
Di-isopropyl ether	ND		0.500	1	10/26/2017 17:23	WG1035727
Ethylbenzene	ND		0.500	1	10/26/2017 17:23	WG1035727
Hexachloro-1,3-butadiene	ND		1.00	1	10/26/2017 17:23	WG1035727
2-Hexanone	ND		5.00	1	10/26/2017 17:23	WG1035727
n-Hexane	ND		5.00	1	10/26/2017 17:23	WG1035727
Iodomethane	ND		10.0	1	10/26/2017 17:23	WG1035727
Isopropylbenzene	ND		0.500	1	10/26/2017 17:23	WG1035727
p-Isopropyltoluene	ND		0.500	1	10/26/2017 17:23	WG1035727
2-Butanone (MEK)	ND		5.00	1	10/26/2017 17:23	WG1035727
Methylene Chloride	ND		2.50	1	10/26/2017 17:23	WG1035727
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	10/26/2017 17:23	WG1035727
Methyl tert-butyl ether	ND		0.500	1	10/26/2017 17:23	WG1035727
Naphthalene	ND		2.50	1	10/31/2017 22:52	WG1035727
n-Propylbenzene	ND		0.500	1	10/26/2017 17:23	WG1035727
Styrene	ND		0.500	1	10/26/2017 17:23	WG1035727
1,1,1,2-Tetrachloroethane	ND		0.500	1	10/26/2017 17:23	WG1035727
1,1,2,2-Tetrachloroethane	ND		0.500	1	10/26/2017 17:23	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	10/26/2017 17:23	WG1035727
Tetrachloroethene	0.786		0.500	1	10/26/2017 17:23	WG1035727
Toluene	ND		0.500	1	10/26/2017 17:23	WG1035727
1,2,3-Trichlorobenzene	ND		0.500	1	10/26/2017 17:23	WG1035727
1,2,4-Trichlorobenzene	ND		0.500	1	10/26/2017 17:23	WG1035727
1,1,1-Trichloroethane	ND		0.500	1	10/26/2017 17:23	WG1035727
1,1,2-Trichloroethane	ND		0.500	1	10/26/2017 17:23	WG1035727
Trichloroethene	ND		0.500	1	10/26/2017 17:23	WG1035727
Trichlorofluoromethane	ND		2.50	1	10/26/2017 17:23	WG1035727
1,2,3-Trichloropropane	ND		2.50	1	10/26/2017 17:23	WG1035727
1,2,4-Trimethylbenzene	ND		0.500	1	10/26/2017 17:23	WG1035727
1,2,3-Trimethylbenzene	ND		0.500	1	10/26/2017 17:23	WG1035727
1,3,5-Trimethylbenzene	ND		0.500	1	10/26/2017 17:23	WG1035727
Vinyl acetate	ND		5.00	1	10/26/2017 17:23	WG1035727
Vinyl chloride	ND		0.500	1	10/26/2017 17:23	WG1035727
Xylenes, Total	ND		1.50	1	10/26/2017 17:23	WG1035727
(S) Toluene-d8	107		80.0-120		10/26/2017 17:23	WG1035727
(S) Toluene-d8	99.7		80.0-120		10/31/2017 22:52	WG1035727
(S) Dibromofluoromethane	98.6		76.0-123		10/26/2017 17:23	WG1035727
(S) Dibromofluoromethane	108		76.0-123		10/31/2017 22:52	WG1035727
(S) 4-Bromofluorobenzene	98.0		80.0-120		10/26/2017 17:23	WG1035727
(S) 4-Bromofluorobenzene	102		80.0-120		10/31/2017 22:52	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3261748-2 10/26/17 10:38

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acetone	U		1.05	25.0
Acrylonitrile	U		0.873	5.00
Benzene	U		0.0896	0.500
Bromobenzene	U		0.133	0.500
Bromodichloromethane	U		0.0800	0.500
Bromochloromethane	U		0.145	0.500
Bromoform	U		0.186	0.500
Bromomethane	U		0.157	2.50
n-Butylbenzene	U		0.143	0.500
sec-Butylbenzene	U		0.134	0.500
tert-Butylbenzene	U		0.183	0.500
Carbon disulfide	U		0.101	0.500
Carbon tetrachloride	U		0.159	0.500
Chlorobenzene	U		0.140	0.500
Chlorodibromomethane	U		0.128	0.500
Chloroethane	U		0.141	2.50
2-Chlorotoluene	U		0.111	0.500
Chloroform	U		0.0860	0.500
4-Chlorotoluene	U		0.0972	0.500
Chloromethane	U		0.153	1.25
Dibromomethane	U		0.117	0.500
1,2-Dibromo-3-Chloropropane	U		0.325	2.50
1,2-Dibromoethane	U		0.193	0.500
1,2-Dichlorobenzene	U		0.101	0.500
1,3-Dichlorobenzene	U		0.130	0.500
1,4-Dichlorobenzene	U		0.121	0.500
Dichlorodifluoromethane	U		0.127	2.50
1,1-Dichloroethane	U		0.114	0.500
1,1-Dichloropropene	U		0.128	0.500
1,2-Dichloroethane	U		0.108	0.500
1,1-Dichloroethene	U		0.188	0.500
1,3-Dichloropropane	U		0.147	1.00
cis-1,2-Dichloroethene	0.152	U	0.0933	0.500
trans-1,2-Dichloroethene	U		0.152	0.500
1,2-Dichloropropane	U		0.190	0.500
trans-1,4-Dichloro-2-butene	U		0.257	5.00
2,2-Dichloropropane	U		0.0929	0.500
Di-isopropyl ether	U		0.0924	0.500
cis-1,3-Dichloropropene	U		0.0976	0.500
Hexachloro-1,3-butadiene	U		0.157	1.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

[L946305-01,02,03,04,05,06,07,08,09,10,11,12,13](#)

Method Blank (MB)

(MB) R3261748-2 10/26/17 10:38

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
trans-1,3-Dichloropropene	U		0.222	0.500
n-Hexane	U		0.305	5.00
Iodomethane	U		0.377	10.0
Ethylbenzene	U		0.158	0.500
2-Hexanone	U		0.757	5.00
Isopropylbenzene	U		0.126	0.500
1,1,1,2-Tetrachloroethane	U		0.120	0.500
p-Isopropyltoluene	U		0.138	0.500
2-Butanone (MEK)	U		1.28	5.00
Methylene Chloride	U		1.07	2.50
4-Methyl-2-pentanone (MIBK)	U		0.823	5.00
Methyl tert-butyl ether	U		0.102	0.500
Naphthalene	U		0.174	2.50
1,2,3-Trichloropropane	U		0.247	2.50
n-Propylbenzene	U		0.162	0.500
Styrene	U		0.117	0.500
1,2,3-Trimethylbenzene	U		0.0739	0.500
1,1,2,2-Tetrachloroethane	U		0.130	0.500
Tetrachloroethene	U		0.199	0.500
Vinyl acetate	U		0.645	5.00
Toluene	U		0.412	0.500
Xylenes, Total	U		0.316	1.50
1,1,2-Trichlorotrifluoroethane	U		0.164	0.500
1,2,3-Trichlorobenzene	U		0.164	0.500
1,2,4-Trichlorobenzene	U		0.355	0.500
1,1,1-Trichloroethane	U		0.0940	0.500
1,1,2-Trichloroethane	U		0.186	0.500
Trichloroethene	U		0.153	0.500
Trichlorofluoromethane	U		0.130	2.50
1,2,4-Trimethylbenzene	U		0.123	0.500
1,3,5-Trimethylbenzene	U		0.124	0.500
Vinyl chloride	U		0.118	0.500
(S) Toluene-d8	110			80.0-120
(S) Dibromofluoromethane	95.8			76.0-123
(S) 4-Bromofluorobenzene	97.9			80.0-120

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Laboratory Control Sample (LCS)

(LCS) R3261748-1 10/26/17 09:17

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Acrylonitrile	125	141	113	60.0-142	
Bromobenzene	25.0	23.8	95.2	79.0-120	
2-Chlorotoluene	25.0	25.3	101	74.0-122	
4-Chlorotoluene	25.0	24.5	98.2	79.0-120	
Dibromomethane	25.0	25.1	100	78.0-120	
1,1-Dichloropropene	25.0	24.6	98.2	71.0-129	
1,3-Dichloropropane	25.0	25.3	101	80.0-121	
Acetone	125	150	120	10.0-160	
Benzene	25.0	23.7	94.6	69.0-123	
trans-1,4-Dichloro-2-butene	25.0	24.4	97.6	55.0-134	
2,2-Dichloropropane	25.0	24.9	99.6	60.0-125	
Bromodichloromethane	25.0	24.0	96.2	76.0-120	
Di-isopropyl ether	25.0	27.3	109	59.0-133	
Bromochloromethane	25.0	23.5	94.0	76.0-122	
Bromoform	25.0	24.2	96.6	67.0-132	
Hexachloro-1,3-butadiene	25.0	26.9	108	64.0-131	
Bromomethane	25.0	26.0	104	18.0-160	
n-Hexane	25.0	25.6	103	56.0-124	
Iodomethane	125	119	94.9	57.0-140	
n-Butylbenzene	25.0	26.4	106	72.0-126	
sec-Butylbenzene	25.0	26.1	105	74.0-121	
tert-Butylbenzene	25.0	25.5	102	75.0-122	
Carbon disulfide	25.0	22.8	91.4	55.0-127	
Carbon tetrachloride	25.0	23.3	93.3	63.0-122	
Chlorobenzene	25.0	25.9	103	79.0-121	
Chlorodibromomethane	25.0	25.8	103	75.0-125	
Chloroethane	25.0	26.7	107	47.0-152	
Chloroform	25.0	24.3	97.3	72.0-121	
1,1,1,2-Tetrachloroethane	25.0	26.0	104	75.0-122	
Chloromethane	25.0	24.7	98.9	48.0-139	
1,2-Dibromo-3-Chloropropane	25.0	23.3	93.2	64.0-127	
1,2-Dibromoethane	25.0	25.4	101	77.0-123	
1,2-Dichlorobenzene	25.0	25.2	101	80.0-120	
1,3-Dichlorobenzene	25.0	25.1	101	72.0-123	
1,4-Dichlorobenzene	25.0	24.9	99.6	77.0-120	
Dichlorodifluoromethane	25.0	21.9	87.4	49.0-155	
1,2,3-Trichloropropane	25.0	24.7	98.9	72.0-124	
1,1-Dichloroethane	25.0	25.0	100	70.0-126	
1,2,3-Trimethylbenzene	25.0	25.0	99.9	75.0-120	
1,2-Dichloroethane	25.0	25.9	104	67.0-126	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R3261748-1 10/26/17 09:17

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
1,1-Dichloroethene	25.0	23.6	94.4	64.0-129	
cis-1,2-Dichloroethene	25.0	23.6	94.6	73.0-120	
Vinyl acetate	125	135	108	46.0-160	
trans-1,2-Dichloroethene	25.0	23.5	94.2	71.0-121	
1,2-Dichloropropane	25.0	26.9	108	75.0-125	
Xylenes, Total	75.0	78.8	105	77.0-120	
cis-1,3-Dichloropropene	25.0	25.4	102	79.0-123	
trans-1,3-Dichloropropene	25.0	26.7	107	74.0-127	
Ethylbenzene	25.0	26.5	106	77.0-120	
2-Hexanone	125	149	119	58.0-147	
Isopropylbenzene	25.0	25.1	100	75.0-120	
p-Isopropyltoluene	25.0	26.1	104	74.0-126	
2-Butanone (MEK)	125	135	108	37.0-158	
Methylene Chloride	25.0	22.3	89.2	66.0-121	
4-Methyl-2-pentanone (MIBK)	125	145	116	59.0-143	
Methyl tert-butyl ether	25.0	23.7	94.9	64.0-123	
Naphthalene	25.0	23.4	93.6	62.0-128	
n-Propylbenzene	25.0	25.1	100	79.0-120	
Styrene	25.0	23.7	94.9	78.0-124	
1,1,2,2-Tetrachloroethane	25.0	24.2	97.0	71.0-122	
Tetrachloroethene	25.0	27.0	108	70.0-127	
Toluene	25.0	25.0	100	77.0-120	
1,1,2-Trichlorotrifluoroethane	25.0	22.7	90.7	61.0-136	
1,2,3-Trichlorobenzene	25.0	24.1	96.6	61.0-133	
1,2,4-Trichlorobenzene	25.0	25.6	102	69.0-129	
1,1,1-Trichloroethane	25.0	24.7	98.9	68.0-122	
1,1,2-Trichloroethane	25.0	25.3	101	78.0-120	
Trichloroethene	25.0	25.2	101	78.0-120	
Trichlorofluoromethane	25.0	25.4	101	56.0-137	
1,2,4-Trimethylbenzene	25.0	25.4	102	75.0-120	
1,3,5-Trimethylbenzene	25.0	25.1	100	75.0-120	
Vinyl chloride	25.0	26.8	107	64.0-133	
(S) Toluene-d8			106	80.0-120	
(S) Dibromofluoromethane			97.7	76.0-123	
(S) 4-Bromofluorobenzene			96.9	80.0-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

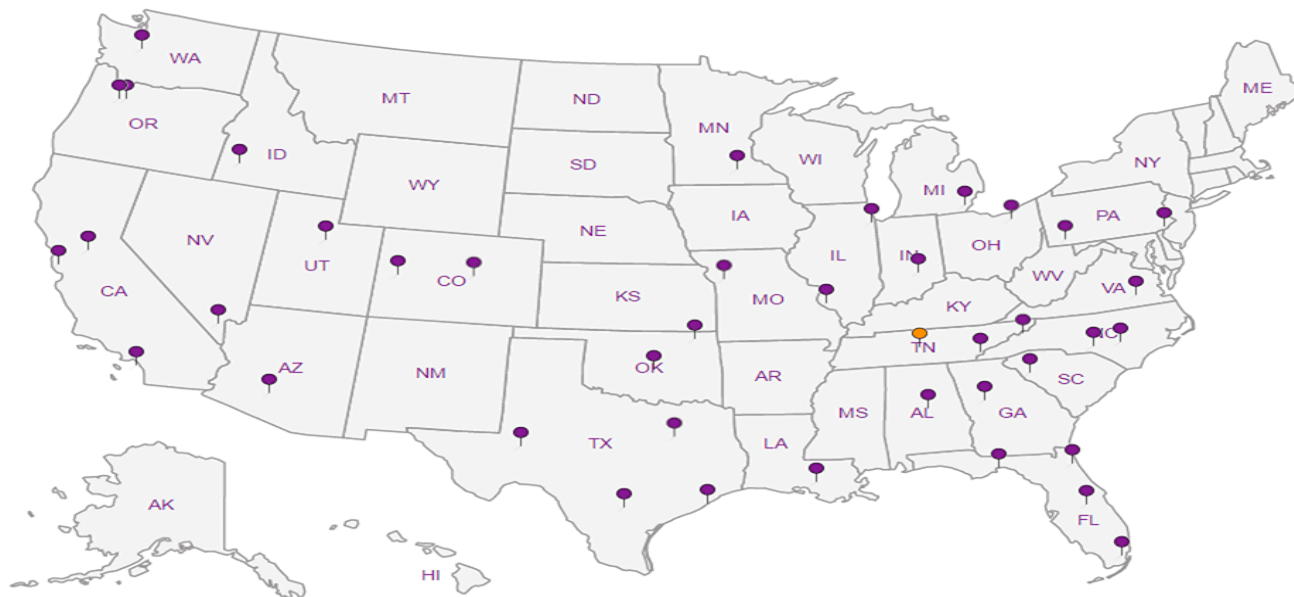
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



PES Environmental, Inc.- WA

1215 Fourth Ave., Suite 1350
Seattle, WA 98161

Billing Information:

Attn: Accounts Payable
1215 Fourth Ave., Ste. 1350
Seattle, WA 98161

Report to:
Karsten Springstead

Email To: kspringstead@pesenv.com

Project
Description: **MV5C**

City/State
Collected: **Des Moines, WA**

Phone: 206-529-3980
Fax: 206-529-3985

Client Project #
1358.001.01.003

Lab Project #
PESENVSWA-SPRINGSTEA

Collected by (print):
C. DeBoer

Site/Facility ID #
MV5C

P.O. #

Collected by (signature):
Chris DeBoer

Rush? (Lab MUST Be Notified)
☐ Same Day ☐ Five Day
☐ Next Day ☐ 5 Day (Rad Only)
☐ Two Day ☐ 10 Day (Rad Only)
☐ Three Day

Quote #

Date Results Needed

Immediately
Packed on Ice **N** ☒ **Y**

No.
of
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
MW-101-102317	Grab	GW		10/23/17	0745	3 X
DC-15-102317		GW			0915	3 X
DC-8-102317		GW			1035	3 X
DC-7-102317		GW			1130	3 X
DC-17-102317		GW			1245	3 X
MW-9-102317		GW			1325	3 X
MW-10-102317		GW			1430	3 X
MW-12-102317		GW			1530	3 X
MW-13-102317		GW			1645	3 X
MW-15-102417		GW		10/24/17	840	3 X

* Matrix:
 SS - Soil **AIR** - Air **F** - Filter
 GW - Groundwater **B** - Bioassay
 WW - WasteWater
 DW - Drinking Water
 OT - Other

Remarks:

Samples returned via:
☒ UPS ☒ FedEx ☐ Courier

Tracking # **7474 0a37 4955**

Received by: (Signature)

Trip Blank Received: ☒ No
☐ HQ / MeOH
☐ TBR

Received by: (Signature)

Temp: **1.4°C** Bottles Received: **45**

Received for lab by: (Signature)

Date: **10-25-17** Time: **8:45**

Sample Receipt Checklist
 COC Seal Present/Intact: ☒ **NP**
 COC Signed/Accurate: ☒
 Bottles arrive intact: ☒
 Correct bottles used: ☒
 Sufficient volume sent: ☒
 IF Applicable
 VOA Zero Headspace: ☒
 Preservation Correct/Checked: ☒

If preservation required by Login: Date/Time

Hold: Condition: **NP / 8**

Analysis / Container / Preservative

Chain of Custody Page of



12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



L# **746305**

H145

Acctnum: **PESENVSWA**

Template: **T128770**

Prelogin: **P622068**

TSR: **110 - Brian Ford**

PB: **10-17-17**

Shipped Via: **FedEX Ground**

Remarks Sample # (lab only)

	01
	02
	03
	04
	05
	06
	07
	08
	09
	10

PES Environmental, Inc.- WA

1215 Fourth Ave., Suite 1350
Seattle, WA 98161

Billing Information:

Attn: Accounts Payable
1215 Fourth Ave., Ste. 1350
Seattle, WA 98161

Report to:
Karsten Springstead

Email To: kspringstead@pesenv.com

Project
Description: **MVSL**

City/State
Collected: **Day Marine, WA**

Lab Project #
PESENVSWA-SPRINGSTEA

Phone: **206-529-3980**
Fax: **206-529-3985**

Client Project #
1358.001.01.003

P.O. #

Collected by (print):
C. DeBoer

Site/Facility ID #
MVSL

Quote #

Collected by (signature):
Chris DeBoer

Rush? (Lab MUST Be Notified)
☐ Same Day ☐ Five Day
☐ Next Day ☐ 5 Day (Rad Only)
☐ Two Day ☐ 10 Day (Rad Only)
☐ Three Day

Date Results Needed

Immediately
Packed on Ice **N** ☒ **Y**

No.
of
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
MW-16-102417	Grab	GW		10/24/17	0925	3
MW-14-102417		GW			1025	3
DC-3-102417		GW			1225	3
DC-4-102417		GW			1310	
KMW-2-102417		GW			1405	
TRIP BLANK-102417		W				

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks:

Samples returned via:
☒ UPS ☒ FedEx ☐ Courier

pH _____ Temp _____

Flow _____ Other _____

Tracking # **7474 0937 4955**

Received by: (Signature)

Trip Blank Received: ☒ Yes ☒ No
HA / MeOH
TBR

Received by: (Signature)

Temp: **14.4** °C **45**
45

Received for lab by: (Signature)

Date: **10.25.17** Time: **8:45**

Sample Receipt Checklist
COC Seal Present/Intact: ☒ **Y** ☐ **N**
COC Signed/Accurate: ☒ **Y** ☐ **N**
Bottles arrive intact: ☒ **Y** ☐ **N**
Correct bottles used: ☒ **Y** ☐ **N**
Sufficient volume sent: ☒ **Y** ☐ **N**
If Applicable
VOA Zero Headspace: ☒ **Y** ☐ **N**
Preservation Correct/Checked: ☒ **Y** ☐ **N**

If preservation required by Login: Date/Time

Hold:

Condition:
NCP / 08

Analysis / Container / Preservative

Chain of Custody Page ____ of ____



12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



L# **946305**

Table #

Acctnum: **PESENVSWA**

Template: **T128770**

Prelogin: **P622068**

TSR: **110 - Brian Ford**

PB: **10-6-17**

Shipped Via: **FedEX Ground**

Remarks Sample # (lab only)

11

12

13

MEMORANDUM

TO: Project File **DATE:** November 2, 2017
FROM: Jessie Compeau
SUBJECT: Laboratory Data Validation Review
PROJECT: Manhattan Village Shopping Center
PROJECT #: 1358.001.01.003
TASK: October 23-24, 2017 Groundwater Samples
LAB: ECS Lab Sciences Request No. L946305

Fifteen groundwater samples (including a field duplicate) and a trip blank were collected to evaluate performance of the air sparging and soil vapor extraction remediation system at the Manhattan Village Shopping Centre site in Normandy Park, Washington on October 23-24 of 2017. Two groundwater samples and the trip blank were placed on hold, analyzed per PES's request, and results for these samples are reported under ESC SDG L947200. Samples associated with SDG L946305 were analyzed for VOCs by USEPA Method 8260C. Laboratory analytical services were provided by ESC Lab Sciences (ESC) of Mt. Juliet, Tennessee (ESC Report: L946305).

The monitoring event occurred between October 23 and 27 of 2017. Associated sample data are reported in 4 ESC SDGs (SDGs L946305/L947200, L947166, and L947181). The quality assurance review of the laboratory data for SDG L946305 is summarized below.

DATA QUALIFICATIONS

Guidelines established by USEPA for review of analytical data were used to validate the data. The comments presented in this memorandum refer to the laboratory's performance in meeting the quality control criteria outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (USEPA, 2017).

DATA VALIDATION

Completeness

All samples were collected and analyzed as requested. No concerns, issues, or anomalies were identified in the laboratory report with the following discussion:

- SDG L946305 chain of custody lists two samples (DC-4-102417 and KMW-2-102417) and a trip blank but showed no request for analysis. PES requested that these be analyzed and results are reported under SDG L947200.

Sample Collection and Preservation

The samples were stored on ice in the cooler and delivered in good condition to the laboratory. Cooler temperature at the time of receipt was measured at 1.4 degrees Centigrade (°C). The cooler temperatures were within EPA's recommended temperature preservation range of less than 6.0 °C. No data qualifications were warranted.

Trip blank was prepared by ESC on October 24, 2017 and results are reported in ESC SDG L947200.

Holding Times

All samples were analyzed for VOCs within the EPA recommended holding time of 14 days (preserved water). All holding time criteria were met.

Initial and Continuing Calibration

Hard copies of the calibration data for this project are not required in the data deliverable and are typically not reported. The laboratory is required to discuss discrepancies in calibration results associated with the project analyses if they occur. No calibration issues were reported; therefore, no data qualifications were warranted.

Method Blank Results

A laboratory method blank was included with the analytical batch per method requirement. The target analytes (VOCs) were not detected in the method blank at a concentration at or above the method reporting limits (MRLs) with one exception:

- A low level of cis-1,2-dichloroethene was detected below the MRL and above the method detection limit (MDL) in the method blank. No action was taken as this compound was not detected in the associated samples.

Trip Blank Results

Trip blank was prepared by ESC on October 24, 2017 and results are reported in ESC SDG L947200. The target analytes (VOCs) were not detected in the trip blank at concentrations at or above the method reporting limits (MRLs).

Equipment Blank Results

An equipment blank was not collected.

Field Duplicate Analyses

Field duplicate samples (DC-7-102317 and MW-101-102317) were collected and analyzed for VOCs. Results are comparable with relative percent difference (RPDs) of less than 20% with one exception:

- Tetrachloroethene results are not comparable with an RPD at 85%. ESC confirmed the results after reviewing bottle labels and the data. Samples were collected with new disposable tubing and a dedicated bladder pump. A sufficient volume of groundwater was purged and low flow sampling parameters were stabilized prior to sample collection. The source of variability was not confirmed. **Tetrachloroethene results for field duplicate samples DC-7-102317 and MW-101-102317 are estimated and qualified (J) due to an elevated RPD.** Remaining VOC results for the field duplicate pair are comparable.

Laboratory Duplicate Analyses

Laboratory duplicate analysis was not performed. Refer to field duplicate results for precision data.

Surrogate Recoveries

The surrogate percent recovery (%R) results for the samples, method blank, and laboratory control samples are within the laboratory surrogate control limits. No data qualifications were warranted.

Laboratory Control Samples

The laboratory control sample %R's are within the laboratory control limits. A laboratory control sample duplicate was not performed. Refer to field duplicate results for precision data.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) analyses were not performed. Refer to LCS and field duplicate results for accuracy and precision data.

Other Quality Control Issues

No other laboratory quality control issues were identified in the laboratory report.

Quantitation Limits

Results of the USEPA 8260 VOC analyses were reported based on laboratory MRLs. The MRLs indicate the minimum quantity of a target analyte that can be confidently determined by the

reference method. The MRLs were acceptable for the project; therefore, no data qualifications were warranted.

Data Assessment

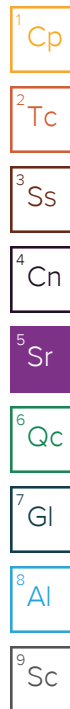
Data qualifiers were assigned and laboratory report pages with qualifiers are attached. All data, including qualified data, are judged to be acceptable for their intended use.



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND		25.0	1	10/26/2017 13:19	WG1035727
Acrylonitrile	ND		5.00	1	10/26/2017 13:19	WG1035727
Benzene	ND		0.500	1	10/26/2017 13:19	WG1035727
Bromobenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
Bromodichloromethane	ND		0.500	1	10/26/2017 13:19	WG1035727
Bromochloromethane	ND		0.500	1	10/26/2017 13:19	WG1035727
Bromoform	ND		0.500	1	10/26/2017 13:19	WG1035727
Bromomethane	ND		2.50	1	10/26/2017 13:19	WG1035727
n-Butylbenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
sec-Butylbenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
tert-Butylbenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
Carbon disulfide	ND		0.500	1	10/26/2017 13:19	WG1035727
Carbon tetrachloride	ND		0.500	1	10/26/2017 13:19	WG1035727
Chlorobenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
Chlorodibromomethane	ND		0.500	1	10/26/2017 13:19	WG1035727
Chloroethane	ND		2.50	1	10/26/2017 13:19	WG1035727
Chloroform	ND		0.500	1	10/26/2017 13:19	WG1035727
Chloromethane	ND		1.25	1	10/26/2017 13:19	WG1035727
2-Chlorotoluene	ND		0.500	1	10/26/2017 13:19	WG1035727
4-Chlorotoluene	ND		0.500	1	10/26/2017 13:19	WG1035727
1,2-Dibromo-3-Chloropropane	ND		2.50	1	10/26/2017 13:19	WG1035727
1,2-Dibromoethane	ND		0.500	1	10/26/2017 13:19	WG1035727
Dibromomethane	ND		0.500	1	10/26/2017 13:19	WG1035727
1,2-Dichlorobenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
1,3-Dichlorobenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
1,4-Dichlorobenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
Dichlorodifluoromethane	ND		2.50	1	10/26/2017 13:19	WG1035727
1,1-Dichloroethane	ND		0.500	1	10/26/2017 13:19	WG1035727
1,2-Dichloroethane	ND		0.500	1	10/26/2017 13:19	WG1035727
1,1-Dichloroethene	ND		0.500	1	10/26/2017 13:19	WG1035727
cis-1,2-Dichloroethene	ND		0.500	1	10/26/2017 13:19	WG1035727
trans-1,2-Dichloroethene	ND		0.500	1	10/26/2017 13:19	WG1035727
1,2-Dichloropropane	ND		0.500	1	10/26/2017 13:19	WG1035727
1,1-Dichloropropene	ND		0.500	1	10/26/2017 13:19	WG1035727
1,3-Dichloropropane	ND		1.00	1	10/26/2017 13:19	WG1035727
cis-1,3-Dichloropropene	ND		0.500	1	10/26/2017 13:19	WG1035727
trans-1,3-Dichloropropene	ND		0.500	1	10/26/2017 13:19	WG1035727
trans-1,4-Dichloro-2-butene	ND		5.00	1	10/26/2017 13:19	WG1035727
2,2-Dichloropropane	ND		0.500	1	10/26/2017 13:19	WG1035727
Di-isopropyl ether	ND		0.500	1	10/26/2017 13:19	WG1035727
Ethylbenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
Hexachloro-1,3-butadiene	ND		1.00	1	10/26/2017 13:19	WG1035727
2-Hexanone	ND		5.00	1	10/26/2017 13:19	WG1035727
n-Hexane	ND		5.00	1	10/26/2017 13:19	WG1035727
Iodomethane	ND		10.0	1	10/26/2017 13:19	WG1035727
Isopropylbenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
p-Isopropyltoluene	ND		0.500	1	10/26/2017 13:19	WG1035727
2-Butanone (MEK)	ND		5.00	1	10/26/2017 13:19	WG1035727
Methylene Chloride	ND		2.50	1	10/26/2017 13:19	WG1035727
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	10/26/2017 13:19	WG1035727
Methyl tert-butyl ether	ND		0.500	1	10/26/2017 13:19	WG1035727
Naphthalene	ND		2.50	1	10/31/2017 18:57	WG1035727
n-Propylbenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
Styrene	ND		0.500	1	10/26/2017 13:19	WG1035727
1,1,1,2-Tetrachloroethane	ND		0.500	1	10/26/2017 13:19	WG1035727
1,1,2,2-Tetrachloroethane	ND		0.500	1	10/26/2017 13:19	WG1035727

JC 11/3/17





Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	10/26/2017 13:19	WG1035727
Tetrachloroethene	16.5	J	0.500	1	10/26/2017 13:19	WG1035727
Toluene	ND		0.500	1	10/26/2017 13:19	WG1035727
1,2,3-Trichlorobenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
1,2,4-Trichlorobenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
1,1,1-Trichloroethane	ND		0.500	1	10/26/2017 13:19	WG1035727
1,1,2-Trichloroethane	ND		0.500	1	10/26/2017 13:19	WG1035727
Trichloroethene	ND		0.500	1	10/26/2017 13:19	WG1035727
Trichlorofluoromethane	ND		2.50	1	10/26/2017 13:19	WG1035727
1,2,3-Trichloropropane	ND		2.50	1	10/26/2017 13:19	WG1035727
1,2,4-Trimethylbenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
1,2,3-Trimethylbenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
1,3,5-Trimethylbenzene	ND		0.500	1	10/26/2017 13:19	WG1035727
Vinyl acetate	ND		5.00	1	10/26/2017 13:19	WG1035727
Vinyl chloride	ND		0.500	1	10/26/2017 13:19	WG1035727
Xylenes, Total	ND		1.50	1	10/26/2017 13:19	WG1035727
(S) Toluene-d8	101		80.0-120		10/31/2017 18:57	WG1035727
(S) Toluene-d8	109		80.0-120		10/26/2017 13:19	WG1035727
(S) Dibromofluoromethane	97.8		76.0-123		10/26/2017 13:19	WG1035727
(S) Dibromofluoromethane	107		76.0-123		10/31/2017 18:57	WG1035727
(S) 4-Bromofluorobenzene	102		80.0-120		10/31/2017 18:57	WG1035727
(S) 4-Bromofluorobenzene	98.3		80.0-120		10/26/2017 13:19	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

JC 11/3/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch	
Acetone	ND		25.0	1	10/26/2017 14:20	WG1035727	¹ Cp
Acrylonitrile	ND		5.00	1	10/26/2017 14:20	WG1035727	² Tc
Benzene	ND		0.500	1	10/26/2017 14:20	WG1035727	³ Ss
Bromobenzene	ND		0.500	1	10/26/2017 14:20	WG1035727	⁴ Cn
Bromodichloromethane	ND		0.500	1	10/26/2017 14:20	WG1035727	⁵ Sr
Bromochloromethane	ND		0.500	1	10/26/2017 14:20	WG1035727	⁶ Qc
Bromoform	ND		0.500	1	10/26/2017 14:20	WG1035727	⁷ Gl
Bromomethane	ND		2.50	1	10/26/2017 14:20	WG1035727	⁸ Al
n-Butylbenzene	ND		0.500	1	10/26/2017 14:20	WG1035727	⁹ Sc
sec-Butylbenzene	ND		0.500	1	10/26/2017 14:20	WG1035727	
tert-Butylbenzene	ND		0.500	1	10/26/2017 14:20	WG1035727	
Carbon disulfide	ND		0.500	1	10/26/2017 14:20	WG1035727	
Carbon tetrachloride	ND		0.500	1	10/26/2017 14:20	WG1035727	
Chlorobenzene	ND		0.500	1	10/26/2017 14:20	WG1035727	
Chlorodibromomethane	ND		0.500	1	10/26/2017 14:20	WG1035727	
Chloroethane	ND		2.50	1	10/26/2017 14:20	WG1035727	
Chloroform	ND		0.500	1	10/26/2017 14:20	WG1035727	
Chloromethane	ND		1.25	1	10/26/2017 14:20	WG1035727	
2-Chlorotoluene	ND		0.500	1	10/26/2017 14:20	WG1035727	
4-Chlorotoluene	ND		0.500	1	10/26/2017 14:20	WG1035727	
1,2-Dibromo-3-Chloropropane	ND		2.50	1	10/26/2017 14:20	WG1035727	
1,2-Dibromoethane	ND		0.500	1	10/26/2017 14:20	WG1035727	
Dibromomethane	ND		0.500	1	10/26/2017 14:20	WG1035727	
1,2-Dichlorobenzene	ND		0.500	1	10/26/2017 14:20	WG1035727	
1,3-Dichlorobenzene	ND		0.500	1	10/26/2017 14:20	WG1035727	
1,4-Dichlorobenzene	ND		0.500	1	10/26/2017 14:20	WG1035727	
Dichlorodifluoromethane	ND		2.50	1	10/26/2017 14:20	WG1035727	
1,1-Dichloroethane	ND		0.500	1	10/26/2017 14:20	WG1035727	
1,2-Dichloroethane	ND		0.500	1	10/26/2017 14:20	WG1035727	
1,1-Dichloroethene	ND		0.500	1	10/26/2017 14:20	WG1035727	
cis-1,2-Dichloroethene	ND		0.500	1	10/26/2017 14:20	WG1035727	
trans-1,2-Dichloroethene	ND		0.500	1	10/26/2017 14:20	WG1035727	
1,2-Dichloropropane	ND		0.500	1	10/26/2017 14:20	WG1035727	
1,1-Dichloropropene	ND		0.500	1	10/26/2017 14:20	WG1035727	
1,3-Dichloropropane	ND		1.00	1	10/26/2017 14:20	WG1035727	
cis-1,3-Dichloropropene	ND		0.500	1	10/26/2017 14:20	WG1035727	
trans-1,3-Dichloropropene	ND		0.500	1	10/26/2017 14:20	WG1035727	
trans-1,4-Dichloro-2-butene	ND		5.00	1	10/26/2017 14:20	WG1035727	
2,2-Dichloropropane	ND		0.500	1	10/26/2017 14:20	WG1035727	
Di-isopropyl ether	ND		0.500	1	10/26/2017 14:20	WG1035727	
Ethylbenzene	ND		0.500	1	10/26/2017 14:20	WG1035727	
Hexachloro-1,3-butadiene	ND		1.00	1	10/26/2017 14:20	WG1035727	
2-Hexanone	ND		5.00	1	10/26/2017 14:20	WG1035727	
n-Hexane	ND		5.00	1	10/26/2017 14:20	WG1035727	
Iodomethane	ND		10.0	1	10/26/2017 14:20	WG1035727	
Isopropylbenzene	ND		0.500	1	10/26/2017 14:20	WG1035727	
p-Isopropyltoluene	ND		0.500	1	10/26/2017 14:20	WG1035727	
2-Butanone (MEK)	ND		5.00	1	10/26/2017 14:20	WG1035727	
Methylene Chloride	ND		2.50	1	10/26/2017 14:20	WG1035727	
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	10/26/2017 14:20	WG1035727	
Methyl tert-butyl ether	ND		0.500	1	10/26/2017 14:20	WG1035727	
Naphthalene	ND		2.50	1	10/31/2017 19:56	WG1035727	
n-Propylbenzene	ND		0.500	1	10/26/2017 14:20	WG1035727	
Styrene	ND		0.500	1	10/26/2017 14:20	WG1035727	
1,1,1,2-Tetrachloroethane	ND		0.500	1	10/26/2017 14:20	WG1035727	
1,1,2,2-Tetrachloroethane	ND		0.500	1	10/26/2017 14:20	WG1035727	JC 11/3/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	10/26/2017 14:20	WG1035727
Tetrachloroethene	6.67	J	0.500	1	10/26/2017 14:20	WG1035727
Toluene	ND		0.500	1	10/26/2017 14:20	WG1035727
1,2,3-Trichlorobenzene	ND		0.500	1	10/26/2017 14:20	WG1035727
1,2,4-Trichlorobenzene	ND		0.500	1	10/26/2017 14:20	WG1035727
1,1,1-Trichloroethane	ND		0.500	1	10/26/2017 14:20	WG1035727
1,1,2-Trichloroethane	ND		0.500	1	10/26/2017 14:20	WG1035727
Trichloroethene	ND		0.500	1	10/26/2017 14:20	WG1035727
Trichlorofluoromethane	ND		2.50	1	10/26/2017 14:20	WG1035727
1,2,3-Trichloropropane	ND		2.50	1	10/26/2017 14:20	WG1035727
1,2,4-Trimethylbenzene	ND		0.500	1	10/26/2017 14:20	WG1035727
1,2,3-Trimethylbenzene	ND		0.500	1	10/26/2017 14:20	WG1035727
1,3,5-Trimethylbenzene	ND		0.500	1	10/26/2017 14:20	WG1035727
Vinyl acetate	ND		5.00	1	10/26/2017 14:20	WG1035727
Vinyl chloride	ND		0.500	1	10/26/2017 14:20	WG1035727
Xylenes, Total	ND		1.50	1	10/26/2017 14:20	WG1035727
(S) Toluene-d8	101		80.0-120		10/31/2017 19:56	WG1035727
(S) Toluene-d8	109		80.0-120		10/26/2017 14:20	WG1035727
(S) Dibromofluoromethane	107		76.0-123		10/31/2017 19:56	WG1035727
(S) Dibromofluoromethane	96.0		76.0-123		10/26/2017 14:20	WG1035727
(S) 4-Bromofluorobenzene	97.0		80.0-120		10/26/2017 14:20	WG1035727
(S) 4-Bromofluorobenzene	103		80.0-120		10/31/2017 19:56	WG1035727

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

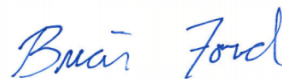
JC 11/3/17

November 06, 2017

PES Environmental, Inc.- WA

Sample Delivery Group: L947181
Samples Received: 10/28/2017
Project Number: 1358.001.01.003
Description: Manhattan Village
Site: MVSC
Report To: Karsten Springstead
1215 Fourth Ave., Suite 1350
Seattle, WA 98161

Entire Report Reviewed By:



Brian Ford
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	5
Sr: Sample Results	6
KMW-8-102617 L947181-01	6
DC-18-102617 L947181-02	8
MW-102-102617 L947181-03	10
DC-10A-102617 L947181-04	12
DC-12-102717 L947181-05	14
DC-20-102717 L947181-06	16
DC-13-102717 L947181-07	18
TB3-102717 L947181-08	20
EQ-102717 L947181-09	22
Qc: Quality Control Summary	24
Volatile Organic Compounds (GC/MS) by Method 8260C	24
Gl: Glossary of Terms	28
Al: Accreditations & Locations	29
Sc: Sample Chain of Custody	30



SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



KMW-8-102617 L947181-01 GW

			Collected by Chris D	Collected date/time 10/26/17 11:25	Received date/time 10/28/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037036	1	11/01/17 03:45	11/01/17 03:45	ACG

¹ Cp² Tc³ Ss

DC-18-102617 L947181-02 GW

			Collected by Chris D	Collected date/time 10/26/17 12:05	Received date/time 10/28/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037036	1	11/01/17 04:04	11/01/17 04:04	ACG

⁴ Cn⁵ Sr

MW-102-102617 L947181-03 GW

			Collected by Chris D	Collected date/time 10/26/17 13:15	Received date/time 10/28/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037036	1	11/01/17 04:23	11/01/17 04:23	ACG

⁶ Qc⁷ Gl

DC-10A-102617 L947181-04 GW

			Collected by Chris D	Collected date/time 10/26/17 14:45	Received date/time 10/28/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037036	1	11/01/17 04:42	11/01/17 04:42	ACG

⁸ Al⁹ Sc

DC-12-102717 L947181-05 GW

			Collected by Chris D	Collected date/time 10/27/17 08:25	Received date/time 10/28/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037036	1	11/01/17 05:01	11/01/17 05:01	ACG

DC-20-102717 L947181-06 GW

			Collected by Chris D	Collected date/time 10/27/17 09:00	Received date/time 10/28/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037036	1	11/01/17 05:21	11/01/17 05:21	ACG

DC-13-102717 L947181-07 GW

			Collected by Chris D	Collected date/time 10/27/17 09:35	Received date/time 10/28/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037036	1	11/01/17 05:40	11/01/17 05:40	ACG

TB3-102717 L947181-08 GW

			Collected by Chris D	Collected date/time 10/27/17 00:00	Received date/time 10/28/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037036	1	11/01/17 00:32	11/01/17 00:32	ACG

EQ-102717 L947181-09 GW

Collected by
Chris D

Collected date/time
10/27/17 11:30

Received date/time
10/28/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037036	1	11/01/17 05:59	11/01/17 05:59	ACG

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 03:45	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 03:45	WG1037036
Benzene	ND		0.500	1	11/01/2017 03:45	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 03:45	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 03:45	WG1037036
Bromoform	ND		0.500	1	11/01/2017 03:45	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 03:45	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 03:45	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 03:45	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 03:45	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 03:45	WG1037036
Chloroform	1.15		0.500	1	11/01/2017 03:45	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 03:45	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 03:45	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 03:45	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 03:45	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 03:45	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 03:45	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 03:45	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 03:45	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 03:45	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 03:45	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 03:45	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 03:45	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 03:45	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 03:45	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 03:45	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 03:45	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 03:45	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 03:45	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 03:45	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 03:45	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 03:45	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 03:45	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 03:45	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 03:45	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 03:45	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 03:45	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 03:45	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 03:45	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 03:45	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 03:45	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
Styrene	ND		0.500	1	11/01/2017 03:45	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 03:45	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 03:45	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 03:45	WG1037036
Tetrachloroethene	4.99		0.500	1	11/01/2017 03:45	WG1037036
Toluene	ND		0.500	1	11/01/2017 03:45	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 03:45	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 03:45	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 03:45	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 03:45	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 03:45	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
Vinyl acetate	ND	<u>JO</u>	5.00	1	11/01/2017 03:45	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 03:45	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 03:45	WG1037036
(S) Toluene-d8	106		80.0-120		11/01/2017 03:45	WG1037036
(S) Dibromofluoromethane	103		76.0-123		11/01/2017 03:45	WG1037036
(S) 4-Bromofluorobenzene	87.8		80.0-120		11/01/2017 03:45	WG1037036

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 04:04	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 04:04	WG1037036
Benzene	ND		0.500	1	11/01/2017 04:04	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 04:04	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 04:04	WG1037036
Bromoform	ND		0.500	1	11/01/2017 04:04	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 04:04	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 04:04	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 04:04	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 04:04	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 04:04	WG1037036
Chloroform	3.00		0.500	1	11/01/2017 04:04	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 04:04	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 04:04	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 04:04	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 04:04	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 04:04	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 04:04	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 04:04	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 04:04	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 04:04	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 04:04	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 04:04	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 04:04	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 04:04	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 04:04	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 04:04	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 04:04	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 04:04	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 04:04	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 04:04	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 04:04	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 04:04	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 04:04	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 04:04	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 04:04	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 04:04	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 04:04	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 04:04	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 04:04	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 04:04	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 04:04	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
Styrene	ND		0.500	1	11/01/2017 04:04	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 04:04	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 04:04	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 04:04	WG1037036
Tetrachloroethene	3.26		0.500	1	11/01/2017 04:04	WG1037036
Toluene	ND		0.500	1	11/01/2017 04:04	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 04:04	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 04:04	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 04:04	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 04:04	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 04:04	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
Vinyl acetate	ND	JO	5.00	1	11/01/2017 04:04	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 04:04	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 04:04	WG1037036
(S) Toluene-d8	106		80.0-120		11/01/2017 04:04	WG1037036
(S) Dibromofluoromethane	99.8		76.0-123		11/01/2017 04:04	WG1037036
(S) 4-Bromofluorobenzene	85.5		80.0-120		11/01/2017 04:04	WG1037036

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 04:23	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 04:23	WG1037036
Benzene	ND		0.500	1	11/01/2017 04:23	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 04:23	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 04:23	WG1037036
Bromoform	ND		0.500	1	11/01/2017 04:23	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 04:23	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 04:23	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 04:23	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 04:23	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 04:23	WG1037036
Chloroform	ND		0.500	1	11/01/2017 04:23	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 04:23	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 04:23	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 04:23	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 04:23	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 04:23	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 04:23	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 04:23	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 04:23	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 04:23	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 04:23	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 04:23	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 04:23	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 04:23	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 04:23	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 04:23	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 04:23	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 04:23	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 04:23	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 04:23	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 04:23	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 04:23	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 04:23	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 04:23	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 04:23	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 04:23	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 04:23	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 04:23	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 04:23	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 04:23	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 04:23	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
Styrene	ND		0.500	1	11/01/2017 04:23	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 04:23	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 04:23	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 04:23	WG1037036
Tetrachloroethene	5.52		0.500	1	11/01/2017 04:23	WG1037036
Toluene	ND		0.500	1	11/01/2017 04:23	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 04:23	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 04:23	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 04:23	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 04:23	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 04:23	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
Vinyl acetate	ND	JO	5.00	1	11/01/2017 04:23	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 04:23	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 04:23	WG1037036
(S) Toluene-d8	105		80.0-120		11/01/2017 04:23	WG1037036
(S) Dibromofluoromethane	102		76.0-123		11/01/2017 04:23	WG1037036
(S) 4-Bromofluorobenzene	91.4		80.0-120		11/01/2017 04:23	WG1037036

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 04:42	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 04:42	WG1037036
Benzene	ND		0.500	1	11/01/2017 04:42	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 04:42	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 04:42	WG1037036
Bromoform	ND		0.500	1	11/01/2017 04:42	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 04:42	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 04:42	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 04:42	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 04:42	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 04:42	WG1037036
Chloroform	ND		0.500	1	11/01/2017 04:42	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 04:42	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 04:42	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 04:42	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 04:42	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 04:42	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 04:42	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 04:42	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 04:42	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 04:42	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 04:42	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 04:42	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 04:42	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 04:42	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 04:42	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 04:42	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 04:42	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 04:42	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 04:42	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 04:42	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 04:42	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 04:42	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 04:42	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 04:42	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 04:42	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 04:42	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 04:42	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 04:42	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 04:42	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 04:42	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 04:42	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
Styrene	ND		0.500	1	11/01/2017 04:42	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 04:42	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 04:42	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 04:42	WG1037036
Tetrachloroethene	4.72		0.500	1	11/01/2017 04:42	WG1037036
Toluene	ND		0.500	1	11/01/2017 04:42	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 04:42	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 04:42	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 04:42	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 04:42	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 04:42	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
Vinyl acetate	ND	JO	5.00	1	11/01/2017 04:42	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 04:42	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 04:42	WG1037036
(S) Toluene-d8	107		80.0-120		11/01/2017 04:42	WG1037036
(S) Dibromofluoromethane	102		76.0-123		11/01/2017 04:42	WG1037036
(S) 4-Bromofluorobenzene	89.2		80.0-120		11/01/2017 04:42	WG1037036

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND	J4	25.0	1	11/01/2017 05:01	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 05:01	WG1037036
Benzene	ND		0.500	1	11/01/2017 05:01	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 05:01	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 05:01	WG1037036
Bromoform	ND		0.500	1	11/01/2017 05:01	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 05:01	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 05:01	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 05:01	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 05:01	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 05:01	WG1037036
Chloroform	ND		0.500	1	11/01/2017 05:01	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 05:01	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 05:01	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 05:01	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 05:01	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 05:01	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 05:01	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 05:01	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 05:01	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 05:01	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 05:01	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 05:01	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 05:01	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 05:01	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 05:01	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 05:01	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 05:01	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 05:01	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 05:01	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 05:01	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 05:01	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 05:01	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 05:01	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 05:01	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 05:01	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 05:01	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 05:01	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 05:01	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 05:01	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 05:01	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 05:01	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
Styrene	ND		0.500	1	11/01/2017 05:01	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 05:01	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 05:01	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 05:01	WG1037036
Tetrachloroethene	1.66		0.500	1	11/01/2017 05:01	WG1037036
Toluene	ND		0.500	1	11/01/2017 05:01	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 05:01	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 05:01	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 05:01	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 05:01	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 05:01	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
Vinyl acetate	ND	<u>JO</u>	5.00	1	11/01/2017 05:01	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 05:01	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 05:01	WG1037036
(S) Toluene-d8	106		80.0-120		11/01/2017 05:01	WG1037036
(S) Dibromofluoromethane	100		76.0-123		11/01/2017 05:01	WG1037036
(S) 4-Bromofluorobenzene	88.7		80.0-120		11/01/2017 05:01	WG1037036

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND	J4	25.0	1	11/01/2017 05:21	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 05:21	WG1037036
Benzene	ND		0.500	1	11/01/2017 05:21	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 05:21	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 05:21	WG1037036
Bromoform	ND		0.500	1	11/01/2017 05:21	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 05:21	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 05:21	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 05:21	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 05:21	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 05:21	WG1037036
Chloroform	ND		0.500	1	11/01/2017 05:21	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 05:21	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 05:21	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 05:21	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 05:21	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 05:21	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 05:21	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 05:21	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 05:21	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 05:21	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 05:21	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 05:21	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 05:21	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 05:21	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 05:21	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 05:21	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 05:21	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 05:21	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 05:21	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 05:21	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 05:21	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 05:21	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 05:21	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 05:21	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 05:21	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 05:21	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 05:21	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 05:21	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 05:21	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 05:21	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 05:21	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
Styrene	ND		0.500	1	11/01/2017 05:21	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 05:21	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 05:21	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 05:21	WG1037036
Tetrachloroethene	0.991		0.500	1	11/01/2017 05:21	WG1037036
Toluene	ND		0.500	1	11/01/2017 05:21	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 05:21	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 05:21	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 05:21	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 05:21	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 05:21	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
Vinyl acetate	ND	<u>JO</u>	5.00	1	11/01/2017 05:21	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 05:21	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 05:21	WG1037036
(S) Toluene-d8	107		80.0-120		11/01/2017 05:21	WG1037036
(S) Dibromofluoromethane	101		76.0-123		11/01/2017 05:21	WG1037036
(S) 4-Bromofluorobenzene	87.4		80.0-120		11/01/2017 05:21	WG1037036

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 05:40	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 05:40	WG1037036
Benzene	ND		0.500	1	11/01/2017 05:40	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 05:40	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 05:40	WG1037036
Bromoform	ND		0.500	1	11/01/2017 05:40	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 05:40	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 05:40	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 05:40	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 05:40	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 05:40	WG1037036
Chloroform	ND		0.500	1	11/01/2017 05:40	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 05:40	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 05:40	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 05:40	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 05:40	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 05:40	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 05:40	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 05:40	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 05:40	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 05:40	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 05:40	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 05:40	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 05:40	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 05:40	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 05:40	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 05:40	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 05:40	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 05:40	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 05:40	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 05:40	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 05:40	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 05:40	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 05:40	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 05:40	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 05:40	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 05:40	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 05:40	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 05:40	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 05:40	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 05:40	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 05:40	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
Styrene	ND		0.500	1	11/01/2017 05:40	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 05:40	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 05:40	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 05:40	WG1037036
Tetrachloroethene	2.79		0.500	1	11/01/2017 05:40	WG1037036
Toluene	ND		0.500	1	11/01/2017 05:40	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 05:40	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 05:40	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 05:40	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 05:40	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 05:40	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
Vinyl acetate	ND	<u>JO</u>	5.00	1	11/01/2017 05:40	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 05:40	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 05:40	WG1037036
(S) Toluene-d8	105		80.0-120		11/01/2017 05:40	WG1037036
(S) Dibromofluoromethane	102		76.0-123		11/01/2017 05:40	WG1037036
(S) 4-Bromofluorobenzene	87.6		80.0-120		11/01/2017 05:40	WG1037036

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 00:32	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 00:32	WG1037036
Benzene	ND		0.500	1	11/01/2017 00:32	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 00:32	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 00:32	WG1037036
Bromoform	ND		0.500	1	11/01/2017 00:32	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 00:32	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 00:32	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 00:32	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 00:32	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 00:32	WG1037036
Chloroform	ND		0.500	1	11/01/2017 00:32	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 00:32	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 00:32	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 00:32	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 00:32	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 00:32	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 00:32	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 00:32	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 00:32	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 00:32	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 00:32	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 00:32	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 00:32	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 00:32	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 00:32	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 00:32	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 00:32	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 00:32	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 00:32	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 00:32	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 00:32	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 00:32	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 00:32	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 00:32	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 00:32	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 00:32	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 00:32	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 00:32	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 00:32	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 00:32	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 00:32	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
Styrene	ND		0.500	1	11/01/2017 00:32	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 00:32	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 00:32	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 10/27/17 00:00

L947181

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 00:32	WG1037036
Tetrachloroethene	ND		0.500	1	11/01/2017 00:32	WG1037036
Toluene	ND		0.500	1	11/01/2017 00:32	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 00:32	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 00:32	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 00:32	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 00:32	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 00:32	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
Vinyl acetate	ND	<u>JO</u>	5.00	1	11/01/2017 00:32	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 00:32	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 00:32	WG1037036
(S) Toluene-d8	108		80.0-120		11/01/2017 00:32	WG1037036
(S) Dibromofluoromethane	99.1		76.0-123		11/01/2017 00:32	WG1037036
(S) 4-Bromofluorobenzene	93.0		80.0-120		11/01/2017 00:32	WG1037036

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 05:59	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 05:59	WG1037036
Benzene	ND		0.500	1	11/01/2017 05:59	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 05:59	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 05:59	WG1037036
Bromoform	ND		0.500	1	11/01/2017 05:59	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 05:59	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 05:59	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 05:59	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 05:59	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 05:59	WG1037036
Chloroform	ND		0.500	1	11/01/2017 05:59	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 05:59	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 05:59	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 05:59	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 05:59	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 05:59	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 05:59	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 05:59	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 05:59	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 05:59	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 05:59	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 05:59	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 05:59	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 05:59	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 05:59	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 05:59	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 05:59	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 05:59	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 05:59	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 05:59	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 05:59	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 05:59	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 05:59	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 05:59	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 05:59	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 05:59	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 05:59	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 05:59	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 05:59	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 05:59	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 05:59	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
Styrene	ND		0.500	1	11/01/2017 05:59	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 05:59	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 05:59	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 10/27/17 11:30

L947181

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 05:59	WG1037036
Tetrachloroethene	ND		0.500	1	11/01/2017 05:59	WG1037036
Toluene	ND		0.500	1	11/01/2017 05:59	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 05:59	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 05:59	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 05:59	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 05:59	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 05:59	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
Vinyl acetate	ND	<u>JO</u>	5.00	1	11/01/2017 05:59	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 05:59	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 05:59	WG1037036
(S) Toluene-d8	104		80.0-120		11/01/2017 05:59	WG1037036
(S) Dibromofluoromethane	103		76.0-123		11/01/2017 05:59	WG1037036
(S) 4-Bromofluorobenzene	89.6		80.0-120		11/01/2017 05:59	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3262249-2 10/31/17 23:53

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acetone	1.26	U	1.05	25.0
Acrylonitrile	U		0.873	5.00
Benzene	U		0.0896	0.500
Bromobenzene	U		0.133	0.500
Bromodichloromethane	U		0.0800	0.500
Bromochloromethane	U		0.145	0.500
Bromoform	U		0.186	0.500
Bromomethane	U		0.157	2.50
n-Butylbenzene	U		0.143	0.500
sec-Butylbenzene	U		0.134	0.500
tert-Butylbenzene	U		0.183	0.500
Carbon disulfide	U		0.101	0.500
Carbon tetrachloride	U		0.159	0.500
Chlorobenzene	U		0.140	0.500
Chlorodibromomethane	U		0.128	0.500
Chloroethane	U		0.141	2.50
Chloroform	U		0.0860	0.500
Chloromethane	U		0.153	1.25
2-Chlorotoluene	U		0.111	0.500
4-Chlorotoluene	U		0.0972	0.500
1,2-Dibromo-3-Chloropropane	U		0.325	2.50
1,2-Dibromoethane	U		0.193	0.500
Dibromomethane	U		0.117	0.500
1,2-Dichlorobenzene	U		0.101	0.500
1,3-Dichlorobenzene	U		0.130	0.500
1,4-Dichlorobenzene	U		0.121	0.500
Dichlorodifluoromethane	U		0.127	2.50
1,1-Dichloroethane	U		0.114	0.500
1,2-Dichloroethane	U		0.108	0.500
1,1-Dichloroethene	U		0.188	0.500
cis-1,2-Dichloroethene	U		0.0933	0.500
trans-1,2-Dichloroethene	U		0.152	0.500
1,2-Dichloropropane	U		0.190	0.500
1,1-Dichloropropene	U		0.128	0.500
1,3-Dichloropropane	U		0.147	1.00
cis-1,3-Dichloropropene	U		0.0976	0.500
trans-1,3-Dichloropropene	U		0.222	0.500
trans-1,4-Dichloro-2-butene	U		0.257	5.00
2,2-Dichloropropane	U		0.0929	0.500
Di-isopropyl ether	U		0.0924	0.500

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3262249-2 10/31/17 23:53

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Ethylbenzene	U		0.158	0.500
Hexachloro-1,3-butadiene	U		0.157	1.00
2-Hexanone	U		0.757	5.00
n-Hexane	U		0.305	5.00
Iodomethane	U		0.377	10.0
Isopropylbenzene	U		0.126	0.500
p-Isopropyltoluene	U		0.138	0.500
2-Butanone (MEK)	U		1.28	5.00
Methylene Chloride	U		1.07	2.50
4-Methyl-2-pentanone (MIBK)	U		0.823	5.00
Methyl tert-butyl ether	U		0.102	0.500
Naphthalene	U		0.174	2.50
n-Propylbenzene	U		0.162	0.500
Styrene	U		0.117	0.500
1,1,1,2-Tetrachloroethane	U		0.120	0.500
1,1,2,2-Tetrachloroethane	U		0.130	0.500
1,1,2-Trichlorotrifluoroethane	U		0.164	0.500
Tetrachloroethene	U		0.199	0.500
Toluene	U		0.412	0.500
1,2,3-Trichlorobenzene	U		0.164	0.500
1,2,4-Trichlorobenzene	U		0.355	0.500
1,1,1-Trichloroethane	U		0.0940	0.500
1,1,2-Trichloroethane	U		0.186	0.500
Trichloroethene	U		0.153	0.500
Trichlorofluoromethane	U		0.130	2.50
1,2,3-Trichloropropane	U		0.247	2.50
1,2,4-Trimethylbenzene	U		0.123	0.500
1,2,3-Trimethylbenzene	U		0.0739	0.500
1,3,5-Trimethylbenzene	U		0.124	0.500
Vinyl acetate	U		0.645	5.00
Vinyl chloride	U		0.118	0.500
Xylenes, Total	U		0.316	1.50
(S) Toluene-d8	108			80.0-120
(S) Dibromofluoromethane	96.3			76.0-123
(S) 4-Bromofluorobenzene	92.8			80.0-120

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

[L947181-01,02,03,04,05,06,07,08,09](#)

Laboratory Control Sample (LCS)

(LCS) R3262249-1 10/31/17 23:15

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Acetone	125	204	163	10.0-160	J4
Acrylonitrile	125	123	98.2	60.0-142	
Benzene	25.0	24.3	97.3	69.0-123	
Bromobenzene	25.0	22.4	89.6	79.0-120	
Bromodichloromethane	25.0	25.8	103	76.0-120	
Bromochloromethane	25.0	23.2	92.9	76.0-122	
Bromoform	25.0	22.1	88.5	67.0-132	
Bromomethane	25.0	25.1	100	18.0-160	
n-Butylbenzene	25.0	25.2	101	72.0-126	
sec-Butylbenzene	25.0	23.9	95.7	74.0-121	
tert-Butylbenzene	25.0	23.4	93.4	75.0-122	
Carbon disulfide	25.0	24.5	97.8	55.0-127	
Carbon tetrachloride	25.0	23.7	95.0	63.0-122	
Chlorobenzene	25.0	25.3	101	79.0-121	
Chlorodibromomethane	25.0	26.3	105	75.0-125	
Chloroethane	25.0	22.8	91.3	47.0-152	
Chloroform	25.0	24.1	96.2	72.0-121	
Chloromethane	25.0	24.7	98.7	48.0-139	
2-Chlorotoluene	25.0	23.0	91.8	74.0-122	
4-Chlorotoluene	25.0	23.3	93.0	79.0-120	
1,2-Dibromo-3-Chloropropane	25.0	24.3	97.1	64.0-127	
1,2-Dibromoethane	25.0	24.4	97.7	77.0-123	
Dibromomethane	25.0	24.1	96.3	78.0-120	
1,2-Dichlorobenzene	25.0	24.6	98.6	80.0-120	
1,3-Dichlorobenzene	25.0	23.7	94.8	72.0-123	
1,4-Dichlorobenzene	25.0	24.3	97.1	77.0-120	
Dichlorodifluoromethane	25.0	25.1	101	49.0-155	
1,1-Dichloroethane	25.0	25.1	100	70.0-126	
1,2-Dichloroethane	25.0	24.8	99.3	67.0-126	
1,1-Dichloroethene	25.0	24.7	99.0	64.0-129	
cis-1,2-Dichloroethene	25.0	23.3	93.1	73.0-120	
trans-1,2-Dichloroethene	25.0	24.7	99.0	71.0-121	
1,2-Dichloropropane	25.0	24.2	96.9	75.0-125	
1,1-Dichloropropene	25.0	23.7	94.8	71.0-129	
1,3-Dichloropropane	25.0	25.5	102	80.0-121	
cis-1,3-Dichloropropene	25.0	25.8	103	79.0-123	
trans-1,3-Dichloropropene	25.0	25.5	102	74.0-127	
trans-1,4-Dichloro-2-butene	25.0	22.9	91.4	55.0-134	
2,2-Dichloropropane	25.0	22.8	91.2	60.0-125	
Di-isopropyl ether	25.0	23.9	95.6	59.0-133	

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Laboratory Control Sample (LCS)

(LCS) R3262249-1 10/31/17 23:15

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Ethylbenzene	25.0	25.8	103	77.0-120	
Hexachloro-1,3-butadiene	25.0	24.7	98.9	64.0-131	
2-Hexanone	125	147	118	58.0-147	
n-Hexane	25.0	22.8	91.4	56.0-124	
Iodomethane	125	125	99.6	57.0-140	
Isopropylbenzene	25.0	23.6	94.5	75.0-120	
p-Isopropyltoluene	25.0	24.6	98.3	74.0-126	
2-Butanone (MEK)	125	163	130	37.0-158	
Methylene Chloride	25.0	23.7	94.9	66.0-121	
4-Methyl-2-pentanone (MIBK)	125	125	100	59.0-143	
Methyl tert-butyl ether	25.0	23.4	93.7	64.0-123	
Naphthalene	25.0	26.7	107	62.0-128	
n-Propylbenzene	25.0	23.2	92.8	79.0-120	
Styrene	25.0	24.0	95.9	78.0-124	
1,1,1,2-Tetrachloroethane	25.0	24.6	98.3	75.0-122	
1,1,2,2-Tetrachloroethane	25.0	21.7	86.8	71.0-122	
1,1,2-Trichlorotrifluoroethane	25.0	25.2	101	61.0-136	
Tetrachloroethene	25.0	24.0	96.0	70.0-127	
Toluene	25.0	25.6	102	77.0-120	
1,2,3-Trichlorobenzene	25.0	26.7	107	61.0-133	
1,2,4-Trichlorobenzene	25.0	25.1	101	69.0-129	
1,1,1-Trichloroethane	25.0	25.7	103	68.0-122	
1,1,2-Trichloroethane	25.0	25.1	100	78.0-120	
Trichloroethene	25.0	26.1	105	78.0-120	
Trichlorofluoromethane	25.0	24.7	98.8	56.0-137	
1,2,3-Trichloropropane	25.0	22.6	90.6	72.0-124	
1,2,4-Trimethylbenzene	25.0	23.1	92.3	75.0-120	
1,2,3-Trimethylbenzene	25.0	25.0	100	75.0-120	
1,3,5-Trimethylbenzene	25.0	23.5	93.9	75.0-120	
Vinyl acetate	125	86.3	69.0	46.0-160	
Vinyl chloride	25.0	23.9	95.6	64.0-133	
Xylenes, Total	75.0	74.7	99.6	77.0-120	
(S) Toluene-d8			107	80.0-120	
(S) Dibromofluoromethane			102	76.0-123	
(S) 4-Bromofluorobenzene			95.8	80.0-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
J0	J0: Calibration verification outside of acceptance limits. Result is estimated.
J4	The associated batch QC was outside the established quality control range for accuracy.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

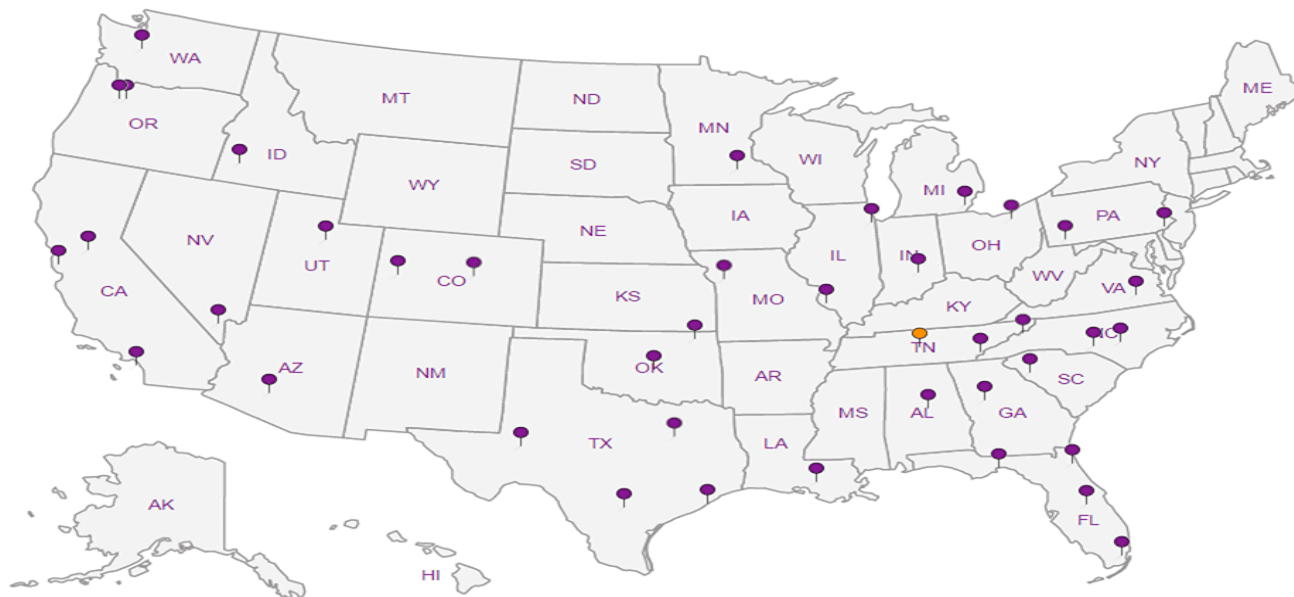
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



MEMORANDUM

TO: Project File **DATE:** November 7, 2017
FROM: Jessie Compeau
SUBJECT: Laboratory Data Validation Review
PROJECT: Manhattan Village Shopping Center
PROJECT #: 1358.001.01.003
TASK: October 25-26, 2017 Groundwater Samples
LAB: ECS Lab Sciences Request No. L947166

Ten groundwater samples and a trip blank were collected to evaluate performance of the air sparging and soil vapor extraction remediation system at the Manhattan Village Shopping Centre site in Normandy Park, Washington on October 25-26 of 2017. Samples were analyzed for VOCs by USEPA Method 8260C. Laboratory analytical services were provided by ESC Lab Sciences (ESC) of Mt. Juliet, Tennessee (ESC Report: L947166).

The monitoring event occurred between October 23 and 27 of 2017. Associated sample data are reported in 4 ESC SDGs (SDGs L946305/L947200, L947166, and L947181). The quality assurance review of the laboratory data for SDG L947166 is summarized below.

DATA QUALIFICATIONS

Guidelines established by USEPA for review of analytical data were used to validate the data. The comments presented in this memorandum refer to the laboratory's performance in meeting the quality control criteria outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (USEPA, 2017).

DATA VALIDATION

Completeness

All samples were collected and analyzed as requested. No concerns, issues, or anomalies were identified in the laboratory report with the following discussion:

- Trip blank sample (TB2-102617) does not include a sampling date or time of collection on the chain of custody. No action is taken other than to note this.

Sample Collection and Preservation

The samples were stored on ice in the cooler and delivered in good condition to the laboratory. Cooler temperature at the time of receipt was measured at 5.9 degrees Centigrade (°C). The

cooler temperatures were within EPA's recommended temperature preservation range of less than 6.0 °C. No data qualifications were warranted.

Holding Times

All samples were analyzed for VOCs within the EPA recommended holding time of 14 days (preserved water). All holding time criteria were met.

Initial and Continuing Calibration

Calibration data for this project are not required for this deliverable however ESC's notes indicate the following:

- *USEPA Method 8260C*: Continuing calibration verification (CCV) issues were noted by ESC for vinyl acetate associated with analytical batch WG1037036 (analyzed on November 1, 2017). These results are qualified by the laboratory "J0" to indicate that percent difference CCVs are outside of laboratory acceptance criteria. **All associated sample results with laboratory qualified J0 results are estimated and qualified (UJ/J).**

Method Blank Results

A laboratory method blank was included with the analytical batch per method requirement. The target analytes (VOCs) were not detected in the method blank at a concentration at or above the method reporting limits (MRLs) with one exception:

- A low level of acetone was detected below the MRL and above the method detection limit (MDL) in the method blank. No action was taken as this compound was not detected in the associated samples.

Trip Blank Results

The target analytes (VOCs) were not detected in the trip blank at concentrations at or above the method reporting limits (MRLs).

Equipment Blank Results

An equipment blank was not collected.

Field Duplicate Analyses

Field duplicate samples were not collected.

Laboratory Duplicate Analyses

Laboratory duplicate analysis was not performed. Refer to field duplicate results associated with SDG L947181 and analyzed with the same analytical batch for precision data.

Surrogate Recoveries

The surrogate percent recovery (%R) results for the samples, method blank, and laboratory control samples are within the laboratory surrogate control limits. No data qualifications were warranted.

Laboratory Control Samples

The laboratory control sample %R's are within the laboratory control limits with one exception and discussion:

- LCS (Batch WG1037036) % recovery for acetone is above laboratory criteria and qualified by the laboratory (J4). No action was taken on this basis since acetone was not detected in the associated samples.
- A laboratory control sample duplicate was not performed. Refer to field duplicate results associated with SDG L947181 which are analyzed within the same analytical batch for precision data.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) analyses were not performed. Refer to LCS and field duplicate results associated with SDG L947181 for accuracy and precision data.

Other Quality Control Issues

No other laboratory quality control issues were identified in the laboratory report.

Quantitation Limits

Results of the USEPA 8260 VOC analyses were reported based on laboratory MRLs. The MRLs indicate the minimum quantity of a target analyte that can be confidently determined by the reference method. The MRLs were acceptable for the project; therefore, no data qualifications were warranted.

Data Assessment

Data qualifiers were assigned and laboratory report pages with qualifiers are attached. All data, including qualified data, are judged to be acceptable for their intended use.



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND	J4	25.0	1	11/01/2017 00:51	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 00:51	WG1037036
Benzene	ND		0.500	1	11/01/2017 00:51	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 00:51	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 00:51	WG1037036
Bromoform	ND		0.500	1	11/01/2017 00:51	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 00:51	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 00:51	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 00:51	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 00:51	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 00:51	WG1037036
Chloroform	ND		0.500	1	11/01/2017 00:51	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 00:51	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 00:51	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 00:51	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 00:51	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 00:51	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 00:51	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 00:51	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 00:51	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 00:51	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 00:51	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 00:51	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 00:51	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 00:51	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 00:51	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 00:51	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 00:51	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 00:51	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 00:51	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 00:51	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 00:51	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 00:51	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 00:51	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 00:51	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 00:51	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 00:51	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 00:51	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 00:51	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 00:51	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 00:51	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 00:51	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
Styrene	ND		0.500	1	11/01/2017 00:51	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 00:51	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 00:51	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

JC 11/1/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 00:51	WG1037036
Tetrachloroethene	7.47		0.500	1	11/01/2017 00:51	WG1037036
Toluene	ND		0.500	1	11/01/2017 00:51	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 00:51	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 00:51	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 00:51	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 00:51	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 00:51	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
Vinyl acetate	ND	UJ JO	5.00	1	11/01/2017 00:51	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 00:51	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 00:51	WG1037036
(S) Toluene-d8	107		80.0-120		11/01/2017 00:51	WG1037036
(S) Dibromofluoromethane	98.2		76.0-123		11/01/2017 00:51	WG1037036
(S) 4-Bromofluorobenzene	92.7		80.0-120		11/01/2017 00:51	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

JC 11/1/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 01:10	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 01:10	WG1037036
Benzene	ND		0.500	1	11/01/2017 01:10	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 01:10	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 01:10	WG1037036
Bromoform	ND		0.500	1	11/01/2017 01:10	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 01:10	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 01:10	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 01:10	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 01:10	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 01:10	WG1037036
Chloroform	ND		0.500	1	11/01/2017 01:10	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 01:10	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 01:10	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 01:10	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 01:10	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 01:10	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 01:10	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 01:10	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 01:10	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 01:10	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 01:10	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 01:10	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 01:10	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 01:10	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 01:10	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 01:10	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 01:10	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 01:10	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 01:10	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 01:10	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 01:10	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 01:10	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 01:10	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 01:10	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 01:10	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 01:10	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 01:10	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 01:10	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 01:10	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 01:10	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 01:10	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
Styrene	ND		0.500	1	11/01/2017 01:10	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 01:10	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 01:10	WG1037036

JC 11/1/17





Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 01:10	WG1037036
Tetrachloroethene	ND		0.500	1	11/01/2017 01:10	WG1037036
Toluene	ND		0.500	1	11/01/2017 01:10	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 01:10	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 01:10	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 01:10	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 01:10	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 01:10	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
Vinyl acetate	ND	UJ JO	5.00	1	11/01/2017 01:10	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 01:10	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 01:10	WG1037036
(S) Toluene-d8	108		80.0-120		11/01/2017 01:10	WG1037036
(S) Dibromofluoromethane	100		76.0-123		11/01/2017 01:10	WG1037036
(S) 4-Bromofluorobenzene	94.4		80.0-120		11/01/2017 01:10	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

JC 11/1/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 01:30	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 01:30	WG1037036
Benzene	ND		0.500	1	11/01/2017 01:30	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 01:30	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 01:30	WG1037036
Bromoform	ND		0.500	1	11/01/2017 01:30	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 01:30	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 01:30	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 01:30	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 01:30	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 01:30	WG1037036
Chloroform	ND		0.500	1	11/01/2017 01:30	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 01:30	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 01:30	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 01:30	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 01:30	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 01:30	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 01:30	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 01:30	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 01:30	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 01:30	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 01:30	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 01:30	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 01:30	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 01:30	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 01:30	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 01:30	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 01:30	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 01:30	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 01:30	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 01:30	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 01:30	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 01:30	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 01:30	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 01:30	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 01:30	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 01:30	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 01:30	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 01:30	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 01:30	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 01:30	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 01:30	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
Styrene	ND		0.500	1	11/01/2017 01:30	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 01:30	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 01:30	WG1037036

JC 11/1/17

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 01:30	WG1037036
Tetrachloroethene	3.23		0.500	1	11/01/2017 01:30	WG1037036
Toluene	ND		0.500	1	11/01/2017 01:30	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 01:30	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 01:30	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 01:30	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 01:30	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 01:30	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
Vinyl acetate	ND	UJ JO	5.00	1	11/01/2017 01:30	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 01:30	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 01:30	WG1037036
(S) Toluene-d8	107		80.0-120		11/01/2017 01:30	WG1037036
(S) Dibromofluoromethane	102		76.0-123		11/01/2017 01:30	WG1037036
(S) 4-Bromofluorobenzene	91.5		80.0-120		11/01/2017 01:30	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

JC 11/1/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch	
Acetone	ND	J4	25.0	1	11/01/2017 01:49	WG1037036	¹ Cp
Acrylonitrile	ND		5.00	1	11/01/2017 01:49	WG1037036	² Tc
Benzene	ND		0.500	1	11/01/2017 01:49	WG1037036	³ Ss
Bromobenzene	ND		0.500	1	11/01/2017 01:49	WG1037036	⁴ Cn
Bromodichloromethane	ND		0.500	1	11/01/2017 01:49	WG1037036	⁵ Sr
Bromochloromethane	ND		0.500	1	11/01/2017 01:49	WG1037036	⁶ Qc
Bromoform	ND		0.500	1	11/01/2017 01:49	WG1037036	⁷ Gl
Bromomethane	ND		2.50	1	11/01/2017 01:49	WG1037036	⁸ Al
n-Butylbenzene	ND		0.500	1	11/01/2017 01:49	WG1037036	⁹ Sc
sec-Butylbenzene	ND		0.500	1	11/01/2017 01:49	WG1037036	
tert-Butylbenzene	ND		0.500	1	11/01/2017 01:49	WG1037036	
Carbon disulfide	ND		0.500	1	11/01/2017 01:49	WG1037036	
Carbon tetrachloride	ND		0.500	1	11/01/2017 01:49	WG1037036	
Chlorobenzene	ND		0.500	1	11/01/2017 01:49	WG1037036	
Chlorodibromomethane	ND		0.500	1	11/01/2017 01:49	WG1037036	
Chloroethane	ND		2.50	1	11/01/2017 01:49	WG1037036	
Chloroform	ND		0.500	1	11/01/2017 01:49	WG1037036	
Chloromethane	ND		1.25	1	11/01/2017 01:49	WG1037036	
2-Chlorotoluene	ND		0.500	1	11/01/2017 01:49	WG1037036	
4-Chlorotoluene	ND		0.500	1	11/01/2017 01:49	WG1037036	
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 01:49	WG1037036	
1,2-Dibromoethane	ND		0.500	1	11/01/2017 01:49	WG1037036	
Dibromomethane	ND		0.500	1	11/01/2017 01:49	WG1037036	
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 01:49	WG1037036	
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 01:49	WG1037036	
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 01:49	WG1037036	
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 01:49	WG1037036	
1,1-Dichloroethane	ND		0.500	1	11/01/2017 01:49	WG1037036	
1,2-Dichloroethane	ND		0.500	1	11/01/2017 01:49	WG1037036	
1,1-Dichloroethene	ND		0.500	1	11/01/2017 01:49	WG1037036	
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 01:49	WG1037036	
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 01:49	WG1037036	
1,2-Dichloropropane	ND		0.500	1	11/01/2017 01:49	WG1037036	
1,1-Dichloropropene	ND		0.500	1	11/01/2017 01:49	WG1037036	
1,3-Dichloropropane	ND		1.00	1	11/01/2017 01:49	WG1037036	
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 01:49	WG1037036	
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 01:49	WG1037036	
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 01:49	WG1037036	
2,2-Dichloropropane	ND		0.500	1	11/01/2017 01:49	WG1037036	
Di-isopropyl ether	ND		0.500	1	11/01/2017 01:49	WG1037036	
Ethylbenzene	ND		0.500	1	11/01/2017 01:49	WG1037036	
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 01:49	WG1037036	
2-Hexanone	ND		5.00	1	11/01/2017 01:49	WG1037036	
n-Hexane	ND		5.00	1	11/01/2017 01:49	WG1037036	
Iodomethane	ND		10.0	1	11/01/2017 01:49	WG1037036	
Isopropylbenzene	ND		0.500	1	11/01/2017 01:49	WG1037036	
p-Isopropyltoluene	ND		0.500	1	11/01/2017 01:49	WG1037036	
2-Butanone (MEK)	ND		5.00	1	11/01/2017 01:49	WG1037036	
Methylene Chloride	ND		2.50	1	11/01/2017 01:49	WG1037036	
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 01:49	WG1037036	
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 01:49	WG1037036	
Naphthalene	ND		2.50	1	11/01/2017 01:49	WG1037036	
n-Propylbenzene	ND		0.500	1	11/01/2017 01:49	WG1037036	
Styrene	ND		0.500	1	11/01/2017 01:49	WG1037036	
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 01:49	WG1037036	
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 01:49	WG1037036	JC 11/1/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 01:49	WG1037036
Tetrachloroethene	4.21		0.500	1	11/01/2017 01:49	WG1037036
Toluene	ND		0.500	1	11/01/2017 01:49	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 01:49	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 01:49	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 01:49	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 01:49	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 01:49	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 01:49	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 01:49	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 01:49	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 01:49	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 01:49	WG1037036
Vinyl acetate	ND	UJ JO	5.00	1	11/01/2017 01:49	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 01:49	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 01:49	WG1037036
(S) Toluene-d8	107		80.0-120		11/01/2017 01:49	WG1037036
(S) Dibromofluoromethane	101		76.0-123		11/01/2017 01:49	WG1037036
(S) 4-Bromofluorobenzene	95.0		80.0-120		11/01/2017 01:49	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

JC 11/1/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 02:08	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 02:08	WG1037036
Benzene	ND		0.500	1	11/01/2017 02:08	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 02:08	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 02:08	WG1037036
Bromoform	ND		0.500	1	11/01/2017 02:08	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 02:08	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 02:08	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 02:08	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 02:08	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 02:08	WG1037036
Chloroform	ND		0.500	1	11/01/2017 02:08	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 02:08	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 02:08	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 02:08	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 02:08	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 02:08	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 02:08	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 02:08	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 02:08	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 02:08	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 02:08	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 02:08	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 02:08	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 02:08	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 02:08	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 02:08	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 02:08	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 02:08	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 02:08	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 02:08	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 02:08	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 02:08	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 02:08	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 02:08	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 02:08	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 02:08	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 02:08	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 02:08	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 02:08	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 02:08	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 02:08	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
Styrene	ND		0.500	1	11/01/2017 02:08	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 02:08	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 02:08	WG1037036

JC 11/1/17

ACCOUNT:

PES Environmental, Inc.- WA

PROJECT:

1358.001.01.003

SDG:

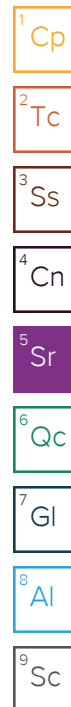
L947166

DATE/TIME:

11/07/17 10:35

PAGE:

14 of 35





Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 02:08	WG1037036
Tetrachloroethene	1.35		0.500	1	11/01/2017 02:08	WG1037036
Toluene	ND		0.500	1	11/01/2017 02:08	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 02:08	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 02:08	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 02:08	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 02:08	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 02:08	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
Vinyl acetate	ND	UJ JO	5.00	1	11/01/2017 02:08	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 02:08	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 02:08	WG1037036
(S) Toluene-d8	106		80.0-120		11/01/2017 02:08	WG1037036
(S) Dibromofluoromethane	99.5		76.0-123		11/01/2017 02:08	WG1037036
(S) 4-Bromofluorobenzene	90.9		80.0-120		11/01/2017 02:08	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

JC 11/1/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 02:27	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 02:27	WG1037036
Benzene	ND		0.500	1	11/01/2017 02:27	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 02:27	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 02:27	WG1037036
Bromoform	ND		0.500	1	11/01/2017 02:27	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 02:27	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 02:27	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 02:27	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 02:27	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 02:27	WG1037036
Chloroform	ND		0.500	1	11/01/2017 02:27	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 02:27	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 02:27	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 02:27	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 02:27	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 02:27	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 02:27	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 02:27	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 02:27	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 02:27	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 02:27	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 02:27	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 02:27	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 02:27	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 02:27	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 02:27	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 02:27	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 02:27	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 02:27	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 02:27	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 02:27	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 02:27	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 02:27	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 02:27	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 02:27	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 02:27	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 02:27	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 02:27	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 02:27	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 02:27	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 02:27	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
Styrene	ND		0.500	1	11/01/2017 02:27	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 02:27	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 02:27	WG1037036

JC 11/1/17





Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 02:27	WG1037036
Tetrachloroethene	0.770		0.500	1	11/01/2017 02:27	WG1037036
Toluene	ND		0.500	1	11/01/2017 02:27	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 02:27	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 02:27	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 02:27	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 02:27	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 02:27	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
Vinyl acetate	ND	UJ JO	5.00	1	11/01/2017 02:27	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 02:27	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 02:27	WG1037036
(S) Toluene-d8	106		80.0-120		11/01/2017 02:27	WG1037036
(S) Dibromofluoromethane	98.0		76.0-123		11/01/2017 02:27	WG1037036
(S) 4-Bromofluorobenzene	93.7		80.0-120		11/01/2017 02:27	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

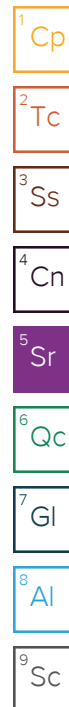
JC 11/1/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND	J4	25.0	1	11/01/2017 22:32	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 22:32	WG1037036
Benzene	ND		0.500	1	11/01/2017 22:32	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 22:32	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 22:32	WG1037036
Bromoform	ND		0.500	1	11/01/2017 22:32	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 22:32	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 22:32	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 22:32	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 22:32	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 22:32	WG1037036
Chloroform	ND		0.500	1	11/01/2017 22:32	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 22:32	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 22:32	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 22:32	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 22:32	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 22:32	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 22:32	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 22:32	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 22:32	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 22:32	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 22:32	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 22:32	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 22:32	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 22:32	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 22:32	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 22:32	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 22:32	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 22:32	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 22:32	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 22:32	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 22:32	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 22:32	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 22:32	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 22:32	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 22:32	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 22:32	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 22:32	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 22:32	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 22:32	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 22:32	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 22:32	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
Styrene	ND		0.500	1	11/01/2017 22:32	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 22:32	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 22:32	WG1037036

JC 11/1/17





Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 22:32	WG1037036
Tetrachloroethene	1.55		0.500	1	11/01/2017 22:32	WG1037036
Toluene	ND		0.500	1	11/01/2017 22:32	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 22:32	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 22:32	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 22:32	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 22:32	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 22:32	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
Vinyl acetate	ND		5.00	1	11/01/2017 22:32	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 22:32	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 22:32	WG1037036
(S) Toluene-d8	104		80.0-120		11/01/2017 22:32	WG1037036
(S) Dibromofluoromethane	101		76.0-123		11/01/2017 22:32	WG1037036
(S) 4-Bromofluorobenzene	91.3		80.0-120		11/01/2017 22:32	WG1037036

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

JC 11/1/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND	J4	25.0	1	11/01/2017 02:47	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 02:47	WG1037036
Benzene	ND		0.500	1	11/01/2017 02:47	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 02:47	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 02:47	WG1037036
Bromoform	ND		0.500	1	11/01/2017 02:47	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 02:47	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 02:47	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 02:47	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 02:47	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 02:47	WG1037036
Chloroform	ND		0.500	1	11/01/2017 02:47	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 02:47	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 02:47	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 02:47	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 02:47	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 02:47	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 02:47	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 02:47	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 02:47	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 02:47	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 02:47	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 02:47	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 02:47	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 02:47	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 02:47	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 02:47	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 02:47	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 02:47	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 02:47	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 02:47	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 02:47	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 02:47	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 02:47	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 02:47	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 02:47	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 02:47	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 02:47	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 02:47	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 02:47	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 02:47	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 02:47	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
Styrene	ND		0.500	1	11/01/2017 02:47	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 02:47	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 02:47	WG1037036

JC 11/1/17





Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 02:47	WG1037036
Tetrachloroethene	2.15		0.500	1	11/01/2017 02:47	WG1037036
Toluene	ND		0.500	1	11/01/2017 02:47	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 02:47	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 02:47	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 02:47	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 02:47	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 02:47	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
Vinyl acetate	ND	UJ JO	5.00	1	11/01/2017 02:47	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 02:47	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 02:47	WG1037036
(S) Toluene-d8	107		80.0-120		11/01/2017 02:47	WG1037036
(S) Dibromofluoromethane	99.0		76.0-123		11/01/2017 02:47	WG1037036
(S) 4-Bromofluorobenzene	91.1		80.0-120		11/01/2017 02:47	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

JC 11/1/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 03:06	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 03:06	WG1037036
Benzene	ND		0.500	1	11/01/2017 03:06	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 03:06	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 03:06	WG1037036
Bromoform	ND		0.500	1	11/01/2017 03:06	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 03:06	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 03:06	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 03:06	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 03:06	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 03:06	WG1037036
Chloroform	ND		0.500	1	11/01/2017 03:06	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 03:06	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 03:06	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 03:06	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 03:06	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 03:06	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 03:06	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 03:06	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 03:06	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 03:06	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 03:06	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 03:06	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 03:06	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 03:06	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 03:06	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 03:06	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 03:06	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 03:06	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 03:06	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 03:06	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 03:06	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 03:06	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 03:06	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 03:06	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 03:06	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 03:06	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 03:06	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 03:06	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 03:06	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 03:06	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 03:06	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
Styrene	ND		0.500	1	11/01/2017 03:06	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 03:06	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 03:06	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

JC 11/1/17

ACCOUNT:

PES Environmental, Inc.- WA

PROJECT:

1358.001.01.003

SDG:

L947166

DATE/TIME:

11/07/17 10:35

PAGE:

22 of 35



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 03:06	WG1037036
Tetrachloroethene	5.78		0.500	1	11/01/2017 03:06	WG1037036
Toluene	ND		0.500	1	11/01/2017 03:06	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 03:06	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 03:06	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 03:06	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 03:06	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 03:06	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
Vinyl acetate	ND	UJ JO	5.00	1	11/01/2017 03:06	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 03:06	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 03:06	WG1037036
(S) Toluene-d8	104		80.0-120		11/01/2017 03:06	WG1037036
(S) Dibromofluoromethane	101		76.0-123		11/01/2017 03:06	WG1037036
(S) 4-Bromofluorobenzene	87.9		80.0-120		11/01/2017 03:06	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

JC 11/1/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch	
Acetone	ND	J4	25.0	1	11/01/2017 03:26	WG1037036	¹ Cp
Acrylonitrile	ND		5.00	1	11/01/2017 03:26	WG1037036	² Tc
Benzene	ND		0.500	1	11/01/2017 03:26	WG1037036	³ Ss
Bromobenzene	ND		0.500	1	11/01/2017 03:26	WG1037036	⁴ Cn
Bromodichloromethane	ND		0.500	1	11/01/2017 03:26	WG1037036	⁵ Sr
Bromochloromethane	ND		0.500	1	11/01/2017 03:26	WG1037036	⁶ Qc
Bromoform	ND		0.500	1	11/01/2017 03:26	WG1037036	⁷ Gl
Bromomethane	ND		2.50	1	11/01/2017 03:26	WG1037036	⁸ Al
n-Butylbenzene	ND		0.500	1	11/01/2017 03:26	WG1037036	⁹ Sc
sec-Butylbenzene	ND		0.500	1	11/01/2017 03:26	WG1037036	
tert-Butylbenzene	ND		0.500	1	11/01/2017 03:26	WG1037036	
Carbon disulfide	ND		0.500	1	11/01/2017 03:26	WG1037036	
Carbon tetrachloride	ND		0.500	1	11/01/2017 03:26	WG1037036	
Chlorobenzene	ND		0.500	1	11/01/2017 03:26	WG1037036	
Chlorodibromomethane	ND		0.500	1	11/01/2017 03:26	WG1037036	
Chloroethane	ND		2.50	1	11/01/2017 03:26	WG1037036	
Chloroform	2.23		0.500	1	11/01/2017 03:26	WG1037036	
Chloromethane	ND		1.25	1	11/01/2017 03:26	WG1037036	
2-Chlorotoluene	ND		0.500	1	11/01/2017 03:26	WG1037036	
4-Chlorotoluene	ND		0.500	1	11/01/2017 03:26	WG1037036	
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 03:26	WG1037036	
1,2-Dibromoethane	ND		0.500	1	11/01/2017 03:26	WG1037036	
Dibromomethane	ND		0.500	1	11/01/2017 03:26	WG1037036	
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 03:26	WG1037036	
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 03:26	WG1037036	
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 03:26	WG1037036	
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 03:26	WG1037036	
1,1-Dichloroethane	ND		0.500	1	11/01/2017 03:26	WG1037036	
1,2-Dichloroethane	ND		0.500	1	11/01/2017 03:26	WG1037036	
1,1-Dichloroethene	ND		0.500	1	11/01/2017 03:26	WG1037036	
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 03:26	WG1037036	
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 03:26	WG1037036	
1,2-Dichloropropane	ND		0.500	1	11/01/2017 03:26	WG1037036	
1,1-Dichloropropene	ND		0.500	1	11/01/2017 03:26	WG1037036	
1,3-Dichloropropane	ND		1.00	1	11/01/2017 03:26	WG1037036	
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 03:26	WG1037036	
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 03:26	WG1037036	
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 03:26	WG1037036	
2,2-Dichloropropane	ND		0.500	1	11/01/2017 03:26	WG1037036	
Di-isopropyl ether	ND		0.500	1	11/01/2017 03:26	WG1037036	
Ethylbenzene	ND		0.500	1	11/01/2017 03:26	WG1037036	
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 03:26	WG1037036	
2-Hexanone	ND		5.00	1	11/01/2017 03:26	WG1037036	
n-Hexane	ND		5.00	1	11/01/2017 03:26	WG1037036	
Iodomethane	ND		10.0	1	11/01/2017 03:26	WG1037036	
Isopropylbenzene	ND		0.500	1	11/01/2017 03:26	WG1037036	
p-Isopropyltoluene	ND		0.500	1	11/01/2017 03:26	WG1037036	
2-Butanone (MEK)	ND		5.00	1	11/01/2017 03:26	WG1037036	
Methylene Chloride	ND		2.50	1	11/01/2017 03:26	WG1037036	
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 03:26	WG1037036	
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 03:26	WG1037036	
Naphthalene	ND		2.50	1	11/01/2017 03:26	WG1037036	
n-Propylbenzene	ND		0.500	1	11/01/2017 03:26	WG1037036	
Styrene	ND		0.500	1	11/01/2017 03:26	WG1037036	
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 03:26	WG1037036	
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 03:26	WG1037036	JC 11/1/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 03:26	WG1037036
Tetrachloroethene	5.40		0.500	1	11/01/2017 03:26	WG1037036
Toluene	ND		0.500	1	11/01/2017 03:26	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 03:26	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 03:26	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 03:26	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 03:26	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 03:26	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 03:26	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 03:26	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 03:26	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 03:26	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 03:26	WG1037036
Vinyl acetate	ND	UJ JO	5.00	1	11/01/2017 03:26	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 03:26	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 03:26	WG1037036
(S) Toluene-d8	106		80.0-120		11/01/2017 03:26	WG1037036
(S) Dibromofluoromethane	102		76.0-123		11/01/2017 03:26	WG1037036
(S) 4-Bromofluorobenzene	87.4		80.0-120		11/01/2017 03:26	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

JC 11/1/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 00:12	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 00:12	WG1037036
Benzene	ND		0.500	1	11/01/2017 00:12	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 00:12	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 00:12	WG1037036
Bromoform	ND		0.500	1	11/01/2017 00:12	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 00:12	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 00:12	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 00:12	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 00:12	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 00:12	WG1037036
Chloroform	ND		0.500	1	11/01/2017 00:12	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 00:12	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 00:12	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 00:12	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 00:12	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 00:12	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 00:12	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 00:12	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 00:12	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 00:12	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 00:12	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 00:12	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 00:12	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 00:12	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 00:12	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 00:12	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 00:12	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 00:12	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 00:12	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 00:12	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 00:12	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 00:12	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 00:12	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 00:12	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 00:12	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 00:12	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 00:12	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 00:12	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 00:12	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 00:12	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 00:12	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
Styrene	ND		0.500	1	11/01/2017 00:12	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 00:12	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 00:12	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 00:12	WG1037036
Tetrachloroethene	ND		0.500	1	11/01/2017 00:12	WG1037036
Toluene	ND		0.500	1	11/01/2017 00:12	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 00:12	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 00:12	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 00:12	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 00:12	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 00:12	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
Vinyl acetate	ND	UJ JO	5.00	1	11/01/2017 00:12	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 00:12	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 00:12	WG1037036
(S) Toluene-d8	105		80.0-120		11/01/2017 00:12	WG1037036
(S) Dibromofluoromethane	99.0		76.0-123		11/01/2017 00:12	WG1037036
(S) 4-Bromofluorobenzene	94.5		80.0-120		11/01/2017 00:12	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

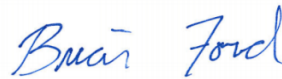
JC 11/1/17

November 07, 2017

PES Environmental, Inc.- WA

Sample Delivery Group: L947166
Samples Received: 10/28/2017
Project Number: 1358.001.01.003
Description: Manhattan Village Shopping Center
Site: MVSC
Report To: Karsten Springstead
1215 Fourth Ave., Suite 1350
Seattle, WA 98161

Entire Report Reviewed By:



Brian Ford
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	5
Sr: Sample Results	6
MW-7-102517 L947166-01	6
KMW-7-102517 L947166-02	8
MW-4-102517 L947166-03	10
MW-3-102517 L947166-04	12
DC-11-102617 L947166-05	14
KMW-9-102617 L947166-06	16
MW-2-102617 L947166-07	18
MW-11-102617 L947166-08	20
KMW-3-102617 L947166-09	22
DC-14-102617 L947166-10	24
TB2-102617 L947166-11	26
Qc: Quality Control Summary	28
Volatile Organic Compounds (GC/MS) by Method 8260C	28
Gl: Glossary of Terms	32
Al: Accreditations & Locations	33
Sc: Sample Chain of Custody	34





MW-7-102517 L947166-01 GW

			Collected by Chris D	Collected date/time 10/25/17 09:25	Received date/time 10/28/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037036	1	11/01/17 00:51	11/01/17 00:51	ACG

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

KMW-7-102517 L947166-02 GW

			Collected by Chris D	Collected date/time 10/25/17 10:20	Received date/time 10/28/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037036	1	11/01/17 01:10	11/01/17 01:10	ACG

MW-4-102517 L947166-03 GW

			Collected by Chris D	Collected date/time 10/25/17 11:30	Received date/time 10/28/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037036	1	11/01/17 01:30	11/01/17 01:30	ACG

MW-3-102517 L947166-04 GW

			Collected by Chris D	Collected date/time 10/25/17 13:00	Received date/time 10/28/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037036	1	11/01/17 01:49	11/01/17 01:49	ACG

DC-11-102617 L947166-05 GW

			Collected by Chris D	Collected date/time 10/26/17 07:45	Received date/time 10/28/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037036	1	11/01/17 02:08	11/01/17 02:08	ACG

KMW-9-102617 L947166-06 GW

			Collected by Chris D	Collected date/time 10/26/17 08:20	Received date/time 10/28/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037036	1	11/01/17 02:27	11/01/17 02:27	ACG

MW-2-102617 L947166-07 GW

			Collected by Chris D	Collected date/time 10/26/17 08:50	Received date/time 10/28/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037036	1	11/01/17 22:32	11/01/17 22:32	DWR

MW-11-102617 L947166-08 GW

			Collected by Chris D	Collected date/time 10/26/17 09:25	Received date/time 10/28/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037036	1	11/01/17 02:47	11/01/17 02:47	ACG

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



KMW-3-102617 L947166-09 GW

Collected by
Chris DCollected date/time
10/26/17 10:10Received date/time
10/28/17 08:45¹ Cp

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037036	1	11/01/17 03:06	11/01/17 03:06	ACG

² Tc³ Ss

DC-14-102617 L947166-10 GW

Collected by
Chris DCollected date/time
10/26/17 10:50Received date/time
10/28/17 08:45⁴ Cn

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037036	1	11/01/17 03:26	11/01/17 03:26	ACG

⁵ Sr⁶ Qc

TB2-102617 L947166-11 GW

Collected by
Chris DCollected date/time
10/25/17 00:00Received date/time
10/28/17 08:45⁷ Gl

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037036	1	11/01/17 00:12	11/01/17 00:12	ACG

⁸ Al⁹ Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 00:51	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 00:51	WG1037036
Benzene	ND		0.500	1	11/01/2017 00:51	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 00:51	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 00:51	WG1037036
Bromoform	ND		0.500	1	11/01/2017 00:51	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 00:51	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 00:51	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 00:51	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 00:51	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 00:51	WG1037036
Chloroform	ND		0.500	1	11/01/2017 00:51	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 00:51	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 00:51	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 00:51	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 00:51	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 00:51	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 00:51	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 00:51	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 00:51	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 00:51	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 00:51	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 00:51	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 00:51	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 00:51	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 00:51	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 00:51	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 00:51	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 00:51	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 00:51	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 00:51	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 00:51	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 00:51	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 00:51	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 00:51	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 00:51	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 00:51	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 00:51	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 00:51	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 00:51	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 00:51	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 00:51	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
Styrene	ND		0.500	1	11/01/2017 00:51	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 00:51	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 00:51	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 00:51	WG1037036
Tetrachloroethene	7.47		0.500	1	11/01/2017 00:51	WG1037036
Toluene	ND		0.500	1	11/01/2017 00:51	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 00:51	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 00:51	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 00:51	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 00:51	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 00:51	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 00:51	WG1037036
Vinyl acetate	ND	<u>JO</u>	5.00	1	11/01/2017 00:51	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 00:51	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 00:51	WG1037036
(S) Toluene-d8	107		80.0-120		11/01/2017 00:51	WG1037036
(S) Dibromofluoromethane	98.2		76.0-123		11/01/2017 00:51	WG1037036
(S) 4-Bromofluorobenzene	92.7		80.0-120		11/01/2017 00:51	WG1037036

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND	J4	25.0	1	11/01/2017 01:10	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 01:10	WG1037036
Benzene	ND		0.500	1	11/01/2017 01:10	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 01:10	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 01:10	WG1037036
Bromoform	ND		0.500	1	11/01/2017 01:10	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 01:10	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 01:10	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 01:10	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 01:10	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 01:10	WG1037036
Chloroform	ND		0.500	1	11/01/2017 01:10	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 01:10	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 01:10	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 01:10	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 01:10	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 01:10	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 01:10	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 01:10	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 01:10	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 01:10	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 01:10	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 01:10	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 01:10	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 01:10	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 01:10	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 01:10	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 01:10	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 01:10	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 01:10	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 01:10	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 01:10	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 01:10	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 01:10	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 01:10	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 01:10	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 01:10	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 01:10	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 01:10	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 01:10	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 01:10	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 01:10	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
Styrene	ND		0.500	1	11/01/2017 01:10	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 01:10	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 01:10	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 01:10	WG1037036
Tetrachloroethene	ND		0.500	1	11/01/2017 01:10	WG1037036
Toluene	ND		0.500	1	11/01/2017 01:10	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 01:10	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 01:10	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 01:10	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 01:10	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 01:10	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 01:10	WG1037036
Vinyl acetate	ND	<u>JO</u>	5.00	1	11/01/2017 01:10	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 01:10	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 01:10	WG1037036
(S) Toluene-d8	108		80.0-120		11/01/2017 01:10	WG1037036
(S) Dibromofluoromethane	100		76.0-123		11/01/2017 01:10	WG1037036
(S) 4-Bromofluorobenzene	94.4		80.0-120		11/01/2017 01:10	WG1037036

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 01:30	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 01:30	WG1037036
Benzene	ND		0.500	1	11/01/2017 01:30	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 01:30	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 01:30	WG1037036
Bromoform	ND		0.500	1	11/01/2017 01:30	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 01:30	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 01:30	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 01:30	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 01:30	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 01:30	WG1037036
Chloroform	ND		0.500	1	11/01/2017 01:30	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 01:30	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 01:30	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 01:30	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 01:30	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 01:30	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 01:30	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 01:30	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 01:30	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 01:30	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 01:30	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 01:30	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 01:30	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 01:30	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 01:30	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 01:30	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 01:30	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 01:30	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 01:30	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 01:30	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 01:30	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 01:30	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 01:30	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 01:30	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 01:30	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 01:30	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 01:30	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 01:30	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 01:30	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 01:30	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 01:30	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
Styrene	ND		0.500	1	11/01/2017 01:30	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 01:30	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 01:30	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 01:30	WG1037036
Tetrachloroethene	3.23		0.500	1	11/01/2017 01:30	WG1037036
Toluene	ND		0.500	1	11/01/2017 01:30	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 01:30	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 01:30	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 01:30	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 01:30	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 01:30	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 01:30	WG1037036
Vinyl acetate	ND	<u>JO</u>	5.00	1	11/01/2017 01:30	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 01:30	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 01:30	WG1037036
(S) Toluene-d8	107		80.0-120		11/01/2017 01:30	WG1037036
(S) Dibromofluoromethane	102		76.0-123		11/01/2017 01:30	WG1037036
(S) 4-Bromofluorobenzene	91.5		80.0-120		11/01/2017 01:30	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 01:49	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 01:49	WG1037036
Benzene	ND		0.500	1	11/01/2017 01:49	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 01:49	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 01:49	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 01:49	WG1037036
Bromoform	ND		0.500	1	11/01/2017 01:49	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 01:49	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 01:49	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 01:49	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 01:49	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 01:49	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 01:49	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 01:49	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 01:49	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 01:49	WG1037036
Chloroform	ND		0.500	1	11/01/2017 01:49	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 01:49	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 01:49	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 01:49	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 01:49	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 01:49	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 01:49	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 01:49	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 01:49	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 01:49	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 01:49	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 01:49	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 01:49	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 01:49	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 01:49	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 01:49	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 01:49	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 01:49	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 01:49	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 01:49	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 01:49	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 01:49	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 01:49	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 01:49	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 01:49	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 01:49	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 01:49	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 01:49	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 01:49	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 01:49	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 01:49	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 01:49	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 01:49	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 01:49	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 01:49	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 01:49	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 01:49	WG1037036
Styrene	ND		0.500	1	11/01/2017 01:49	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 01:49	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 01:49	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 01:49	WG1037036
Tetrachloroethene	4.21		0.500	1	11/01/2017 01:49	WG1037036
Toluene	ND		0.500	1	11/01/2017 01:49	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 01:49	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 01:49	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 01:49	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 01:49	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 01:49	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 01:49	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 01:49	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 01:49	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 01:49	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 01:49	WG1037036
Vinyl acetate	ND	<u>JO</u>	5.00	1	11/01/2017 01:49	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 01:49	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 01:49	WG1037036
(S) Toluene-d8	107		80.0-120		11/01/2017 01:49	WG1037036
(S) Dibromofluoromethane	101		76.0-123		11/01/2017 01:49	WG1037036
(S) 4-Bromofluorobenzene	95.0		80.0-120		11/01/2017 01:49	WG1037036

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND	J4	25.0	1	11/01/2017 02:08	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 02:08	WG1037036
Benzene	ND		0.500	1	11/01/2017 02:08	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 02:08	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 02:08	WG1037036
Bromoform	ND		0.500	1	11/01/2017 02:08	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 02:08	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 02:08	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 02:08	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 02:08	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 02:08	WG1037036
Chloroform	ND		0.500	1	11/01/2017 02:08	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 02:08	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 02:08	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 02:08	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 02:08	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 02:08	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 02:08	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 02:08	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 02:08	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 02:08	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 02:08	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 02:08	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 02:08	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 02:08	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 02:08	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 02:08	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 02:08	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 02:08	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 02:08	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 02:08	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 02:08	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 02:08	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 02:08	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 02:08	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 02:08	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 02:08	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 02:08	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 02:08	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 02:08	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 02:08	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 02:08	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
Styrene	ND		0.500	1	11/01/2017 02:08	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 02:08	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 02:08	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 02:08	WG1037036
Tetrachloroethene	1.35		0.500	1	11/01/2017 02:08	WG1037036
Toluene	ND		0.500	1	11/01/2017 02:08	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 02:08	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 02:08	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 02:08	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 02:08	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 02:08	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 02:08	WG1037036
Vinyl acetate	ND	<u>JO</u>	5.00	1	11/01/2017 02:08	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 02:08	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 02:08	WG1037036
(S) Toluene-d8	106		80.0-120		11/01/2017 02:08	WG1037036
(S) Dibromofluoromethane	99.5		76.0-123		11/01/2017 02:08	WG1037036
(S) 4-Bromofluorobenzene	90.9		80.0-120		11/01/2017 02:08	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 02:27	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 02:27	WG1037036
Benzene	ND		0.500	1	11/01/2017 02:27	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 02:27	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 02:27	WG1037036
Bromoform	ND		0.500	1	11/01/2017 02:27	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 02:27	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 02:27	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 02:27	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 02:27	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 02:27	WG1037036
Chloroform	ND		0.500	1	11/01/2017 02:27	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 02:27	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 02:27	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 02:27	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 02:27	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 02:27	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 02:27	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 02:27	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 02:27	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 02:27	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 02:27	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 02:27	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 02:27	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 02:27	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 02:27	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 02:27	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 02:27	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 02:27	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 02:27	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 02:27	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 02:27	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 02:27	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 02:27	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 02:27	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 02:27	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 02:27	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 02:27	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 02:27	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 02:27	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 02:27	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 02:27	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
Styrene	ND		0.500	1	11/01/2017 02:27	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 02:27	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 02:27	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 02:27	WG1037036
Tetrachloroethene	0.770		0.500	1	11/01/2017 02:27	WG1037036
Toluene	ND		0.500	1	11/01/2017 02:27	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 02:27	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 02:27	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 02:27	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 02:27	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 02:27	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 02:27	WG1037036
Vinyl acetate	ND	<u>JO</u>	5.00	1	11/01/2017 02:27	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 02:27	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 02:27	WG1037036
(S) Toluene-d8	106		80.0-120		11/01/2017 02:27	WG1037036
(S) Dibromofluoromethane	98.0		76.0-123		11/01/2017 02:27	WG1037036
(S) 4-Bromofluorobenzene	93.7		80.0-120		11/01/2017 02:27	WG1037036

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND	J4	25.0	1	11/01/2017 22:32	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 22:32	WG1037036
Benzene	ND		0.500	1	11/01/2017 22:32	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 22:32	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 22:32	WG1037036
Bromoform	ND		0.500	1	11/01/2017 22:32	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 22:32	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 22:32	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 22:32	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 22:32	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 22:32	WG1037036
Chloroform	ND		0.500	1	11/01/2017 22:32	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 22:32	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 22:32	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 22:32	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 22:32	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 22:32	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 22:32	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 22:32	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 22:32	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 22:32	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 22:32	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 22:32	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 22:32	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 22:32	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 22:32	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 22:32	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 22:32	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 22:32	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 22:32	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 22:32	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 22:32	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 22:32	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 22:32	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 22:32	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 22:32	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 22:32	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 22:32	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 22:32	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 22:32	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 22:32	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 22:32	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
Styrene	ND		0.500	1	11/01/2017 22:32	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 22:32	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 22:32	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 22:32	WG1037036
Tetrachloroethene	1.55		0.500	1	11/01/2017 22:32	WG1037036
Toluene	ND		0.500	1	11/01/2017 22:32	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 22:32	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 22:32	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 22:32	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 22:32	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 22:32	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 22:32	WG1037036
Vinyl acetate	ND		5.00	1	11/01/2017 22:32	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 22:32	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 22:32	WG1037036
(S) Toluene-d8	104		80.0-120		11/01/2017 22:32	WG1037036
(S) Dibromofluoromethane	101		76.0-123		11/01/2017 22:32	WG1037036
(S) 4-Bromofluorobenzene	91.3		80.0-120		11/01/2017 22:32	WG1037036

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND	J4	25.0	1	11/01/2017 02:47	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 02:47	WG1037036
Benzene	ND		0.500	1	11/01/2017 02:47	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 02:47	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 02:47	WG1037036
Bromoform	ND		0.500	1	11/01/2017 02:47	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 02:47	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 02:47	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 02:47	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 02:47	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 02:47	WG1037036
Chloroform	ND		0.500	1	11/01/2017 02:47	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 02:47	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 02:47	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 02:47	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 02:47	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 02:47	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 02:47	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 02:47	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 02:47	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 02:47	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 02:47	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 02:47	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 02:47	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 02:47	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 02:47	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 02:47	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 02:47	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 02:47	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 02:47	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 02:47	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 02:47	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 02:47	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 02:47	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 02:47	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 02:47	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 02:47	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 02:47	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 02:47	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 02:47	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 02:47	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 02:47	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
Styrene	ND		0.500	1	11/01/2017 02:47	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 02:47	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 02:47	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 02:47	WG1037036
Tetrachloroethene	2.15		0.500	1	11/01/2017 02:47	WG1037036
Toluene	ND		0.500	1	11/01/2017 02:47	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 02:47	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 02:47	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 02:47	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 02:47	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 02:47	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 02:47	WG1037036
Vinyl acetate	ND	JO	5.00	1	11/01/2017 02:47	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 02:47	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 02:47	WG1037036
(S) Toluene-d8	107		80.0-120		11/01/2017 02:47	WG1037036
(S) Dibromofluoromethane	99.0		76.0-123		11/01/2017 02:47	WG1037036
(S) 4-Bromofluorobenzene	91.1		80.0-120		11/01/2017 02:47	WG1037036

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND	J4	25.0	1	11/01/2017 03:06	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 03:06	WG1037036
Benzene	ND		0.500	1	11/01/2017 03:06	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 03:06	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 03:06	WG1037036
Bromoform	ND		0.500	1	11/01/2017 03:06	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 03:06	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 03:06	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 03:06	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 03:06	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 03:06	WG1037036
Chloroform	ND		0.500	1	11/01/2017 03:06	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 03:06	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 03:06	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 03:06	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 03:06	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 03:06	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 03:06	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 03:06	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 03:06	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 03:06	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 03:06	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 03:06	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 03:06	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 03:06	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 03:06	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 03:06	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 03:06	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 03:06	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 03:06	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 03:06	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 03:06	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 03:06	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 03:06	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 03:06	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 03:06	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 03:06	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 03:06	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 03:06	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 03:06	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 03:06	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 03:06	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
Styrene	ND		0.500	1	11/01/2017 03:06	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 03:06	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 03:06	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 03:06	WG1037036
Tetrachloroethene	5.78		0.500	1	11/01/2017 03:06	WG1037036
Toluene	ND		0.500	1	11/01/2017 03:06	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 03:06	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 03:06	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 03:06	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 03:06	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 03:06	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 03:06	WG1037036
Vinyl acetate	ND	<u>JO</u>	5.00	1	11/01/2017 03:06	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 03:06	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 03:06	WG1037036
(S) Toluene-d8	104		80.0-120		11/01/2017 03:06	WG1037036
(S) Dibromofluoromethane	101		76.0-123		11/01/2017 03:06	WG1037036
(S) 4-Bromofluorobenzene	87.9		80.0-120		11/01/2017 03:06	WG1037036

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 03:26	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 03:26	WG1037036
Benzene	ND		0.500	1	11/01/2017 03:26	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 03:26	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 03:26	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 03:26	WG1037036
Bromoform	ND		0.500	1	11/01/2017 03:26	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 03:26	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 03:26	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 03:26	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 03:26	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 03:26	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 03:26	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 03:26	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 03:26	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 03:26	WG1037036
Chloroform	2.23		0.500	1	11/01/2017 03:26	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 03:26	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 03:26	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 03:26	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 03:26	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 03:26	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 03:26	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 03:26	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 03:26	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 03:26	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 03:26	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 03:26	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 03:26	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 03:26	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 03:26	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 03:26	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 03:26	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 03:26	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 03:26	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 03:26	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 03:26	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 03:26	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 03:26	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 03:26	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 03:26	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 03:26	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 03:26	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 03:26	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 03:26	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 03:26	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 03:26	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 03:26	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 03:26	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 03:26	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 03:26	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 03:26	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 03:26	WG1037036
Styrene	ND		0.500	1	11/01/2017 03:26	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 03:26	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 03:26	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 03:26	WG1037036
Tetrachloroethene	5.40		0.500	1	11/01/2017 03:26	WG1037036
Toluene	ND		0.500	1	11/01/2017 03:26	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 03:26	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 03:26	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 03:26	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 03:26	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 03:26	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 03:26	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 03:26	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 03:26	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 03:26	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 03:26	WG1037036
Vinyl acetate	ND	<u>JO</u>	5.00	1	11/01/2017 03:26	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 03:26	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 03:26	WG1037036
(S) Toluene-d8	106		80.0-120		11/01/2017 03:26	WG1037036
(S) Dibromofluoromethane	102		76.0-123		11/01/2017 03:26	WG1037036
(S) 4-Bromofluorobenzene	87.4		80.0-120		11/01/2017 03:26	WG1037036

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 00:12	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 00:12	WG1037036
Benzene	ND		0.500	1	11/01/2017 00:12	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 00:12	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 00:12	WG1037036
Bromoform	ND		0.500	1	11/01/2017 00:12	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 00:12	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 00:12	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 00:12	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 00:12	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 00:12	WG1037036
Chloroform	ND		0.500	1	11/01/2017 00:12	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 00:12	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 00:12	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 00:12	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 00:12	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 00:12	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 00:12	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 00:12	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 00:12	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 00:12	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 00:12	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 00:12	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 00:12	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 00:12	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 00:12	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 00:12	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 00:12	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 00:12	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 00:12	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 00:12	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 00:12	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 00:12	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 00:12	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 00:12	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 00:12	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 00:12	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 00:12	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 00:12	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 00:12	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 00:12	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 00:12	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
Styrene	ND		0.500	1	11/01/2017 00:12	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 00:12	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 00:12	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 10/25/17 00:00

L947166

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 00:12	WG1037036
Tetrachloroethene	ND		0.500	1	11/01/2017 00:12	WG1037036
Toluene	ND		0.500	1	11/01/2017 00:12	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 00:12	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 00:12	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 00:12	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 00:12	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 00:12	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 00:12	WG1037036
Vinyl acetate	ND	<u>JO</u>	5.00	1	11/01/2017 00:12	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 00:12	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 00:12	WG1037036
(S) Toluene-d8	105		80.0-120		11/01/2017 00:12	WG1037036
(S) Dibromofluoromethane	99.0		76.0-123		11/01/2017 00:12	WG1037036
(S) 4-Bromofluorobenzene	94.5		80.0-120		11/01/2017 00:12	WG1037036

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Method Blank (MB)

(MB) R3262249-2 10/31/17 23:53

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acetone	1.26	U	1.05	25.0
Acrylonitrile	U		0.873	5.00
Benzene	U		0.0896	0.500
Bromobenzene	U		0.133	0.500
Bromodichloromethane	U		0.0800	0.500
Bromochloromethane	U		0.145	0.500
Bromoform	U		0.186	0.500
Bromomethane	U		0.157	2.50
n-Butylbenzene	U		0.143	0.500
sec-Butylbenzene	U		0.134	0.500
tert-Butylbenzene	U		0.183	0.500
Carbon disulfide	U		0.101	0.500
Carbon tetrachloride	U		0.159	0.500
Chlorobenzene	U		0.140	0.500
Chlorodibromomethane	U		0.128	0.500
Chloroethane	U		0.141	2.50
Chloroform	U		0.0860	0.500
Chloromethane	U		0.153	1.25
2-Chlorotoluene	U		0.111	0.500
4-Chlorotoluene	U		0.0972	0.500
1,2-Dibromo-3-Chloropropane	U		0.325	2.50
1,2-Dibromoethane	U		0.193	0.500
Dibromomethane	U		0.117	0.500
1,2-Dichlorobenzene	U		0.101	0.500
1,3-Dichlorobenzene	U		0.130	0.500
1,4-Dichlorobenzene	U		0.121	0.500
Dichlorodifluoromethane	U		0.127	2.50
1,1-Dichloroethane	U		0.114	0.500
1,2-Dichloroethane	U		0.108	0.500
1,1-Dichloroethene	U		0.188	0.500
cis-1,2-Dichloroethene	U		0.0933	0.500
trans-1,2-Dichloroethene	U		0.152	0.500
1,2-Dichloropropane	U		0.190	0.500
1,1-Dichloropropene	U		0.128	0.500
1,3-Dichloropropane	U		0.147	1.00
cis-1,3-Dichloropropene	U		0.0976	0.500
trans-1,3-Dichloropropene	U		0.222	0.500
trans-1,4-Dichloro-2-butene	U		0.257	5.00
2,2-Dichloropropane	U		0.0929	0.500
Di-isopropyl ether	U		0.0924	0.500

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3262249-2 10/31/17 23:53

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Ethylbenzene	U		0.158	0.500
Hexachloro-1,3-butadiene	U		0.157	1.00
2-Hexanone	U		0.757	5.00
n-Hexane	U		0.305	5.00
Iodomethane	U		0.377	10.0
Isopropylbenzene	U		0.126	0.500
p-Isopropyltoluene	U		0.138	0.500
2-Butanone (MEK)	U		1.28	5.00
Methylene Chloride	U		1.07	2.50
4-Methyl-2-pentanone (MIBK)	U		0.823	5.00
Methyl tert-butyl ether	U		0.102	0.500
Naphthalene	U		0.174	2.50
n-Propylbenzene	U		0.162	0.500
Styrene	U		0.117	0.500
1,1,1,2-Tetrachloroethane	U		0.120	0.500
1,1,2,2-Tetrachloroethane	U		0.130	0.500
1,1,2-Trichlorotrifluoroethane	U		0.164	0.500
Tetrachloroethene	U		0.199	0.500
Toluene	U		0.412	0.500
1,2,3-Trichlorobenzene	U		0.164	0.500
1,2,4-Trichlorobenzene	U		0.355	0.500
1,1,1-Trichloroethane	U		0.0940	0.500
1,1,2-Trichloroethane	U		0.186	0.500
Trichloroethene	U		0.153	0.500
Trichlorofluoromethane	U		0.130	2.50
1,2,3-Trichloropropane	U		0.247	2.50
1,2,4-Trimethylbenzene	U		0.123	0.500
1,2,3-Trimethylbenzene	U		0.0739	0.500
1,3,5-Trimethylbenzene	U		0.124	0.500
Vinyl acetate	U		0.645	5.00
Vinyl chloride	U		0.118	0.500
Xylenes, Total	U		0.316	1.50
(S) Toluene-d8	108			80.0-120
(S) Dibromofluoromethane	96.3			76.0-123
(S) 4-Bromofluorobenzene	92.8			80.0-120

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Laboratory Control Sample (LCS)

(LCS) R3262249-1 10/31/17 23:15

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acetone	125	204	163	10.0-160	J4
Acrylonitrile	125	123	98.2	60.0-142	
Benzene	25.0	24.3	97.3	69.0-123	
Bromobenzene	25.0	22.4	89.6	79.0-120	
Bromodichloromethane	25.0	25.8	103	76.0-120	
Bromochloromethane	25.0	23.2	92.9	76.0-122	
Bromoform	25.0	22.1	88.5	67.0-132	
Bromomethane	25.0	25.1	100	18.0-160	
n-Butylbenzene	25.0	25.2	101	72.0-126	
sec-Butylbenzene	25.0	23.9	95.7	74.0-121	
tert-Butylbenzene	25.0	23.4	93.4	75.0-122	
Carbon disulfide	25.0	24.5	97.8	55.0-127	
Carbon tetrachloride	25.0	23.7	95.0	63.0-122	
Chlorobenzene	25.0	25.3	101	79.0-121	
Chlorodibromomethane	25.0	26.3	105	75.0-125	
Chloroethane	25.0	22.8	91.3	47.0-152	
Chloroform	25.0	24.1	96.2	72.0-121	
Chloromethane	25.0	24.7	98.7	48.0-139	
2-Chlorotoluene	25.0	23.0	91.8	74.0-122	
4-Chlorotoluene	25.0	23.3	93.0	79.0-120	
1,2-Dibromo-3-Chloropropane	25.0	24.3	97.1	64.0-127	
1,2-Dibromoethane	25.0	24.4	97.7	77.0-123	
Dibromomethane	25.0	24.1	96.3	78.0-120	
1,2-Dichlorobenzene	25.0	24.6	98.6	80.0-120	
1,3-Dichlorobenzene	25.0	23.7	94.8	72.0-123	
1,4-Dichlorobenzene	25.0	24.3	97.1	77.0-120	
Dichlorodifluoromethane	25.0	25.1	101	49.0-155	
1,1-Dichloroethane	25.0	25.1	100	70.0-126	
1,2-Dichloroethane	25.0	24.8	99.3	67.0-126	
1,1-Dichloroethene	25.0	24.7	99.0	64.0-129	
cis-1,2-Dichloroethene	25.0	23.3	93.1	73.0-120	
trans-1,2-Dichloroethene	25.0	24.7	99.0	71.0-121	
1,2-Dichloropropane	25.0	24.2	96.9	75.0-125	
1,1-Dichloropropene	25.0	23.7	94.8	71.0-129	
1,3-Dichloropropane	25.0	25.5	102	80.0-121	
cis-1,3-Dichloropropene	25.0	25.8	103	79.0-123	
trans-1,3-Dichloropropene	25.0	25.5	102	74.0-127	
trans-1,4-Dichloro-2-butene	25.0	22.9	91.4	55.0-134	
2,2-Dichloropropane	25.0	22.8	91.2	60.0-125	
Di-isopropyl ether	25.0	23.9	95.6	59.0-133	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Laboratory Control Sample (LCS)

(LCS) R3262249-1 10/31/17 23:15

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Ethylbenzene	25.0	25.8	103	77.0-120	
Hexachloro-1,3-butadiene	25.0	24.7	98.9	64.0-131	
2-Hexanone	125	147	118	58.0-147	
n-Hexane	25.0	22.8	91.4	56.0-124	
Iodomethane	125	125	99.6	57.0-140	
Isopropylbenzene	25.0	23.6	94.5	75.0-120	
p-Isopropyltoluene	25.0	24.6	98.3	74.0-126	
2-Butanone (MEK)	125	163	130	37.0-158	
Methylene Chloride	25.0	23.7	94.9	66.0-121	
4-Methyl-2-pentanone (MIBK)	125	125	100	59.0-143	
Methyl tert-butyl ether	25.0	23.4	93.7	64.0-123	
Naphthalene	25.0	26.7	107	62.0-128	
n-Propylbenzene	25.0	23.2	92.8	79.0-120	
Styrene	25.0	24.0	95.9	78.0-124	
1,1,1,2-Tetrachloroethane	25.0	24.6	98.3	75.0-122	
1,1,2,2-Tetrachloroethane	25.0	21.7	86.8	71.0-122	
1,1,2-Trichlorotrifluoroethane	25.0	25.2	101	61.0-136	
Tetrachloroethene	25.0	24.0	96.0	70.0-127	
Toluene	25.0	25.6	102	77.0-120	
1,2,3-Trichlorobenzene	25.0	26.7	107	61.0-133	
1,2,4-Trichlorobenzene	25.0	25.1	101	69.0-129	
1,1,1-Trichloroethane	25.0	25.7	103	68.0-122	
1,1,2-Trichloroethane	25.0	25.1	100	78.0-120	
Trichloroethene	25.0	26.1	105	78.0-120	
Trichlorofluoromethane	25.0	24.7	98.8	56.0-137	
1,2,3-Trichloropropane	25.0	22.6	90.6	72.0-124	
1,2,4-Trimethylbenzene	25.0	23.1	92.3	75.0-120	
1,2,3-Trimethylbenzene	25.0	25.0	100	75.0-120	
1,3,5-Trimethylbenzene	25.0	23.5	93.9	75.0-120	
Vinyl acetate	125	86.3	69.0	46.0-160	
Vinyl chloride	25.0	23.9	95.6	64.0-133	
Xylenes, Total	75.0	74.7	99.6	77.0-120	
(S) Toluene-d8			107	80.0-120	
(S) Dibromofluoromethane			102	76.0-123	
(S) 4-Bromofluorobenzene			95.8	80.0-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
J0	J0: Calibration verification outside of acceptance limits. Result is estimated.
J4	The associated batch QC was outside the established quality control range for accuracy.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

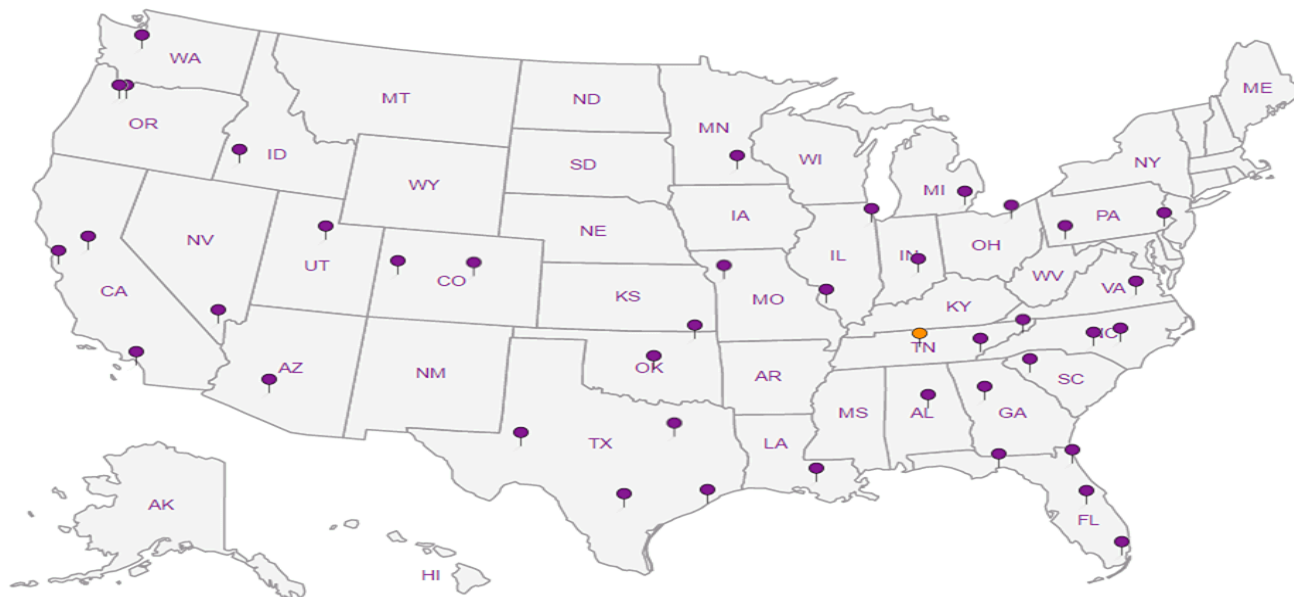
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



PES Environmental, Inc.- WA

1215 Fourth Ave., Suite 1350
Seattle, WA 98161

Billing Information:

Attn: Accounts Payable
1215 Fourth Ave., Ste. 1350
Seattle, WA 98161

Pres
Chk

Report to:
Karsten Springstead

Email To: kspringstead@pesenv.com

Project Description: *Manhattan Village Shopping Center*

City/State Collected: *Des Moines, WA*

Phone: 206-529-3980
Fax: 206-529-3985

Client Project #
1358.001.01.003

Lab Project #
PESENVSWA-SPRINGSTEA

Collected by (print):

C. DeBoer

Site/Facility ID #

MVSC

P.O. #

Collected by (signature):

Chris DeBoer

Rush? (Lab MUST Be Notified)

☐ Same Day ☐ Five Day
☐ Next Day ☐ 5 Day (Rad Only)
☐ Two Day ☐ 10 Day (Rad Only)
☐ Three Day

Quote #

Date Results Needed

Immediately
Packed on Ice N ☐ Y ☒

No.
of
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
MW-7-102517	Grab	GW		10/25/17	925	3
KMW-7-102517		GW			1020	3
MW-4-102517		GW			1130	3
MW-3-102517		GW			1300	3
DL-11-102617		GW		10/26/17	0745	3
KMW-9-102617		GW			820	3
MW-2-102617		GW			850	3
MW-11-102617		GW			925	3
KMW-3-102617		GW			1010	3
DL-14-102617		GW			1050	3

V8260LLC VOCs 40mlAmb-HCI

Analysis / Container / Preservative

Chain of Custody Page of



12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



L# *L947166*

B046

Acctnum: PESENVSWA

Template: T128770

Prelogin: P622069

TSR: 110 - Brian Ford

PB: *10-16-17*

Shipped Via: **FedEX Ground**

Remarks Sample # (lab only)

-01
-02
-03
-04
-05
-06
-07
-08
-09
-10

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks:

Samples returned via:
☐ UPS ☐ FedEx ☐ Courier

Tracking #

pH Temp

Flow Other

Sample Receipt Checklist

COC Seal Present/Intact: ☒ NP ☐ N
COC Signed/Accurate: ☒ N
Bottles arrive intact: ☒ N
Correct bottles used: ☒ N
Sufficient volume sent: ☒ N
If Applicable
VOA Zero Headspace: ☒ N
Preservation Correct/Checked: ☒ Y ☐ N

Relinquished by: (Signature)

Chris DeBoer

Date:

10/27/17

Time:

1140

Received by: (Signature)

Trip Blank Received: ☒ Yes / No
HCL / MeOH
TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: *5.9* °C Bottles Received: *30*

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (signature)

Mint

Date: *10-28-17* Time: *0845*

Hold:

Condition
NCF / ☒ OK

MEMORANDUM

TO: Project File **DATE:** November 7, 2017
FROM: Jessie Compeau
SUBJECT: Laboratory Data Validation Review
PROJECT: Manhattan Village Shopping Center
PROJECT #: 1358.001.01.003
TASK: October 26-27, 2017 Groundwater Samples
LAB: ECS Lab Sciences Request No. L947181

Seven groundwater samples, including a field duplicate, an equipment blank, and a trip blank were collected to evaluate performance of the air sparging and soil vapor extraction remediation system at the Manhattan Village Shopping Centre site in Normandy Park, Washington on October 26-27 of 2017. Samples were analyzed for VOCs by USEPA Method 8260C. Laboratory analytical services were provided by ESC Lab Sciences (ESC) of Mt. Juliet, Tennessee (ESC Report: L947181).

The monitoring event occurred between October 23 and 27 of 2017. Associated sample data are reported in 4 ESC SDGs (SDGs L946305/L947200, L947166, and L947181). The quality assurance review of the laboratory data for SDG L947181 is summarized below.

DATA QUALIFICATIONS

Guidelines established by USEPA for review of analytical data were used to validate the data. The comments presented in this memorandum refer to the laboratory's performance in meeting the quality control criteria outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (USEPA, 2017).

DATA VALIDATION

Completeness

All samples were collected and analyzed as requested. No concerns, issues, or anomalies were identified in the laboratory report.

Sample Collection and Preservation

The samples were stored on ice in the cooler and delivered in good condition to the laboratory. Cooler temperature at the time of receipt was measured at 1.4 degrees Centigrade (°C). The cooler temperatures were within EPA's recommended temperature preservation range of less than 6.0 °C. No data qualifications were warranted.

Holding Times

All samples were analyzed for VOCs within the EPA recommended holding time of 14 days (preserved water). All holding time criteria were met.

Initial and Continuing Calibration

Calibration data for this project are not required for this deliverable however ESC's notes indicate the following:

- *USEPA Method 8260C*: Continuing calibration verification (CCV) issues were noted by ESC for vinyl acetate associated with analytical batch WG1037036 (analyzed on November 1, 2017). These results are qualified by the laboratory "J0" to indicate that percent difference CCVs are outside of laboratory acceptance criteria. **All associated sample results with laboratory qualified J0 results are estimated and qualified (UJ/J).**

Method Blank Results

A laboratory method blank was included with the analytical batch per method requirement. The target analytes (VOCs) were not detected in the method blank at a concentration at or above the method reporting limits (MRLs) with one exception:

- A low level of acetone was detected below the MRL and above the method detection limit (MDL) in the method blank. No action was taken as this compound was not detected in the associated samples.

Trip Blank Results

The target analytes (VOCs) were not detected in the trip blank at concentrations at or above the method reporting limits (MRLs).

Equipment Blank Results

The target analytes (VOCs) were not detected in the equipment blank (EQ-102717) at concentrations at or above the method reporting limits (MRLs).

Field Duplicate Analyses

Field duplicate samples (DC-10A and MW-102-102617) were collected and analyzed for VOCs. Results are comparable with relative percent difference (RPDs) of less than 20%.

Laboratory Duplicate Analyses

Laboratory duplicate analysis was not performed. Refer to field duplicate results for precision data.

Surrogate Recoveries

The surrogate percent recovery (%R) results for the samples, method blank, and laboratory control samples are within the laboratory surrogate control limits. No data qualifications were warranted.

Laboratory Control Samples

The laboratory control sample %R's are within the laboratory control limits with one exception and discussion:

- LCS (Batch WG1037036) % recovery for acetone is above laboratory criteria and qualified by the laboratory (J4). No action was taken on this basis since acetone was not detected in the associated samples.
- A laboratory control sample duplicate was not performed. Refer to field duplicate results for precision data.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) analyses were not performed. Refer to LCS and field duplicate results for accuracy and precision data.

Other Quality Control Issues

No other laboratory quality control issues were identified in the laboratory report.

Quantitation Limits

Results of the USEPA 8260 VOC analyses were reported based on laboratory MRLs. The MRLs indicate the minimum quantity of a target analyte that can be confidently determined by the reference method. The MRLs were acceptable for the project; therefore, no data qualifications were warranted.

Data Assessment

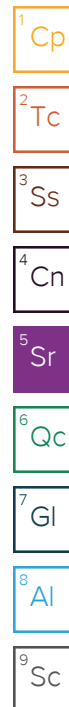
Data qualifiers were assigned and laboratory report pages with qualifiers are attached. All data, including qualified data, are judged to be acceptable for their intended use.



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 03:45	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 03:45	WG1037036
Benzene	ND		0.500	1	11/01/2017 03:45	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 03:45	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 03:45	WG1037036
Bromoform	ND		0.500	1	11/01/2017 03:45	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 03:45	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 03:45	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 03:45	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 03:45	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 03:45	WG1037036
Chloroform	1.15		0.500	1	11/01/2017 03:45	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 03:45	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 03:45	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 03:45	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 03:45	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 03:45	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 03:45	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 03:45	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 03:45	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 03:45	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 03:45	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 03:45	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 03:45	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 03:45	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 03:45	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 03:45	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 03:45	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 03:45	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 03:45	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 03:45	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 03:45	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 03:45	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 03:45	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 03:45	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 03:45	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 03:45	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 03:45	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 03:45	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 03:45	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 03:45	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 03:45	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
Styrene	ND		0.500	1	11/01/2017 03:45	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 03:45	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 03:45	WG1037036

JC 11/7/17





Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 03:45	WG1037036
Tetrachloroethene	4.99		0.500	1	11/01/2017 03:45	WG1037036
Toluene	ND		0.500	1	11/01/2017 03:45	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 03:45	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 03:45	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 03:45	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 03:45	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 03:45	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 03:45	WG1037036
Vinyl acetate	ND	UJ JO	5.00	1	11/01/2017 03:45	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 03:45	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 03:45	WG1037036
(S) Toluene-d8	106		80.0-120		11/01/2017 03:45	WG1037036
(S) Dibromofluoromethane	103		76.0-123		11/01/2017 03:45	WG1037036
(S) 4-Bromofluorobenzene	87.8		80.0-120		11/01/2017 03:45	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

JC 11/7/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 04:04	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 04:04	WG1037036
Benzene	ND		0.500	1	11/01/2017 04:04	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 04:04	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 04:04	WG1037036
Bromoform	ND		0.500	1	11/01/2017 04:04	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 04:04	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 04:04	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 04:04	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 04:04	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 04:04	WG1037036
Chloroform	3.00		0.500	1	11/01/2017 04:04	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 04:04	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 04:04	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 04:04	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 04:04	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 04:04	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 04:04	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 04:04	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 04:04	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 04:04	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 04:04	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 04:04	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 04:04	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 04:04	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 04:04	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 04:04	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 04:04	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 04:04	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 04:04	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 04:04	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 04:04	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 04:04	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 04:04	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 04:04	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 04:04	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 04:04	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 04:04	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 04:04	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 04:04	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 04:04	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 04:04	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
Styrene	ND		0.500	1	11/01/2017 04:04	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 04:04	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 04:04	WG1037036

JC 11/7/17

ACCOUNT:

PES Environmental, Inc.- WA

PROJECT:

1358.001.01.003

SDG:

L947181

DATE/TIME:

11/06/17 11:53

PAGE:

8 of 30

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 04:04	WG1037036
Tetrachloroethene	3.26		0.500	1	11/01/2017 04:04	WG1037036
Toluene	ND		0.500	1	11/01/2017 04:04	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 04:04	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 04:04	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 04:04	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 04:04	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 04:04	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 04:04	WG1037036
Vinyl acetate	ND	UJ JO	5.00	1	11/01/2017 04:04	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 04:04	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 04:04	WG1037036
(S) Toluene-d8	106		80.0-120		11/01/2017 04:04	WG1037036
(S) Dibromofluoromethane	99.8		76.0-123		11/01/2017 04:04	WG1037036
(S) 4-Bromofluorobenzene	85.5		80.0-120		11/01/2017 04:04	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

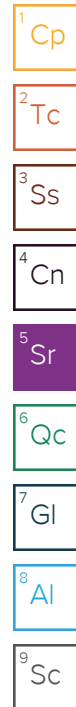
9 Sc

JC 11/7/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 04:23	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 04:23	WG1037036
Benzene	ND		0.500	1	11/01/2017 04:23	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 04:23	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 04:23	WG1037036
Bromoform	ND		0.500	1	11/01/2017 04:23	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 04:23	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 04:23	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 04:23	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 04:23	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 04:23	WG1037036
Chloroform	ND		0.500	1	11/01/2017 04:23	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 04:23	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 04:23	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 04:23	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 04:23	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 04:23	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 04:23	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 04:23	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 04:23	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 04:23	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 04:23	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 04:23	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 04:23	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 04:23	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 04:23	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 04:23	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 04:23	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 04:23	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 04:23	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 04:23	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 04:23	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 04:23	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 04:23	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 04:23	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 04:23	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 04:23	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 04:23	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 04:23	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 04:23	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 04:23	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 04:23	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
Styrene	ND		0.500	1	11/01/2017 04:23	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 04:23	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 04:23	WG1037036



JC 11/7/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 04:23	WG1037036
Tetrachloroethene	5.52		0.500	1	11/01/2017 04:23	WG1037036
Toluene	ND		0.500	1	11/01/2017 04:23	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 04:23	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 04:23	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 04:23	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 04:23	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 04:23	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 04:23	WG1037036
Vinyl acetate	ND	UJ JO	5.00	1	11/01/2017 04:23	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 04:23	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 04:23	WG1037036
(S) Toluene-d8	105		80.0-120		11/01/2017 04:23	WG1037036
(S) Dibromofluoromethane	102		76.0-123		11/01/2017 04:23	WG1037036
(S) 4-Bromofluorobenzene	91.4		80.0-120		11/01/2017 04:23	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

JC 11/7/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 04:42	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 04:42	WG1037036
Benzene	ND		0.500	1	11/01/2017 04:42	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 04:42	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 04:42	WG1037036
Bromoform	ND		0.500	1	11/01/2017 04:42	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 04:42	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 04:42	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 04:42	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 04:42	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 04:42	WG1037036
Chloroform	ND		0.500	1	11/01/2017 04:42	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 04:42	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 04:42	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 04:42	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 04:42	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 04:42	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 04:42	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 04:42	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 04:42	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 04:42	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 04:42	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 04:42	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 04:42	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 04:42	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 04:42	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 04:42	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 04:42	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 04:42	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 04:42	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 04:42	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 04:42	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 04:42	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 04:42	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 04:42	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 04:42	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 04:42	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 04:42	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 04:42	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 04:42	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 04:42	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 04:42	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
Styrene	ND		0.500	1	11/01/2017 04:42	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 04:42	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 04:42	WG1037036

JC 11/7/17





Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 04:42	WG1037036
Tetrachloroethene	4.72		0.500	1	11/01/2017 04:42	WG1037036
Toluene	ND		0.500	1	11/01/2017 04:42	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 04:42	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 04:42	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 04:42	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 04:42	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 04:42	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 04:42	WG1037036
Vinyl acetate	ND	UJ JO	5.00	1	11/01/2017 04:42	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 04:42	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 04:42	WG1037036
(S) Toluene-d8	107		80.0-120		11/01/2017 04:42	WG1037036
(S) Dibromofluoromethane	102		76.0-123		11/01/2017 04:42	WG1037036
(S) 4-Bromofluorobenzene	89.2		80.0-120		11/01/2017 04:42	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

JC 11/7/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND	J4	25.0	1	11/01/2017 05:01	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 05:01	WG1037036
Benzene	ND		0.500	1	11/01/2017 05:01	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 05:01	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 05:01	WG1037036
Bromoform	ND		0.500	1	11/01/2017 05:01	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 05:01	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 05:01	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 05:01	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 05:01	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 05:01	WG1037036
Chloroform	ND		0.500	1	11/01/2017 05:01	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 05:01	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 05:01	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 05:01	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 05:01	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 05:01	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 05:01	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 05:01	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 05:01	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 05:01	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 05:01	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 05:01	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 05:01	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 05:01	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 05:01	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 05:01	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 05:01	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 05:01	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 05:01	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 05:01	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 05:01	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 05:01	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 05:01	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 05:01	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 05:01	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 05:01	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 05:01	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 05:01	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 05:01	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 05:01	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 05:01	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
Styrene	ND		0.500	1	11/01/2017 05:01	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 05:01	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 05:01	WG1037036

JC 11/7/17





Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 05:01	WG1037036
Tetrachloroethene	1.66		0.500	1	11/01/2017 05:01	WG1037036
Toluene	ND		0.500	1	11/01/2017 05:01	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 05:01	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 05:01	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 05:01	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 05:01	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 05:01	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 05:01	WG1037036
Vinyl acetate	ND	UJ JO	5.00	1	11/01/2017 05:01	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 05:01	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 05:01	WG1037036
(S) Toluene-d8	106		80.0-120		11/01/2017 05:01	WG1037036
(S) Dibromofluoromethane	100		76.0-123		11/01/2017 05:01	WG1037036
(S) 4-Bromofluorobenzene	88.7		80.0-120		11/01/2017 05:01	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

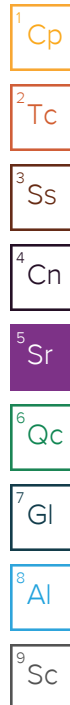
JC 11/7/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND	J4	25.0	1	11/01/2017 05:21	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 05:21	WG1037036
Benzene	ND		0.500	1	11/01/2017 05:21	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 05:21	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 05:21	WG1037036
Bromoform	ND		0.500	1	11/01/2017 05:21	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 05:21	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 05:21	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 05:21	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 05:21	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 05:21	WG1037036
Chloroform	ND		0.500	1	11/01/2017 05:21	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 05:21	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 05:21	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 05:21	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 05:21	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 05:21	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 05:21	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 05:21	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 05:21	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 05:21	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 05:21	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 05:21	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 05:21	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 05:21	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 05:21	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 05:21	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 05:21	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 05:21	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 05:21	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 05:21	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 05:21	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 05:21	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 05:21	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 05:21	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 05:21	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 05:21	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 05:21	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 05:21	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 05:21	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 05:21	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 05:21	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
Styrene	ND		0.500	1	11/01/2017 05:21	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 05:21	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 05:21	WG1037036

JC 11/7/17





Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 05:21	WG1037036
Tetrachloroethene	0.991		0.500	1	11/01/2017 05:21	WG1037036
Toluene	ND		0.500	1	11/01/2017 05:21	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 05:21	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 05:21	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 05:21	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 05:21	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 05:21	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 05:21	WG1037036
Vinyl acetate	ND	UJ JO	5.00	1	11/01/2017 05:21	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 05:21	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 05:21	WG1037036
(S) Toluene-d8	107		80.0-120		11/01/2017 05:21	WG1037036
(S) Dibromofluoromethane	101		76.0-123		11/01/2017 05:21	WG1037036
(S) 4-Bromofluorobenzene	87.4		80.0-120		11/01/2017 05:21	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

JC 11/7/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 05:40	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 05:40	WG1037036
Benzene	ND		0.500	1	11/01/2017 05:40	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 05:40	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 05:40	WG1037036
Bromoform	ND		0.500	1	11/01/2017 05:40	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 05:40	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 05:40	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 05:40	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 05:40	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 05:40	WG1037036
Chloroform	ND		0.500	1	11/01/2017 05:40	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 05:40	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 05:40	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 05:40	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 05:40	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 05:40	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 05:40	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 05:40	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 05:40	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 05:40	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 05:40	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 05:40	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 05:40	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 05:40	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 05:40	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 05:40	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 05:40	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 05:40	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 05:40	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 05:40	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 05:40	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 05:40	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 05:40	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 05:40	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 05:40	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 05:40	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 05:40	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 05:40	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 05:40	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 05:40	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 05:40	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
Styrene	ND		0.500	1	11/01/2017 05:40	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 05:40	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 05:40	WG1037036

JC 11/7/17





Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 05:40	WG1037036
Tetrachloroethene	2.79		0.500	1	11/01/2017 05:40	WG1037036
Toluene	ND		0.500	1	11/01/2017 05:40	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 05:40	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 05:40	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 05:40	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 05:40	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 05:40	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 05:40	WG1037036
Vinyl acetate	ND	UJ JO	5.00	1	11/01/2017 05:40	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 05:40	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 05:40	WG1037036
(S) Toluene-d8	105		80.0-120		11/01/2017 05:40	WG1037036
(S) Dibromofluoromethane	102		76.0-123		11/01/2017 05:40	WG1037036
(S) 4-Bromofluorobenzene	87.6		80.0-120		11/01/2017 05:40	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

JC 11/7/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 00:32	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 00:32	WG1037036
Benzene	ND		0.500	1	11/01/2017 00:32	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 00:32	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 00:32	WG1037036
Bromoform	ND		0.500	1	11/01/2017 00:32	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 00:32	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 00:32	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 00:32	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 00:32	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 00:32	WG1037036
Chloroform	ND		0.500	1	11/01/2017 00:32	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 00:32	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 00:32	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 00:32	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 00:32	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 00:32	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 00:32	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 00:32	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 00:32	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 00:32	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 00:32	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 00:32	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 00:32	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 00:32	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 00:32	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 00:32	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 00:32	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 00:32	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 00:32	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 00:32	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 00:32	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 00:32	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 00:32	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 00:32	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 00:32	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 00:32	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 00:32	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 00:32	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 00:32	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 00:32	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 00:32	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
Styrene	ND		0.500	1	11/01/2017 00:32	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 00:32	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 00:32	WG1037036

JC 11/7/17





Collected date/time: 10/27/17 00:00

L947181

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 00:32	WG1037036
Tetrachloroethene	ND		0.500	1	11/01/2017 00:32	WG1037036
Toluene	ND		0.500	1	11/01/2017 00:32	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 00:32	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 00:32	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 00:32	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 00:32	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 00:32	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 00:32	WG1037036
Vinyl acetate	ND	UJ JO	5.00	1	11/01/2017 00:32	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 00:32	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 00:32	WG1037036
(S) Toluene-d8	108		80.0-120		11/01/2017 00:32	WG1037036
(S) Dibromofluoromethane	99.1		76.0-123		11/01/2017 00:32	WG1037036
(S) 4-Bromofluorobenzene	93.0		80.0-120		11/01/2017 00:32	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

JC 11/7/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	25.0	1	11/01/2017 05:59	WG1037036
Acrylonitrile	ND		5.00	1	11/01/2017 05:59	WG1037036
Benzene	ND		0.500	1	11/01/2017 05:59	WG1037036
Bromobenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
Bromodichloromethane	ND		0.500	1	11/01/2017 05:59	WG1037036
Bromochloromethane	ND		0.500	1	11/01/2017 05:59	WG1037036
Bromoform	ND		0.500	1	11/01/2017 05:59	WG1037036
Bromomethane	ND		2.50	1	11/01/2017 05:59	WG1037036
n-Butylbenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
sec-Butylbenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
tert-Butylbenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
Carbon disulfide	ND		0.500	1	11/01/2017 05:59	WG1037036
Carbon tetrachloride	ND		0.500	1	11/01/2017 05:59	WG1037036
Chlorobenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
Chlorodibromomethane	ND		0.500	1	11/01/2017 05:59	WG1037036
Chloroethane	ND		2.50	1	11/01/2017 05:59	WG1037036
Chloroform	ND		0.500	1	11/01/2017 05:59	WG1037036
Chloromethane	ND		1.25	1	11/01/2017 05:59	WG1037036
2-Chlorotoluene	ND		0.500	1	11/01/2017 05:59	WG1037036
4-Chlorotoluene	ND		0.500	1	11/01/2017 05:59	WG1037036
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/01/2017 05:59	WG1037036
1,2-Dibromoethane	ND		0.500	1	11/01/2017 05:59	WG1037036
Dibromomethane	ND		0.500	1	11/01/2017 05:59	WG1037036
1,2-Dichlorobenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
1,3-Dichlorobenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
1,4-Dichlorobenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
Dichlorodifluoromethane	ND		2.50	1	11/01/2017 05:59	WG1037036
1,1-Dichloroethane	ND		0.500	1	11/01/2017 05:59	WG1037036
1,2-Dichloroethane	ND		0.500	1	11/01/2017 05:59	WG1037036
1,1-Dichloroethene	ND		0.500	1	11/01/2017 05:59	WG1037036
cis-1,2-Dichloroethene	ND		0.500	1	11/01/2017 05:59	WG1037036
trans-1,2-Dichloroethene	ND		0.500	1	11/01/2017 05:59	WG1037036
1,2-Dichloropropane	ND		0.500	1	11/01/2017 05:59	WG1037036
1,1-Dichloropropene	ND		0.500	1	11/01/2017 05:59	WG1037036
1,3-Dichloropropane	ND		1.00	1	11/01/2017 05:59	WG1037036
cis-1,3-Dichloropropene	ND		0.500	1	11/01/2017 05:59	WG1037036
trans-1,3-Dichloropropene	ND		0.500	1	11/01/2017 05:59	WG1037036
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/01/2017 05:59	WG1037036
2,2-Dichloropropane	ND		0.500	1	11/01/2017 05:59	WG1037036
Di-isopropyl ether	ND		0.500	1	11/01/2017 05:59	WG1037036
Ethylbenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
Hexachloro-1,3-butadiene	ND		1.00	1	11/01/2017 05:59	WG1037036
2-Hexanone	ND		5.00	1	11/01/2017 05:59	WG1037036
n-Hexane	ND		5.00	1	11/01/2017 05:59	WG1037036
Iodomethane	ND		10.0	1	11/01/2017 05:59	WG1037036
Isopropylbenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
p-Isopropyltoluene	ND		0.500	1	11/01/2017 05:59	WG1037036
2-Butanone (MEK)	ND		5.00	1	11/01/2017 05:59	WG1037036
Methylene Chloride	ND		2.50	1	11/01/2017 05:59	WG1037036
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/01/2017 05:59	WG1037036
Methyl tert-butyl ether	ND		0.500	1	11/01/2017 05:59	WG1037036
Naphthalene	ND		2.50	1	11/01/2017 05:59	WG1037036
n-Propylbenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
Styrene	ND		0.500	1	11/01/2017 05:59	WG1037036
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/01/2017 05:59	WG1037036
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/01/2017 05:59	WG1037036

JC 11/7/17





Collected date/time: 10/27/17 11:30

L947181

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	11/01/2017 05:59	WG1037036
Tetrachloroethene	ND		0.500	1	11/01/2017 05:59	WG1037036
Toluene	ND		0.500	1	11/01/2017 05:59	WG1037036
1,2,3-Trichlorobenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
1,2,4-Trichlorobenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
1,1,1-Trichloroethane	ND		0.500	1	11/01/2017 05:59	WG1037036
1,1,2-Trichloroethane	ND		0.500	1	11/01/2017 05:59	WG1037036
Trichloroethene	ND		0.500	1	11/01/2017 05:59	WG1037036
Trichlorofluoromethane	ND		2.50	1	11/01/2017 05:59	WG1037036
1,2,3-Trichloropropane	ND		2.50	1	11/01/2017 05:59	WG1037036
1,2,4-Trimethylbenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
1,2,3-Trimethylbenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
1,3,5-Trimethylbenzene	ND		0.500	1	11/01/2017 05:59	WG1037036
Vinyl acetate	ND	UJ JO	5.00	1	11/01/2017 05:59	WG1037036
Vinyl chloride	ND		0.500	1	11/01/2017 05:59	WG1037036
Xylenes, Total	ND		1.50	1	11/01/2017 05:59	WG1037036
(S) Toluene-d8	104		80.0-120		11/01/2017 05:59	WG1037036
(S) Dibromofluoromethane	103		76.0-123		11/01/2017 05:59	WG1037036
(S) 4-Bromofluorobenzene	89.6		80.0-120		11/01/2017 05:59	WG1037036

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

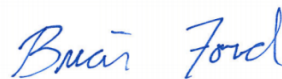
JC 11/7/17

November 03, 2017

PES Environmental, Inc.- WA

Sample Delivery Group: L947200
Samples Received: 10/25/2017
Project Number: 1358.001.01.003
Description: MVSC
Site: MVSC
Report To: Karsten Springstead
1215 Fourth Ave., Suite 1350
Seattle, WA 98161

Entire Report Reviewed By:



Brian Ford
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	³ Ss
DC-4-102417 L947200-01	5	
KMW-2-102417 L947200-02	7	⁴ Cn
TRIP BLANK-102417 L947200-03	9	⁵ Sr
Qc: Quality Control Summary	11	
Volatile Organic Compounds (GC/MS) by Method 8260C	11	⁶ Qc
Gl: Glossary of Terms	15	⁷ Gl
Al: Accreditations & Locations	16	
Sc: Sample Chain of Custody	17	⁸ Al
		⁹ Sc

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



DC-4-102417 L947200-01 GW

Collected by
C. DeBoerCollected date/time
10/24/17 13:10Received date/time
10/25/17 08:45¹ Cp

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037488	1	10/31/17 20:40	10/31/17 20:40	ACG

² Tc³ Ss

KMW-2-102417 L947200-02 GW

Collected by
C. DeBoerCollected date/time
10/24/17 14:05Received date/time
10/25/17 08:45⁴ Cn

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037488	1	10/31/17 21:00	10/31/17 21:00	ACG

⁵ Sr⁶ Qc

TRIP BLANK-102417 L947200-03 GW

Collected by
C. DeBoerCollected date/time
10/24/17 00:00Received date/time
10/25/17 08:45⁷ Gl

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1037488	1	10/31/17 15:48	10/31/17 15:48	ACG

⁸ Al⁹ Sc

ACCOUNT:

PES Environmental, Inc.- WA

PROJECT:

1358.001.01.003

SDG:

L947200

DATE/TIME:

11/03/17 13:54

PAGE:

3 of 18



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		25.0	1	10/31/2017 20:40	WG1037488
Acrylonitrile	ND		5.00	1	10/31/2017 20:40	WG1037488
Benzene	ND		0.500	1	10/31/2017 20:40	WG1037488
Bromobenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
Bromodichloromethane	ND		0.500	1	10/31/2017 20:40	WG1037488
Bromochloromethane	ND		0.500	1	10/31/2017 20:40	WG1037488
Bromoform	ND		0.500	1	10/31/2017 20:40	WG1037488
Bromomethane	ND	JO	2.50	1	10/31/2017 20:40	WG1037488
n-Butylbenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
sec-Butylbenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
tert-Butylbenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
Carbon disulfide	ND		0.500	1	10/31/2017 20:40	WG1037488
Carbon tetrachloride	ND		0.500	1	10/31/2017 20:40	WG1037488
Chlorobenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
Chlorodibromomethane	ND		0.500	1	10/31/2017 20:40	WG1037488
Chloroethane	ND	JO	2.50	1	10/31/2017 20:40	WG1037488
Chloroform	ND		0.500	1	10/31/2017 20:40	WG1037488
Chloromethane	ND		1.25	1	10/31/2017 20:40	WG1037488
2-Chlorotoluene	ND		0.500	1	10/31/2017 20:40	WG1037488
4-Chlorotoluene	ND		0.500	1	10/31/2017 20:40	WG1037488
1,2-Dibromo-3-Chloropropane	ND		2.50	1	10/31/2017 20:40	WG1037488
1,2-Dibromoethane	ND		0.500	1	10/31/2017 20:40	WG1037488
Dibromomethane	ND		0.500	1	10/31/2017 20:40	WG1037488
1,2-Dichlorobenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
1,3-Dichlorobenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
1,4-Dichlorobenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
Dichlorodifluoromethane	ND		2.50	1	10/31/2017 20:40	WG1037488
1,1-Dichloroethane	ND		0.500	1	10/31/2017 20:40	WG1037488
1,2-Dichloroethane	ND		0.500	1	10/31/2017 20:40	WG1037488
1,1-Dichloroethene	ND		0.500	1	10/31/2017 20:40	WG1037488
cis-1,2-Dichloroethene	ND		0.500	1	10/31/2017 20:40	WG1037488
trans-1,2-Dichloroethene	ND		0.500	1	10/31/2017 20:40	WG1037488
1,2-Dichloropropane	ND		0.500	1	10/31/2017 20:40	WG1037488
1,1-Dichloropropene	ND		0.500	1	10/31/2017 20:40	WG1037488
1,3-Dichloropropane	ND		1.00	1	10/31/2017 20:40	WG1037488
cis-1,3-Dichloropropene	ND		0.500	1	10/31/2017 20:40	WG1037488
trans-1,3-Dichloropropene	ND		0.500	1	10/31/2017 20:40	WG1037488
trans-1,4-Dichloro-2-butene	ND		5.00	1	10/31/2017 20:40	WG1037488
2,2-Dichloropropane	ND		0.500	1	10/31/2017 20:40	WG1037488
Di-isopropyl ether	ND		0.500	1	10/31/2017 20:40	WG1037488
Ethylbenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
Hexachloro-1,3-butadiene	ND		1.00	1	10/31/2017 20:40	WG1037488
2-Hexanone	ND		5.00	1	10/31/2017 20:40	WG1037488
n-Hexane	ND		5.00	1	10/31/2017 20:40	WG1037488
Iodomethane	ND		10.0	1	10/31/2017 20:40	WG1037488
Isopropylbenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
p-Isopropyltoluene	ND		0.500	1	10/31/2017 20:40	WG1037488
2-Butanone (MEK)	ND		5.00	1	10/31/2017 20:40	WG1037488
Methylene Chloride	ND		2.50	1	10/31/2017 20:40	WG1037488
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	10/31/2017 20:40	WG1037488
Methyl tert-butyl ether	ND		0.500	1	10/31/2017 20:40	WG1037488
Naphthalene	ND		2.50	1	10/31/2017 20:40	WG1037488
n-Propylbenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
Styrene	ND		0.500	1	10/31/2017 20:40	WG1037488
1,1,1,2-Tetrachloroethane	ND		0.500	1	10/31/2017 20:40	WG1037488
1,1,2,2-Tetrachloroethane	ND		0.500	1	10/31/2017 20:40	WG1037488

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	10/31/2017 20:40	WG1037488
Tetrachloroethene	ND		0.500	1	10/31/2017 20:40	WG1037488
Toluene	ND		0.500	1	10/31/2017 20:40	WG1037488
1,2,3-Trichlorobenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
1,2,4-Trichlorobenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
1,1,1-Trichloroethane	ND		0.500	1	10/31/2017 20:40	WG1037488
1,1,2-Trichloroethane	ND		0.500	1	10/31/2017 20:40	WG1037488
Trichloroethene	ND		0.500	1	10/31/2017 20:40	WG1037488
Trichlorofluoromethane	ND		2.50	1	10/31/2017 20:40	WG1037488
1,2,3-Trichloropropane	ND		2.50	1	10/31/2017 20:40	WG1037488
1,2,4-Trimethylbenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
1,2,3-Trimethylbenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
1,3,5-Trimethylbenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
Vinyl acetate	ND		5.00	1	10/31/2017 20:40	WG1037488
Vinyl chloride	ND		0.500	1	10/31/2017 20:40	WG1037488
Xylenes, Total	ND		1.50	1	10/31/2017 20:40	WG1037488
(S) Toluene-d8	106		80.0-120		10/31/2017 20:40	WG1037488
(S) Dibromofluoromethane	99.8		76.0-123		10/31/2017 20:40	WG1037488
(S) 4-Bromofluorobenzene	92.2		80.0-120		10/31/2017 20:40	WG1037488

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND		25.0	1	10/31/2017 21:00	WG1037488
Acrylonitrile	ND		5.00	1	10/31/2017 21:00	WG1037488
Benzene	ND		0.500	1	10/31/2017 21:00	WG1037488
Bromobenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
Bromodichloromethane	ND		0.500	1	10/31/2017 21:00	WG1037488
Bromochloromethane	ND		0.500	1	10/31/2017 21:00	WG1037488
Bromoform	ND		0.500	1	10/31/2017 21:00	WG1037488
Bromomethane	ND	JO	2.50	1	10/31/2017 21:00	WG1037488
n-Butylbenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
sec-Butylbenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
tert-Butylbenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
Carbon disulfide	ND		0.500	1	10/31/2017 21:00	WG1037488
Carbon tetrachloride	ND		0.500	1	10/31/2017 21:00	WG1037488
Chlorobenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
Chlorodibromomethane	ND		0.500	1	10/31/2017 21:00	WG1037488
Chloroethane	ND	JO	2.50	1	10/31/2017 21:00	WG1037488
Chloroform	ND		0.500	1	10/31/2017 21:00	WG1037488
Chloromethane	ND		1.25	1	10/31/2017 21:00	WG1037488
2-Chlorotoluene	ND		0.500	1	10/31/2017 21:00	WG1037488
4-Chlorotoluene	ND		0.500	1	10/31/2017 21:00	WG1037488
1,2-Dibromo-3-Chloropropane	ND		2.50	1	10/31/2017 21:00	WG1037488
1,2-Dibromoethane	ND		0.500	1	10/31/2017 21:00	WG1037488
Dibromomethane	ND		0.500	1	10/31/2017 21:00	WG1037488
1,2-Dichlorobenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
1,3-Dichlorobenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
1,4-Dichlorobenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
Dichlorodifluoromethane	ND		2.50	1	10/31/2017 21:00	WG1037488
1,1-Dichloroethane	ND		0.500	1	10/31/2017 21:00	WG1037488
1,2-Dichloroethane	ND		0.500	1	10/31/2017 21:00	WG1037488
1,1-Dichloroethene	ND		0.500	1	10/31/2017 21:00	WG1037488
cis-1,2-Dichloroethene	ND		0.500	1	10/31/2017 21:00	WG1037488
trans-1,2-Dichloroethene	ND		0.500	1	10/31/2017 21:00	WG1037488
1,2-Dichloropropane	ND		0.500	1	10/31/2017 21:00	WG1037488
1,1-Dichloropropene	ND		0.500	1	10/31/2017 21:00	WG1037488
1,3-Dichloropropane	ND		1.00	1	10/31/2017 21:00	WG1037488
cis-1,3-Dichloropropene	ND		0.500	1	10/31/2017 21:00	WG1037488
trans-1,3-Dichloropropene	ND		0.500	1	10/31/2017 21:00	WG1037488
trans-1,4-Dichloro-2-butene	ND		5.00	1	10/31/2017 21:00	WG1037488
2,2-Dichloropropane	ND		0.500	1	10/31/2017 21:00	WG1037488
Di-isopropyl ether	ND		0.500	1	10/31/2017 21:00	WG1037488
Ethylbenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
Hexachloro-1,3-butadiene	ND		1.00	1	10/31/2017 21:00	WG1037488
2-Hexanone	ND		5.00	1	10/31/2017 21:00	WG1037488
n-Hexane	ND		5.00	1	10/31/2017 21:00	WG1037488
Iodomethane	ND		10.0	1	10/31/2017 21:00	WG1037488
Isopropylbenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
p-Isopropyltoluene	ND		0.500	1	10/31/2017 21:00	WG1037488
2-Butanone (MEK)	ND		5.00	1	10/31/2017 21:00	WG1037488
Methylene Chloride	ND		2.50	1	10/31/2017 21:00	WG1037488
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	10/31/2017 21:00	WG1037488
Methyl tert-butyl ether	ND		0.500	1	10/31/2017 21:00	WG1037488
Naphthalene	ND		2.50	1	10/31/2017 21:00	WG1037488
n-Propylbenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
Styrene	ND		0.500	1	10/31/2017 21:00	WG1037488
1,1,1,2-Tetrachloroethane	ND		0.500	1	10/31/2017 21:00	WG1037488
1,1,2,2-Tetrachloroethane	ND		0.500	1	10/31/2017 21:00	WG1037488

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	10/31/2017 21:00	WG1037488
Tetrachloroethene	ND		0.500	1	10/31/2017 21:00	WG1037488
Toluene	ND		0.500	1	10/31/2017 21:00	WG1037488
1,2,3-Trichlorobenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
1,2,4-Trichlorobenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
1,1,1-Trichloroethane	ND		0.500	1	10/31/2017 21:00	WG1037488
1,1,2-Trichloroethane	ND		0.500	1	10/31/2017 21:00	WG1037488
Trichloroethene	ND		0.500	1	10/31/2017 21:00	WG1037488
Trichlorofluoromethane	ND		2.50	1	10/31/2017 21:00	WG1037488
1,2,3-Trichloropropane	ND		2.50	1	10/31/2017 21:00	WG1037488
1,2,4-Trimethylbenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
1,2,3-Trimethylbenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
1,3,5-Trimethylbenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
Vinyl acetate	ND		5.00	1	10/31/2017 21:00	WG1037488
Vinyl chloride	ND		0.500	1	10/31/2017 21:00	WG1037488
Xylenes, Total	ND		1.50	1	10/31/2017 21:00	WG1037488
(S) Toluene-d8	104		80.0-120		10/31/2017 21:00	WG1037488
(S) Dibromofluoromethane	99.2		76.0-123		10/31/2017 21:00	WG1037488
(S) 4-Bromofluorobenzene	92.4		80.0-120		10/31/2017 21:00	WG1037488

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		25.0	1	10/31/2017 15:48	WG1037488
Acrylonitrile	ND		5.00	1	10/31/2017 15:48	WG1037488
Benzene	ND		0.500	1	10/31/2017 15:48	WG1037488
Bromobenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
Bromodichloromethane	ND		0.500	1	10/31/2017 15:48	WG1037488
Bromochloromethane	ND		0.500	1	10/31/2017 15:48	WG1037488
Bromoform	ND		0.500	1	10/31/2017 15:48	WG1037488
Bromomethane	ND	JO	2.50	1	10/31/2017 15:48	WG1037488
n-Butylbenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
sec-Butylbenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
tert-Butylbenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
Carbon disulfide	ND		0.500	1	10/31/2017 15:48	WG1037488
Carbon tetrachloride	ND		0.500	1	10/31/2017 15:48	WG1037488
Chlorobenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
Chlorodibromomethane	ND		0.500	1	10/31/2017 15:48	WG1037488
Chloroethane	ND	JO	2.50	1	10/31/2017 15:48	WG1037488
Chloroform	ND		0.500	1	10/31/2017 15:48	WG1037488
Chloromethane	ND		1.25	1	10/31/2017 15:48	WG1037488
2-Chlorotoluene	ND		0.500	1	10/31/2017 15:48	WG1037488
4-Chlorotoluene	ND		0.500	1	10/31/2017 15:48	WG1037488
1,2-Dibromo-3-Chloropropane	ND		2.50	1	10/31/2017 15:48	WG1037488
1,2-Dibromoethane	ND		0.500	1	10/31/2017 15:48	WG1037488
Dibromomethane	ND		0.500	1	10/31/2017 15:48	WG1037488
1,2-Dichlorobenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
1,3-Dichlorobenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
1,4-Dichlorobenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
Dichlorodifluoromethane	ND		2.50	1	10/31/2017 15:48	WG1037488
1,1-Dichloroethane	ND		0.500	1	10/31/2017 15:48	WG1037488
1,2-Dichloroethane	ND		0.500	1	10/31/2017 15:48	WG1037488
1,1-Dichloroethene	ND		0.500	1	10/31/2017 15:48	WG1037488
cis-1,2-Dichloroethene	ND		0.500	1	10/31/2017 15:48	WG1037488
trans-1,2-Dichloroethene	ND		0.500	1	10/31/2017 15:48	WG1037488
1,2-Dichloropropane	ND		0.500	1	10/31/2017 15:48	WG1037488
1,1-Dichloropropene	ND		0.500	1	10/31/2017 15:48	WG1037488
1,3-Dichloropropane	ND		1.00	1	10/31/2017 15:48	WG1037488
cis-1,3-Dichloropropene	ND		0.500	1	10/31/2017 15:48	WG1037488
trans-1,3-Dichloropropene	ND		0.500	1	10/31/2017 15:48	WG1037488
trans-1,4-Dichloro-2-butene	ND		5.00	1	10/31/2017 15:48	WG1037488
2,2-Dichloropropane	ND		0.500	1	10/31/2017 15:48	WG1037488
Di-isopropyl ether	ND		0.500	1	10/31/2017 15:48	WG1037488
Ethylbenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
Hexachloro-1,3-butadiene	ND		1.00	1	10/31/2017 15:48	WG1037488
2-Hexanone	ND		5.00	1	10/31/2017 15:48	WG1037488
n-Hexane	ND		5.00	1	10/31/2017 15:48	WG1037488
Iodomethane	ND		10.0	1	10/31/2017 15:48	WG1037488
Isopropylbenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
p-Isopropyltoluene	ND		0.500	1	10/31/2017 15:48	WG1037488
2-Butanone (MEK)	ND		5.00	1	10/31/2017 15:48	WG1037488
Methylene Chloride	ND		2.50	1	10/31/2017 15:48	WG1037488
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	10/31/2017 15:48	WG1037488
Methyl tert-butyl ether	ND		0.500	1	10/31/2017 15:48	WG1037488
Naphthalene	ND		2.50	1	10/31/2017 15:48	WG1037488
n-Propylbenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
Styrene	ND		0.500	1	10/31/2017 15:48	WG1037488
1,1,1,2-Tetrachloroethane	ND		0.500	1	10/31/2017 15:48	WG1037488
1,1,2,2-Tetrachloroethane	ND		0.500	1	10/31/2017 15:48	WG1037488

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



Collected date/time: 10/24/17 00:00

L947200

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	10/31/2017 15:48	WG1037488
Tetrachloroethene	ND		0.500	1	10/31/2017 15:48	WG1037488
Toluene	ND		0.500	1	10/31/2017 15:48	WG1037488
1,2,3-Trichlorobenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
1,2,4-Trichlorobenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
1,1,1-Trichloroethane	ND		0.500	1	10/31/2017 15:48	WG1037488
1,1,2-Trichloroethane	ND		0.500	1	10/31/2017 15:48	WG1037488
Trichloroethene	ND		0.500	1	10/31/2017 15:48	WG1037488
Trichlorofluoromethane	ND		2.50	1	10/31/2017 15:48	WG1037488
1,2,3-Trichloropropane	ND		2.50	1	10/31/2017 15:48	WG1037488
1,2,4-Trimethylbenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
1,2,3-Trimethylbenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
1,3,5-Trimethylbenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
Vinyl acetate	ND		5.00	1	10/31/2017 15:48	WG1037488
Vinyl chloride	ND		0.500	1	10/31/2017 15:48	WG1037488
Xylenes, Total	ND		1.50	1	10/31/2017 15:48	WG1037488
(S) Toluene-d8	108		80.0-120		10/31/2017 15:48	WG1037488
(S) Dibromofluoromethane	101		76.0-123		10/31/2017 15:48	WG1037488
(S) 4-Bromofluorobenzene	104		80.0-120		10/31/2017 15:48	WG1037488

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



Method Blank (MB)

(MB) R3262250-3 10/31/17 15:09

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acetone	U		1.05	25.0
Acrylonitrile	U		0.873	5.00
Benzene	U		0.0896	0.500
Bromobenzene	U		0.133	0.500
Bromochloromethane	U		0.145	0.500
Bromodichloromethane	U		0.0800	0.500
Bromoform	U		0.186	0.500
Bromomethane	U		0.157	2.50
n-Butylbenzene	U		0.143	0.500
sec-Butylbenzene	U		0.134	0.500
tert-Butylbenzene	U		0.183	0.500
Carbon disulfide	U		0.101	0.500
Carbon tetrachloride	U		0.159	0.500
Chlorobenzene	U		0.140	0.500
Chlorodibromomethane	U		0.128	0.500
Chloroethane	U		0.141	2.50
2-Chlorotoluene	U		0.111	0.500
Chloroform	U		0.0860	0.500
4-Chlorotoluene	U		0.0972	0.500
Chloromethane	U		0.153	1.25
1,2-Dibromo-3-Chloropropane	U		0.325	2.50
1,2-Dibromoethane	U		0.193	0.500
Dibromomethane	U		0.117	0.500
1,2-Dichlorobenzene	U		0.101	0.500
1,3-Dichlorobenzene	U		0.130	0.500
1,4-Dichlorobenzene	U		0.121	0.500
cis-1,2-Dichloroethene	U		0.0933	0.500
Dichlorodifluoromethane	U		0.127	2.50
1,1-Dichloroethane	U		0.114	0.500
1,1-Dichloropropene	U		0.128	0.500
1,2-Dichloroethane	U		0.108	0.500
1,1-Dichloroethene	U		0.188	0.500
1,3-Dichloropropane	U		0.147	1.00
trans-1,2-Dichloroethene	U		0.152	0.500
1,2-Dichloropropane	U		0.190	0.500
trans-1,4-Dichloro-2-butene	U		0.257	5.00
2,2-Dichloropropane	U		0.0929	0.500
Di-isopropyl ether	U		0.0924	0.500
cis-1,3-Dichloropropene	U		0.0976	0.500
Hexachloro-1,3-butadiene	U		0.157	1.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Method Blank (MB)

(MB) R3262250-3 10/31/17 15:09

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
trans-1,3-Dichloropropene	U		0.222	0.500
2-Hexanone	U		0.757	5.00
n-Hexane	U		0.305	5.00
Iodomethane	U		0.377	10.0
Ethylbenzene	U		0.158	0.500
Isopropylbenzene	U		0.126	0.500
p-Isopropyltoluene	U		0.138	0.500
2-Butanone (MEK)	U		1.28	5.00
4-Methyl-2-pentanone (MIBK)	U		0.823	5.00
n-Propylbenzene	U		0.162	0.500
Styrene	U		0.117	0.500
1,1,1,2-Tetrachloroethane	U		0.120	0.500
1,1,2-Trichlorotrifluoroethane	U		0.164	0.500
Methylene Chloride	U		1.07	2.50
1,2,3-Trichlorobenzene	0.171	U	0.164	0.500
1,2,4-Trichlorobenzene	U		0.355	0.500
Methyl tert-butyl ether	U		0.102	0.500
Naphthalene	U		0.174	2.50
1,2,3-Trichloropropane	U		0.247	2.50
1,2,4-Trimethylbenzene	U		0.123	0.500
1,2,3-Trimethylbenzene	U		0.0739	0.500
1,1,2,2-Tetrachloroethane	U		0.130	0.500
1,3,5-Trimethylbenzene	U		0.124	0.500
Tetrachloroethene	U		0.199	0.500
Vinyl acetate	U		0.645	5.00
Toluene	U		0.412	0.500
Xylenes, Total	U		0.316	1.50
1,1,1-Trichloroethane	U		0.0940	0.500
1,1,2-Trichloroethane	U		0.186	0.500
Trichloroethene	U		0.153	0.500
Trichlorofluoromethane	U		0.130	2.50
Vinyl chloride	U		0.118	0.500
(S) Toluene-d8	118			80.0-120
(S) Dibromofluoromethane	99.3			76.0-123
(S) 4-Bromofluorobenzene	111			80.0-120

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3262250-1 10/31/17 14:11 • (LCSD) R3262250-2 10/31/17 14:31

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Acetone	125	181	182	145	146	10.0-160			0.500	23
Bromobenzene	25.0	25.6	26.0	103	104	79.0-120			1.46	20
Bromochloromethane	25.0	20.8	22.8	83.4	91.4	76.0-122			9.13	20
n-Butylbenzene	25.0	22.5	22.8	89.9	91.0	72.0-126			1.24	20
sec-Butylbenzene	25.0	25.8	26.5	103	106	74.0-121			2.46	20
tert-Butylbenzene	25.0	26.3	26.9	105	108	75.0-122			2.25	20
Carbon disulfide	25.0	22.8	23.3	91.3	93.1	55.0-127			1.92	20
2-Chlorotoluene	25.0	25.9	26.1	104	104	74.0-122			0.480	20
4-Chlorotoluene	25.0	26.4	26.9	106	107	79.0-120			1.79	20
1,2-Dibromo-3-Chloropropane	25.0	24.8	23.9	99.1	95.7	64.0-127			3.48	20
1,2-Dibromoethane	25.0	27.5	24.8	110	99.1	77.0-123			10.2	20
Dibromomethane	25.0	22.1	24.7	88.4	98.6	78.0-120			11.0	20
cis-1,2-Dichloroethene	25.0	20.1	22.5	80.3	89.9	73.0-120			11.3	20
1,1-Dichloropropene	25.0	21.8	22.5	87.2	89.9	71.0-129			2.97	20
1,3-Dichloropropane	25.0	27.4	25.2	110	101	80.0-121			8.37	20
Acrylonitrile	125	119	123	95.3	98.5	60.0-142			3.32	20
Benzene	25.0	23.3	23.3	93.3	93.1	69.0-123			0.120	20
trans-1,4-Dichloro-2-butene	25.0	26.7	27.2	107	109	55.0-134			1.87	20
2,2-Dichloropropane	25.0	21.1	24.1	84.4	96.3	60.0-125			13.2	20
Bromodichloromethane	25.0	23.1	25.4	92.5	102	76.0-120			9.34	20
Di-isopropyl ether	25.0	23.4	23.1	93.7	92.3	59.0-133			1.53	20
Bromoform	25.0	28.1	27.9	112	112	67.0-132			0.510	20
Hexachloro-1,3-butadiene	25.0	24.3	23.6	97.3	94.3	64.0-131			3.09	20
2-Hexanone	125	165	151	132	121	58.0-147			8.85	20
Bromomethane	25.0	18.5	21.9	73.9	87.5	18.0-160			16.8	20
n-Hexane	25.0	21.6	22.0	86.4	88.2	56.0-124			2.09	20
Iodomethane	125	115	117	91.9	93.3	57.0-140			1.46	20
Isopropylbenzene	25.0	27.1	27.6	109	110	75.0-120			1.56	20
p-Isopropyltoluene	25.0	25.3	25.8	101	103	74.0-126			2.24	20
2-Butanone (MEK)	125	160	161	128	129	37.0-158			0.630	20
Carbon tetrachloride	25.0	21.0	22.7	84.1	90.8	63.0-122			7.60	20
4-Methyl-2-pentanone (MIBK)	125	126	128	101	103	59.0-143			1.55	20
Chlorobenzene	25.0	27.0	24.4	108	97.7	79.0-121			10.1	20
Chlorodibromomethane	25.0	28.4	26.4	114	106	75.0-125			7.43	20
Chloroethane	25.0	19.1	20.4	76.5	81.8	47.0-152			6.68	20
n-Propylbenzene	25.0	26.1	26.8	104	107	79.0-120			2.56	20
Chloroform	25.0	21.5	22.7	85.8	90.8	72.0-121			5.64	20
Styrene	25.0	28.8	29.0	115	116	78.0-124			0.710	20
1,1,1,2-Tetrachloroethane	25.0	26.7	23.9	107	95.6	75.0-122			11.2	20
Chloromethane	25.0	21.3	22.9	85.1	91.7	48.0-139			7.42	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

ACCOUNT:

PES Environmental, Inc.- WA

PROJECT:

1358.001.01.003

SDG:

L947200

DATE/TIME:

11/03/17 13:54

PAGE:

13 of 18

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3262250-1 10/31/17 14:11 • (LCSD) R3262250-2 10/31/17 14:31

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
1,1,2-Trichlorotrifluoroethane	25.0	22.1	23.0	88.6	91.9	61.0-136			3.70	20
1,2,3-Trichlorobenzene	25.0	25.9	24.7	103	98.9	61.0-133			4.55	20
1,2,4-Trichlorobenzene	25.0	23.9	23.7	95.8	95.0	69.0-129			0.800	20
1,2-Dichlorobenzene	25.0	23.0	23.2	91.8	93.0	80.0-120			1.29	20
1,3-Dichlorobenzene	25.0	24.1	24.7	96.2	98.9	72.0-123			2.80	20
1,4-Dichlorobenzene	25.0	23.4	23.5	93.7	93.8	77.0-120			0.170	20
Dichlorodifluoromethane	25.0	22.8	23.6	91.0	94.4	49.0-155			3.66	20
1,2,3-Trichloropropane	25.0	26.9	26.6	108	107	72.0-124			1.08	20
1,1-Dichloroethane	25.0	20.8	23.5	83.2	93.9	70.0-126			12.0	20
1,2,4-Trimethylbenzene	25.0	25.8	26.5	103	106	75.0-120			2.62	20
1,2,3-Trimethylbenzene	25.0	23.8	23.4	95.4	93.6	75.0-120			1.84	20
1,2-Dichloroethane	25.0	21.7	24.5	86.8	98.0	67.0-126			12.1	20
1,1-Dichloroethene	25.0	22.6	22.7	90.2	90.7	64.0-129			0.550	20
1,3,5-Trimethylbenzene	25.0	26.5	27.2	106	109	75.0-120			2.61	20
Vinyl acetate	125	112	121	89.7	97.0	46.0-160			7.80	20
trans-1,2-Dichloroethene	25.0	23.3	23.3	93.2	93.1	71.0-121			0.0400	20
1,2-Dichloropropane	25.0	23.2	24.7	93.0	98.8	75.0-125			6.07	20
Xylenes, Total	75.0	81.0	73.8	108	98.4	77.0-120			9.30	20
cis-1,3-Dichloropropene	25.0	26.7	25.1	107	100	79.0-123			6.19	20
trans-1,3-Dichloropropene	25.0	25.2	25.1	101	100	74.0-127			0.440	20
Ethylbenzene	25.0	27.7	25.6	111	102	77.0-120			7.90	20
Methylene Chloride	25.0	23.0	23.0	91.9	92.2	66.0-121			0.310	20
Methyl tert-butyl ether	25.0	22.6	23.0	90.2	92.1	64.0-123			2.09	20
Naphthalene	25.0	25.4	25.2	102	101	62.0-128			0.880	20
1,1,2,2-Tetrachloroethane	25.0	27.5	27.1	110	108	71.0-122			1.27	20
Tetrachloroethene	25.0	22.1	22.6	88.6	90.5	70.0-127			2.11	20
Toluene	25.0	25.6	24.0	102	96.1	77.0-120			6.25	20
1,1,1-Trichloroethane	25.0	22.8	24.0	91.1	95.9	68.0-122			5.17	20
1,1,2-Trichloroethane	25.0	24.9	25.7	99.6	103	78.0-120			3.07	20
Trichloroethene	25.0	23.0	23.3	91.9	93.3	78.0-120			1.45	20
Trichlorofluoromethane	25.0	21.5	22.9	86.0	91.6	56.0-137			6.29	20
Vinyl chloride	25.0	20.8	22.7	83.3	90.9	64.0-133			8.69	20
(S) Toluene-d8				110	105	80.0-120				
(S) Dibromofluoromethane				95.7	99.2	76.0-123				
(S) 4-Bromofluorobenzene				116	116	80.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
JO	JO: Calibration verification outside of acceptance limits. Result is estimated.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 GI

8 AI

9 Sc

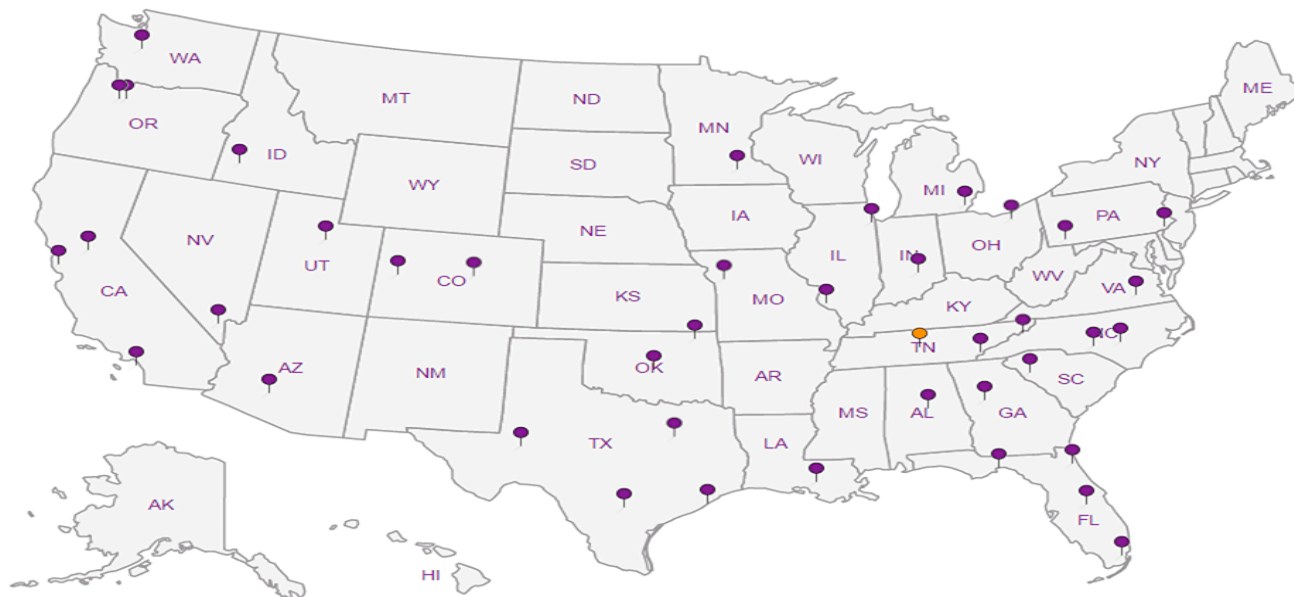
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Third Party & Federal Accreditations

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

ES&C Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ES&C Lab Sciences performs all testing at our central laboratory.**



PES Environmental, Inc.- WA 1215 Fourth Ave., Suite 1350 Seattle, WA 98161				Billing Information: Attn: Accounts Payable 1215 Fourth Ave., Ste. 1350 Seattle, WA 98161				Analysis / Container / Preservative							
				Report to: Karsten Springstead				Email To: kspringstead@pesenv.com							
Project Description: MVSL				City/State Collected: Des Moines, WA				V8260LLC VOCs 40ml Amb HCl							
Phone: 206-529-3980 Fax: 206-529-3985		Client Project #: 1358.001.01.003		Lab Project #: PESENVSWA-SPRINGSTEA											
Collected by (print): C. DeBoer		Site/Facility ID #: MVSL		P.O. #											
Collected by (signature): Chris DeBoer		Rush? (Lab MUST Be Notified) ☐ Same Day ☐ Five Day ☐ Next Day ☐ 5 Day (Rad Only) ☐ Two Day ☐ 10 Day (Rad Only) ☐ Three Day		Quote #											
Immediately Packed on Ice: N				Date Results Needed				No. of Containers							
Sample ID				Comp/Grab	Matrix *	Depth	Date	Time	pH	Temp	Flow	Other			
MW-16-102417				Grab	GW		10/24/17	0925	3	X					
MW-14-102417					GW			1025	3	X					
DC-3-102417					GW			1235	3	X					
DC-4-102417					GW			1310							
KMW-2-102417					GW			1405							
TRIP BLANK-102417					W										
* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - Waste Water DW - Drinking Water OT - Other				Remarks:				Samples returned via: ☒ UPS ☒ FedEx ☐ Courier				Tracking # 7474 0937 4955			
Relinquished by: (Signature) Chris DeBoer				Date: 10/24/17	Time: 1500	Received by: (Signature)				Trip Blank Received: ☒ Yes ☐ No HCL / MeqH TBR					
Relinquished by: (Signature)				Date:	Time:	Received by: (Signature)				Temp: °C 45					
Relinquished by: (Signature)				Date:	Time:	Received for lab by: (Signature) Amanda Rangel				Date: 10-25-17 Time: 8:45					
Condition: NCP 1				Hold:											

Andy Vann

From: Brian Ford
Sent: Monday, October 30, 2017 10:42 AM
To: Login; Brian Ford
Subject: L946305 *PESENVSWA* log off hold

Please log off hold for V8260LLC. Log as R5 due 11/06.

DC-4-1024217
KMW-2-102417
TRIP BLANK-102417

Thanks,

✉ **Brian Ford**

Technical Service Representative

ESC Lab Sciences-a subsidiary of Pace Analytical
12065 Lebanon Road | Mt. Juliet, TN 37122
615.773.9772
bford@esclabsciences.com | www.esclabsciences.com

This E-mail and any attached files are confidential, and may be copyright protected. If you are not the addressee, any dissemination of this communication is strictly prohibited. If you have received this message in error, please contact the sender immediately and delete/destroy all information received.

MEMORANDUM

TO: Project File **DATE:** November 3, 2017
FROM: Jessie Compeau
SUBJECT: Laboratory Data Validation Review
PROJECT: Manhattan Village Shopping Center
PROJECT #: 1358.001.01.003
TASK: October 24, 2017 Groundwater Samples
LAB: ECS Lab Sciences Request No. L947200

Fifteen groundwater samples (including a field duplicate) and a trip blank were collected to evaluate performance of the air sparging and soil vapor extraction remediation system at the Manhattan Village Shopping Centre site in Normandy Park, Washington on October 23-24 of 2017. Of the fifteen samples, two groundwater samples and the trip blank were placed on hold, analyzed later per PES's request, and results are reported under this ESC SDG L947200. Refer to ESC SDG L946305 for the rest of the results. Samples associated with SDGs L946305 and L947200 were analyzed for VOCs by USEPA Method 8260C. Laboratory analytical services were provided by ESC Lab Sciences (ESC) of Mt. Juliet, Tennessee.

The monitoring event occurred between October 23 and 27 of 2017. Associated sample data are reported in 4 ESC SDGs (SDGs L946305/L947200, L947166, and L947181). The quality assurance review of the laboratory data for SDG L947200 is summarized below.

DATA QUALIFICATIONS

Guidelines established by USEPA for review of analytical data were used to validate the data. The comments presented in this memorandum refer to the laboratory's performance in meeting the quality control criteria outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (USEPA, 2017).

DATA VALIDATION

Completeness

All samples were collected and analyzed as requested. No concerns, issues, or anomalies were identified in the laboratory report with the following discussion:

- SDG L946305 chain of custody lists two samples (DC-4-102417 and KMW-2-102417) and a trip blank but showed no request for analysis. PES later requested that these be analyzed and results are reported under a separate SDG (SDG L947200).

Sample Collection and Preservation

The samples were stored on ice in the cooler and delivered in good condition to the laboratory. Cooler temperature at the time of receipt was measured at 1.4 degrees Centigrade (°C). The cooler temperatures were within EPA's recommended temperature preservation range of less than 6.0 °C. No data qualifications were warranted.

Trip blank was prepared by ESC on October 24, 2017 and results are reported in ESC SDG L947200.

Holding Times

All samples were analyzed for VOCs within the EPA recommended holding time of 14 days (preserved water). All holding time criteria were met.

Initial and Continuing Calibration

Calibration data for this project are not required for this deliverable however ESC's notes indicate the following:

- *USEPA Method 8260C*: Continuing calibration verification (CCV) issues are noted by ESC for bromomethane, and chloroethane associated with analytical batch WG1037488 (analyzed on October 31, 2017). These results are qualified by the laboratory "J0" to indicate that percent difference CCVs are outside of laboratory acceptance criteria. **The associated sample results for these compounds are laboratory qualified J0. All associated sample results for these compounds are estimated and qualified (UJ).**

Method Blank Results

A laboratory method blank was included with the analytical batch per method requirement. The target analytes (VOCs) were not detected in the method blank at a concentration at or above the method reporting limits (MRLs) with one exception:

- A low level of 1,2,3-trichlorobenzene was detected below the MRL and above the method detection limit (MDL) in the method blank. No action was taken as this compound was not detected in the associated samples.

Trip Blank Results

A trip blank was prepared by ESC on October 24, 2017 and results are reported in this SDG (SDG L947200). The target analytes (VOCs) were not detected in the trip blank at concentrations at or above the method reporting limits (MRLs).

Equipment Blank Results

An equipment blank was not collected.

Field Duplicate Analyses

Field duplicate samples (DC-7-102317 and MW-101-102317) were collected and analyzed for VOCs. Results are discussed in the data validation memorandum associated with ESC SDG L946305.

Laboratory Duplicate Analyses

Laboratory duplicate analysis was not performed. Refer to laboratory control sample results for precision data.

Surrogate Recoveries

The surrogate percent recovery (%R) results for the samples, method blank, and laboratory control samples are within the laboratory surrogate control limits. No data qualifications were warranted.

Laboratory Control Samples

The laboratory control sample/laboratory control sample duplicate (LCS/LCSDs) %R's and relative percent differences (RPDs) are within the laboratory control limits for accuracy and precision.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) analysis were not performed. Refer to LCS/LCSD results for accuracy and precision data.

Other Quality Control Issues

No other laboratory quality control issues were identified in the laboratory report.

Quantitation Limits

Results of the USEPA 8260 VOC analyses were reported based on laboratory MRLs. The MRLs indicate the minimum quantity of a target analyte that can be confidently determined by the reference method. The MRLs were acceptable for the project; therefore, no data qualifications were warranted.

Data Assessment

Data qualifiers were assigned and laboratory report pages with qualifiers are attached. All data, including qualified data, are judged to be acceptable for their intended use.



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND		25.0	1	10/31/2017 20:40	WG1037488
Acrylonitrile	ND		5.00	1	10/31/2017 20:40	WG1037488
Benzene	ND		0.500	1	10/31/2017 20:40	WG1037488
Bromobenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
Bromodichloromethane	ND		0.500	1	10/31/2017 20:40	WG1037488
Bromochloromethane	ND		0.500	1	10/31/2017 20:40	WG1037488
Bromoform	ND		0.500	1	10/31/2017 20:40	WG1037488
Bromomethane	ND	UJ JO	2.50	1	10/31/2017 20:40	WG1037488
n-Butylbenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
sec-Butylbenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
tert-Butylbenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
Carbon disulfide	ND		0.500	1	10/31/2017 20:40	WG1037488
Carbon tetrachloride	ND		0.500	1	10/31/2017 20:40	WG1037488
Chlorobenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
Chlorodibromomethane	ND		0.500	1	10/31/2017 20:40	WG1037488
Chloroethane	ND	UJ JO	2.50	1	10/31/2017 20:40	WG1037488
Chloroform	ND		0.500	1	10/31/2017 20:40	WG1037488
Chloromethane	ND		1.25	1	10/31/2017 20:40	WG1037488
2-Chlorotoluene	ND		0.500	1	10/31/2017 20:40	WG1037488
4-Chlorotoluene	ND		0.500	1	10/31/2017 20:40	WG1037488
1,2-Dibromo-3-Chloropropane	ND		2.50	1	10/31/2017 20:40	WG1037488
1,2-Dibromoethane	ND		0.500	1	10/31/2017 20:40	WG1037488
Dibromomethane	ND		0.500	1	10/31/2017 20:40	WG1037488
1,2-Dichlorobenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
1,3-Dichlorobenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
1,4-Dichlorobenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
Dichlorodifluoromethane	ND		2.50	1	10/31/2017 20:40	WG1037488
1,1-Dichloroethane	ND		0.500	1	10/31/2017 20:40	WG1037488
1,2-Dichloroethane	ND		0.500	1	10/31/2017 20:40	WG1037488
1,1-Dichloroethene	ND		0.500	1	10/31/2017 20:40	WG1037488
cis-1,2-Dichloroethene	ND		0.500	1	10/31/2017 20:40	WG1037488
trans-1,2-Dichloroethene	ND		0.500	1	10/31/2017 20:40	WG1037488
1,2-Dichloropropane	ND		0.500	1	10/31/2017 20:40	WG1037488
1,1-Dichloropropene	ND		0.500	1	10/31/2017 20:40	WG1037488
1,3-Dichloropropane	ND		1.00	1	10/31/2017 20:40	WG1037488
cis-1,3-Dichloropropene	ND		0.500	1	10/31/2017 20:40	WG1037488
trans-1,3-Dichloropropene	ND		0.500	1	10/31/2017 20:40	WG1037488
trans-1,4-Dichloro-2-butene	ND		5.00	1	10/31/2017 20:40	WG1037488
2,2-Dichloropropane	ND		0.500	1	10/31/2017 20:40	WG1037488
Di-isopropyl ether	ND		0.500	1	10/31/2017 20:40	WG1037488
Ethylbenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
Hexachloro-1,3-butadiene	ND		1.00	1	10/31/2017 20:40	WG1037488
2-Hexanone	ND		5.00	1	10/31/2017 20:40	WG1037488
n-Hexane	ND		5.00	1	10/31/2017 20:40	WG1037488
Iodomethane	ND		10.0	1	10/31/2017 20:40	WG1037488
Isopropylbenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
p-Isopropyltoluene	ND		0.500	1	10/31/2017 20:40	WG1037488
2-Butanone (MEK)	ND		5.00	1	10/31/2017 20:40	WG1037488
Methylene Chloride	ND		2.50	1	10/31/2017 20:40	WG1037488
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	10/31/2017 20:40	WG1037488
Methyl tert-butyl ether	ND		0.500	1	10/31/2017 20:40	WG1037488
Naphthalene	ND		2.50	1	10/31/2017 20:40	WG1037488
n-Propylbenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
Styrene	ND		0.500	1	10/31/2017 20:40	WG1037488
1,1,1,2-Tetrachloroethane	ND		0.500	1	10/31/2017 20:40	WG1037488
1,1,2,2-Tetrachloroethane	ND		0.500	1	10/31/2017 20:40	WG1037488

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

JC 11/3/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	10/31/2017 20:40	WG1037488
Tetrachloroethene	ND		0.500	1	10/31/2017 20:40	WG1037488
Toluene	ND		0.500	1	10/31/2017 20:40	WG1037488
1,2,3-Trichlorobenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
1,2,4-Trichlorobenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
1,1,1-Trichloroethane	ND		0.500	1	10/31/2017 20:40	WG1037488
1,1,2-Trichloroethane	ND		0.500	1	10/31/2017 20:40	WG1037488
Trichloroethene	ND		0.500	1	10/31/2017 20:40	WG1037488
Trichlorofluoromethane	ND		2.50	1	10/31/2017 20:40	WG1037488
1,2,3-Trichloropropane	ND		2.50	1	10/31/2017 20:40	WG1037488
1,2,4-Trimethylbenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
1,2,3-Trimethylbenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
1,3,5-Trimethylbenzene	ND		0.500	1	10/31/2017 20:40	WG1037488
Vinyl acetate	ND		5.00	1	10/31/2017 20:40	WG1037488
Vinyl chloride	ND		0.500	1	10/31/2017 20:40	WG1037488
Xylenes, Total	ND		1.50	1	10/31/2017 20:40	WG1037488
(S) Toluene-d8	106		80.0-120		10/31/2017 20:40	WG1037488
(S) Dibromofluoromethane	99.8		76.0-123		10/31/2017 20:40	WG1037488
(S) 4-Bromofluorobenzene	92.2		80.0-120		10/31/2017 20:40	WG1037488

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

JC 11/3/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND		25.0	1	10/31/2017 21:00	WG1037488
Acrylonitrile	ND		5.00	1	10/31/2017 21:00	WG1037488
Benzene	ND		0.500	1	10/31/2017 21:00	WG1037488
Bromobenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
Bromodichloromethane	ND		0.500	1	10/31/2017 21:00	WG1037488
Bromochloromethane	ND		0.500	1	10/31/2017 21:00	WG1037488
Bromoform	ND		0.500	1	10/31/2017 21:00	WG1037488
Bromomethane	ND	UJ JO	2.50	1	10/31/2017 21:00	WG1037488
n-Butylbenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
sec-Butylbenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
tert-Butylbenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
Carbon disulfide	ND		0.500	1	10/31/2017 21:00	WG1037488
Carbon tetrachloride	ND		0.500	1	10/31/2017 21:00	WG1037488
Chlorobenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
Chlorodibromomethane	ND		0.500	1	10/31/2017 21:00	WG1037488
Chloroethane	ND	UJ JO	2.50	1	10/31/2017 21:00	WG1037488
Chloroform	ND		0.500	1	10/31/2017 21:00	WG1037488
Chloromethane	ND		1.25	1	10/31/2017 21:00	WG1037488
2-Chlorotoluene	ND		0.500	1	10/31/2017 21:00	WG1037488
4-Chlorotoluene	ND		0.500	1	10/31/2017 21:00	WG1037488
1,2-Dibromo-3-Chloropropane	ND		2.50	1	10/31/2017 21:00	WG1037488
1,2-Dibromoethane	ND		0.500	1	10/31/2017 21:00	WG1037488
Dibromomethane	ND		0.500	1	10/31/2017 21:00	WG1037488
1,2-Dichlorobenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
1,3-Dichlorobenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
1,4-Dichlorobenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
Dichlorodifluoromethane	ND		2.50	1	10/31/2017 21:00	WG1037488
1,1-Dichloroethane	ND		0.500	1	10/31/2017 21:00	WG1037488
1,2-Dichloroethane	ND		0.500	1	10/31/2017 21:00	WG1037488
1,1-Dichloroethene	ND		0.500	1	10/31/2017 21:00	WG1037488
cis-1,2-Dichloroethene	ND		0.500	1	10/31/2017 21:00	WG1037488
trans-1,2-Dichloroethene	ND		0.500	1	10/31/2017 21:00	WG1037488
1,2-Dichloropropane	ND		0.500	1	10/31/2017 21:00	WG1037488
1,1-Dichloropropene	ND		0.500	1	10/31/2017 21:00	WG1037488
1,3-Dichloropropane	ND		1.00	1	10/31/2017 21:00	WG1037488
cis-1,3-Dichloropropene	ND		0.500	1	10/31/2017 21:00	WG1037488
trans-1,3-Dichloropropene	ND		0.500	1	10/31/2017 21:00	WG1037488
trans-1,4-Dichloro-2-butene	ND		5.00	1	10/31/2017 21:00	WG1037488
2,2-Dichloropropane	ND		0.500	1	10/31/2017 21:00	WG1037488
Di-isopropyl ether	ND		0.500	1	10/31/2017 21:00	WG1037488
Ethylbenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
Hexachloro-1,3-butadiene	ND		1.00	1	10/31/2017 21:00	WG1037488
2-Hexanone	ND		5.00	1	10/31/2017 21:00	WG1037488
n-Hexane	ND		5.00	1	10/31/2017 21:00	WG1037488
Iodomethane	ND		10.0	1	10/31/2017 21:00	WG1037488
Isopropylbenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
p-Isopropyltoluene	ND		0.500	1	10/31/2017 21:00	WG1037488
2-Butanone (MEK)	ND		5.00	1	10/31/2017 21:00	WG1037488
Methylene Chloride	ND		2.50	1	10/31/2017 21:00	WG1037488
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	10/31/2017 21:00	WG1037488
Methyl tert-butyl ether	ND		0.500	1	10/31/2017 21:00	WG1037488
Naphthalene	ND		2.50	1	10/31/2017 21:00	WG1037488
n-Propylbenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
Styrene	ND		0.500	1	10/31/2017 21:00	WG1037488
1,1,1,2-Tetrachloroethane	ND		0.500	1	10/31/2017 21:00	WG1037488
1,1,2,2-Tetrachloroethane	ND		0.500	1	10/31/2017 21:00	WG1037488

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

JC 11/3/17



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	10/31/2017 21:00	WG1037488
Tetrachloroethene	ND		0.500	1	10/31/2017 21:00	WG1037488
Toluene	ND		0.500	1	10/31/2017 21:00	WG1037488
1,2,3-Trichlorobenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
1,2,4-Trichlorobenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
1,1,1-Trichloroethane	ND		0.500	1	10/31/2017 21:00	WG1037488
1,1,2-Trichloroethane	ND		0.500	1	10/31/2017 21:00	WG1037488
Trichloroethene	ND		0.500	1	10/31/2017 21:00	WG1037488
Trichlorofluoromethane	ND		2.50	1	10/31/2017 21:00	WG1037488
1,2,3-Trichloropropane	ND		2.50	1	10/31/2017 21:00	WG1037488
1,2,4-Trimethylbenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
1,2,3-Trimethylbenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
1,3,5-Trimethylbenzene	ND		0.500	1	10/31/2017 21:00	WG1037488
Vinyl acetate	ND		5.00	1	10/31/2017 21:00	WG1037488
Vinyl chloride	ND		0.500	1	10/31/2017 21:00	WG1037488
Xylenes, Total	ND		1.50	1	10/31/2017 21:00	WG1037488
(S) Toluene-d8	104		80.0-120		10/31/2017 21:00	WG1037488
(S) Dibromofluoromethane	99.2		76.0-123		10/31/2017 21:00	WG1037488
(S) 4-Bromofluorobenzene	92.4		80.0-120		10/31/2017 21:00	WG1037488

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

JC 11/3/17



Collected date/time: 10/24/17 00:00

L947200

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND		25.0	1	10/31/2017 15:48	WG1037488
Acrylonitrile	ND		5.00	1	10/31/2017 15:48	WG1037488
Benzene	ND		0.500	1	10/31/2017 15:48	WG1037488
Bromobenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
Bromodichloromethane	ND		0.500	1	10/31/2017 15:48	WG1037488
Bromochloromethane	ND		0.500	1	10/31/2017 15:48	WG1037488
Bromoform	ND		0.500	1	10/31/2017 15:48	WG1037488
Bromomethane	ND	UJ JO	2.50	1	10/31/2017 15:48	WG1037488
n-Butylbenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
sec-Butylbenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
tert-Butylbenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
Carbon disulfide	ND		0.500	1	10/31/2017 15:48	WG1037488
Carbon tetrachloride	ND		0.500	1	10/31/2017 15:48	WG1037488
Chlorobenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
Chlorodibromomethane	ND		0.500	1	10/31/2017 15:48	WG1037488
Chloroethane	ND	UJ JO	2.50	1	10/31/2017 15:48	WG1037488
Chloroform	ND		0.500	1	10/31/2017 15:48	WG1037488
Chloromethane	ND		1.25	1	10/31/2017 15:48	WG1037488
2-Chlorotoluene	ND		0.500	1	10/31/2017 15:48	WG1037488
4-Chlorotoluene	ND		0.500	1	10/31/2017 15:48	WG1037488
1,2-Dibromo-3-Chloropropane	ND		2.50	1	10/31/2017 15:48	WG1037488
1,2-Dibromoethane	ND		0.500	1	10/31/2017 15:48	WG1037488
Dibromomethane	ND		0.500	1	10/31/2017 15:48	WG1037488
1,2-Dichlorobenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
1,3-Dichlorobenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
1,4-Dichlorobenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
Dichlorodifluoromethane	ND		2.50	1	10/31/2017 15:48	WG1037488
1,1-Dichloroethane	ND		0.500	1	10/31/2017 15:48	WG1037488
1,2-Dichloroethane	ND		0.500	1	10/31/2017 15:48	WG1037488
1,1-Dichloroethene	ND		0.500	1	10/31/2017 15:48	WG1037488
cis-1,2-Dichloroethene	ND		0.500	1	10/31/2017 15:48	WG1037488
trans-1,2-Dichloroethene	ND		0.500	1	10/31/2017 15:48	WG1037488
1,2-Dichloropropane	ND		0.500	1	10/31/2017 15:48	WG1037488
1,1-Dichloropropene	ND		0.500	1	10/31/2017 15:48	WG1037488
1,3-Dichloropropane	ND		1.00	1	10/31/2017 15:48	WG1037488
cis-1,3-Dichloropropene	ND		0.500	1	10/31/2017 15:48	WG1037488
trans-1,3-Dichloropropene	ND		0.500	1	10/31/2017 15:48	WG1037488
trans-1,4-Dichloro-2-butene	ND		5.00	1	10/31/2017 15:48	WG1037488
2,2-Dichloropropane	ND		0.500	1	10/31/2017 15:48	WG1037488
Di-isopropyl ether	ND		0.500	1	10/31/2017 15:48	WG1037488
Ethylbenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
Hexachloro-1,3-butadiene	ND		1.00	1	10/31/2017 15:48	WG1037488
2-Hexanone	ND		5.00	1	10/31/2017 15:48	WG1037488
n-Hexane	ND		5.00	1	10/31/2017 15:48	WG1037488
Iodomethane	ND		10.0	1	10/31/2017 15:48	WG1037488
Isopropylbenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
p-Isopropyltoluene	ND		0.500	1	10/31/2017 15:48	WG1037488
2-Butanone (MEK)	ND		5.00	1	10/31/2017 15:48	WG1037488
Methylene Chloride	ND		2.50	1	10/31/2017 15:48	WG1037488
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	10/31/2017 15:48	WG1037488
Methyl tert-butyl ether	ND		0.500	1	10/31/2017 15:48	WG1037488
Naphthalene	ND		2.50	1	10/31/2017 15:48	WG1037488
n-Propylbenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
Styrene	ND		0.500	1	10/31/2017 15:48	WG1037488
1,1,1,2-Tetrachloroethane	ND		0.500	1	10/31/2017 15:48	WG1037488
1,1,2,2-Tetrachloroethane	ND		0.500	1	10/31/2017 15:48	WG1037488

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

JC 11/3/17

ACCOUNT:

PES Environmental, Inc.- WA

PROJECT:

1358.001.01.003

SDG:

L947200

DATE/TIME:

11/03/17 13:54

PAGE:

9 of 18



Collected date/time: 10/24/17 00:00

L947200

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	10/31/2017 15:48	WG1037488
Tetrachloroethene	ND		0.500	1	10/31/2017 15:48	WG1037488
Toluene	ND		0.500	1	10/31/2017 15:48	WG1037488
1,2,3-Trichlorobenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
1,2,4-Trichlorobenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
1,1,1-Trichloroethane	ND		0.500	1	10/31/2017 15:48	WG1037488
1,1,2-Trichloroethane	ND		0.500	1	10/31/2017 15:48	WG1037488
Trichloroethene	ND		0.500	1	10/31/2017 15:48	WG1037488
Trichlorofluoromethane	ND		2.50	1	10/31/2017 15:48	WG1037488
1,2,3-Trichloropropane	ND		2.50	1	10/31/2017 15:48	WG1037488
1,2,4-Trimethylbenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
1,2,3-Trimethylbenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
1,3,5-Trimethylbenzene	ND		0.500	1	10/31/2017 15:48	WG1037488
Vinyl acetate	ND		5.00	1	10/31/2017 15:48	WG1037488
Vinyl chloride	ND		0.500	1	10/31/2017 15:48	WG1037488
Xylenes, Total	ND		1.50	1	10/31/2017 15:48	WG1037488
(S) Toluene-d8	108		80.0-120		10/31/2017 15:48	WG1037488
(S) Dibromofluoromethane	101		76.0-123		10/31/2017 15:48	WG1037488
(S) 4-Bromofluorobenzene	104		80.0-120		10/31/2017 15:48	WG1037488

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

JC 11/3/17

ATTACHMENT C
SVE CAPTURE ZONE EVALUATION DATA

Attachment C
SVE Well Capture Zone Evaluation
Harris and MVSC Properties
Normandy Park, Washington

PROBLEM:

- 1) Calculate normalized vacuum at monitoring points and plot on semi-log chart for capture zone (CZ) evaluation.
 Field testing on 7/20/2017.

GIVEN:

- A) ROI test vacuum and flow data

SVE-6 Screen interval 5 - 10 ft bgs

Pilot Test Well ID	Distance from SVE-6 (ft)	Vacuum	
		Const. Rate (in.w.c.)	Normalized
SVE-6	0.1	18	1.0
SVE-4	104	0.7	0.039
SVE-5	39	0.5	0.028
SVE-7	23	0.5	0.028
SVE-8	53	0.3	0.017
SVE-9	126	0.3	0.017
DC-1	117	0.2	0.011
MW-2	97	0.2	0.011
MW-15	48	0.5	0.028
MW-16	133	0.2	0.011
VMP-6	26	0.6	0.033

SVE-7 Screen interval 10 - 30 ft bgs

Pilot Test Well ID	Distance from SVE-7 (ft)	Vacuum	
		Const. Rate (in.w.c.)	Normalized
SVE-7	0.1	3	1.0
SVE-4	115	0.6	0.20
SVE-5	50	0.5	0.17
SVE-6	23	0	--
SVE-8	33	0.5	0.17
SVE-9	116	0.3	0.10
DC-1	138	0.2	0.07
MW-2	75	0.3	0.100
MW-15	36	0.5	0.167
MW-16	126	0.3	0.100
VMP-5	102	0.4	0.133
VMP-6	30	0.4	0.133

SVE-3 Screen interval 10 - 30 ft bgs

Pilot Test Well ID	Distance from SVE-3 (ft)	Vacuum	
		Const. Rate (in.w.c.)	Normalized
SVE-3	0.1	6.5	1.0
SVE-2	71	0.5	0.08
SVE-4	52	0.4	0.06
SVE-15	77	0.5	0.077
SVE-16	50	0.6	0.092
SVE-18	33	0.2	0.031
SVE-18	49	0.7	0.108
SVE-19	49	0.6	0.092
MW-10	63	0.5	0.077
MW-11	70	0.4	0.062
MW-13	83	0.5	0.077
MW-16	121	0.4	0.062
VMP-5	67	0.4	0.062
VMP-3	56	0.4	0.062

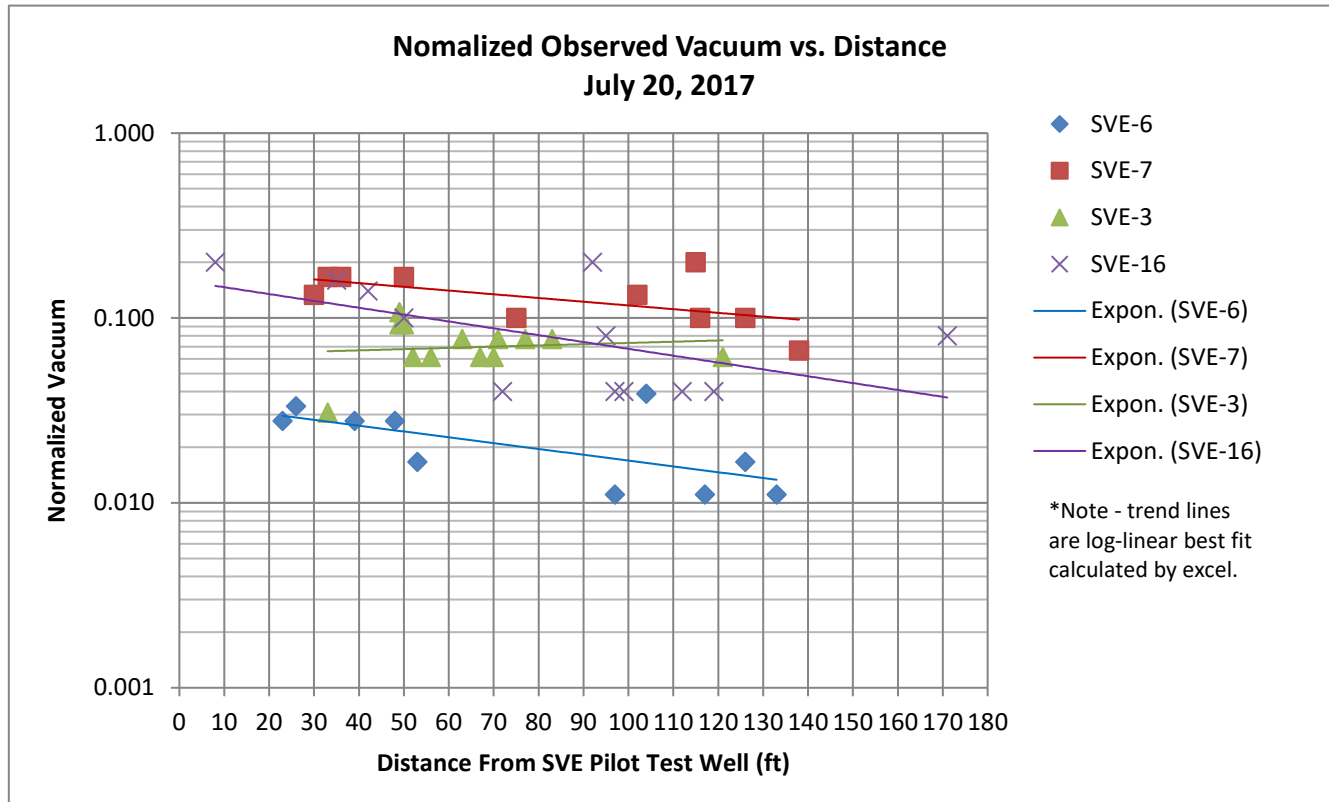
SVE-16 Screen interval 20.5 - 34.8 ft bgs

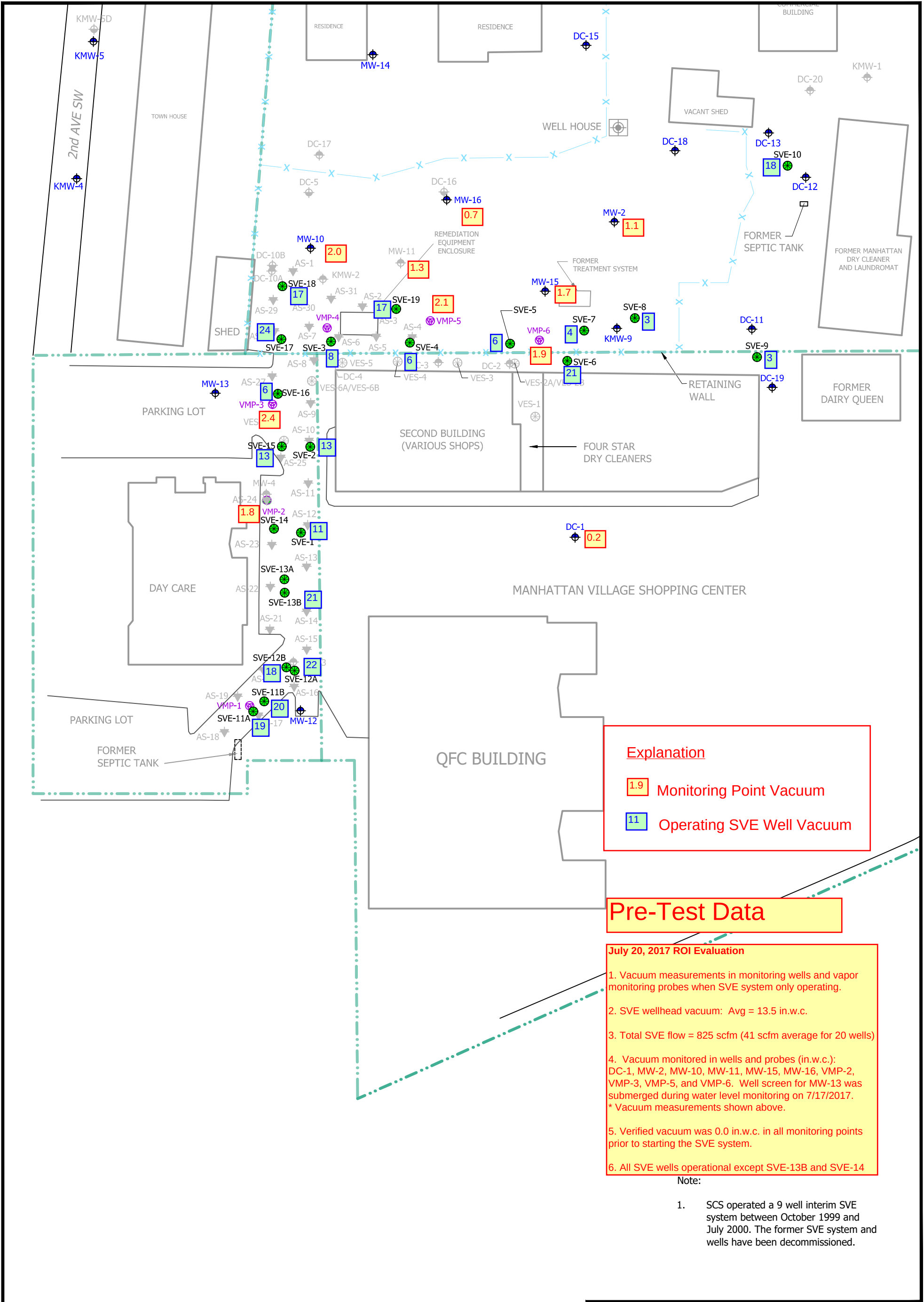
Pilot Test Well ID	Distance from SVE-16 (ft)	Vacuum	
		Const. Rate (in.w.c.)	Normalized
SVE-16	0.1	5	1.0
SVE-1	92	1	0.20
SVE-2	42	0.7	0.14
SVE-3	50	0.5	0.10
SVE-4	95	0.4	0.08
SVE-15	35	0.8	0.16
SVE-18	72	0.2	0.040
SVE-19	97	0.2	0.040
MW-10	99	0.2	0.040
MW-11	119	0.2	0.040
MW-16	171	0.4	0.080
VMP-3	8	1	0.200
VMP-5	112	0.2	0.040

Attachment C **SVE Well Capture Zone Evaluation** **Harris and MVSC Properties** **Normandy Park, Washington**

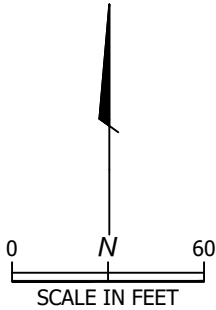
CALCULATION:

- 1) Plot normalized vacuum vs distance.





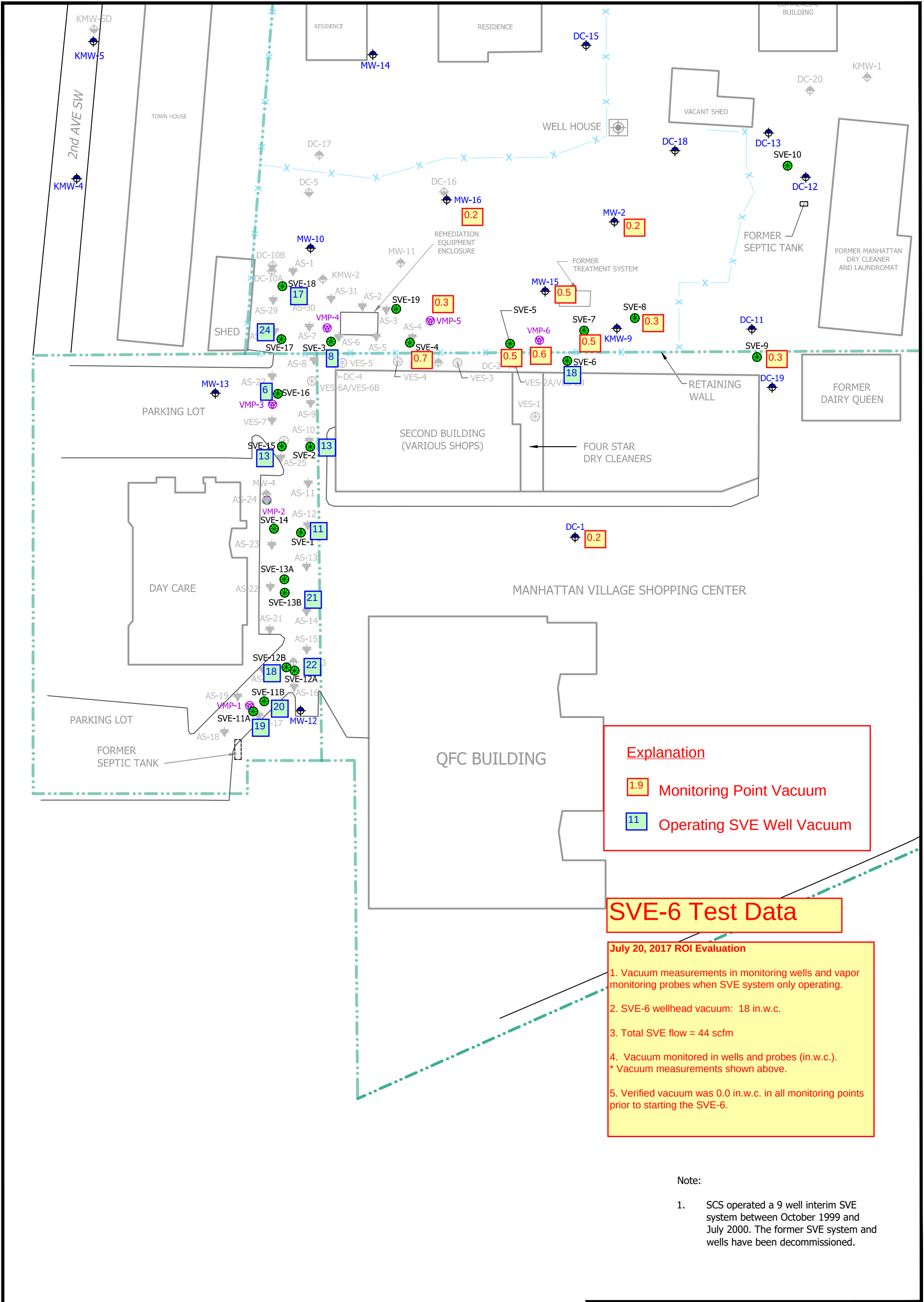
- EXPLANATION**
- Approximate Property Boundary
 - MW-12 Shallow Monitoring Well
 - DC-16 Deep Monitoring Well
 - AS-1 Air Sparge Well
 - SVE-1 Soil Vapor Extraction Well
 - VES-3 Decommissioned Soil Vapor Extraction Well (SCS, 1999)
 - VMP-1 Vapor Monitoring Probe



Remediation Well Locations
Manhattan Village/Harris Properties
17817, 17825, and 17835 1st Avenue South
Normandy Park, Washington

FIGURE

3A



Explanation

1.9 Monitoring Point Vacuum

11 Operating SVE Well Vacuum

SVE-6 Test Data

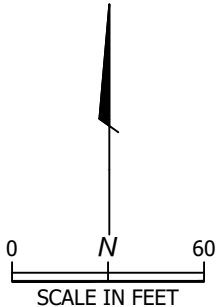
July 20, 2017 ROI Evaluation

- Vacuum measurements in monitoring wells and vapor monitoring probes when SVE system only operating.
- SVE-6 wellhead vacuum: 18 in.w.c.
- Total SVE flow = 44 scfm
- Vacuum monitored in wells and probes (in.w.c.).
* Vacuum measurements shown above.
- Verified vacuum was 0.0 in.w.c. in all monitoring points prior to starting the SVE-6.

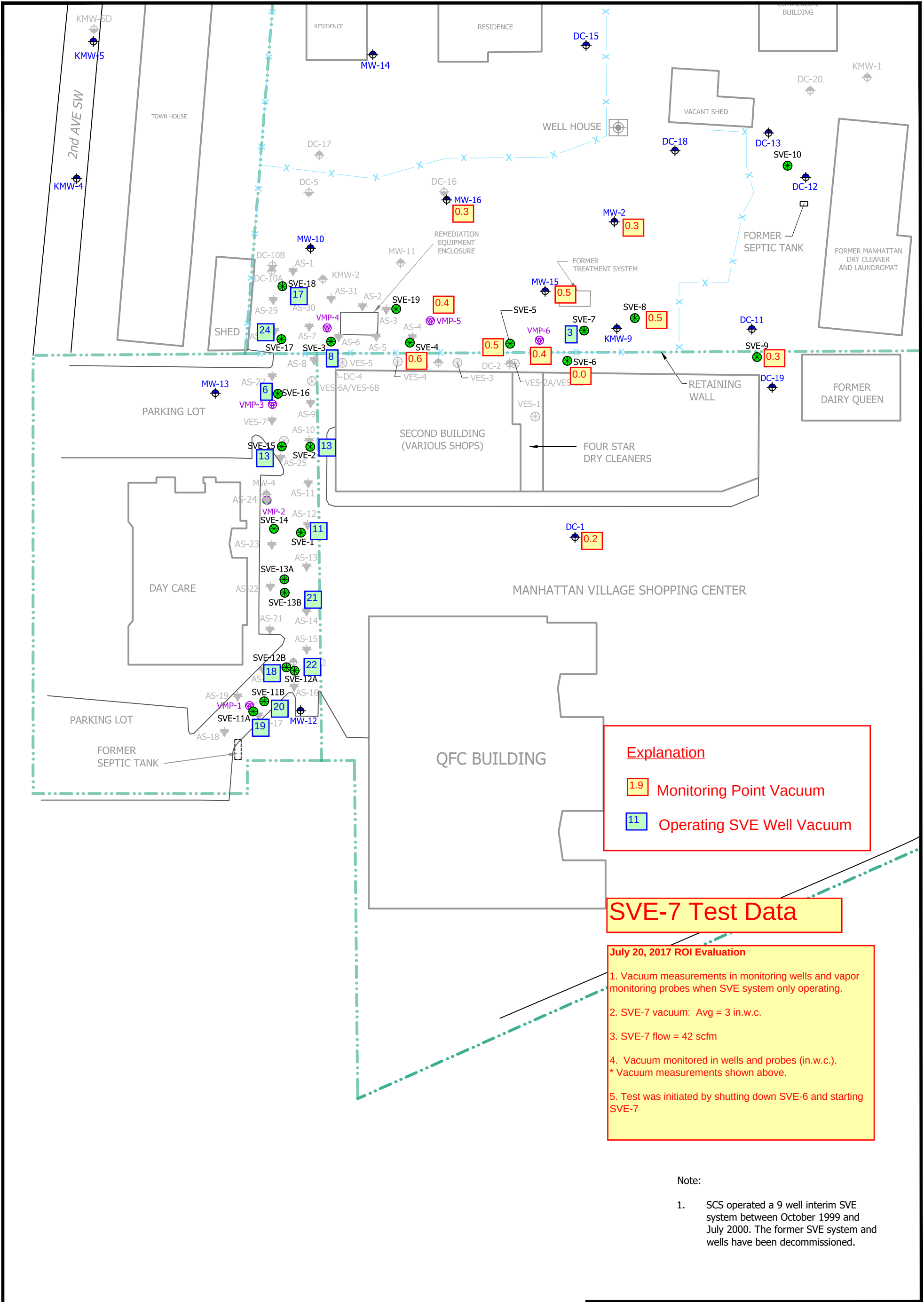
Note:

- SCS operated a 9 well interim SVE system between October 1999 and July 2000. The former SVE system and wells have been decommissioned.

- EXPLANATION**
- Approximate Property Boundary
 - MW-12 Shallow Monitoring Well
 - DC-16 Deep Monitoring Well
 - AS-1 Air Sparge Well
 - SVE-1 Soil Vapor Extraction Well
 - VES-3 Decommissioned Soil Vapor Extraction Well (SCS, 1999)
 - VMP-1 Vapor Monitoring Probe



Remediation Well Locations
Manhattan Village/Harris Properties
17817, 17825, and 17835 1st Avenue South
Normandy Park, Washington



Explanation

1.9 Monitoring Point Vacuum

11 Operating SVE Well Vacuum

SVE-7 Test Data

July 20, 2017 ROI Evaluation

1. Vacuum measurements in monitoring wells and vapor monitoring probes when SVE system only operating.
2. SVE-7 vacuum: Avg = 3 in.w.c.
3. SVE-7 flow = 42 scfm
4. Vacuum monitored in wells and probes (in.w.c.).
* Vacuum measurements shown above.
5. Test was initiated by shutting down SVE-6 and starting SVE-7

Note:

1. SCS operated a 9 well interim SVE system between October 1999 and July 2000. The former SVE system and wells have been decommissioned.

- EXPLANATION**
- Approximate Property Boundary
 - MW-12 Shallow Monitoring Well
 - DC-16 Deep Monitoring Well
 - AS-1 Air Sparge Well
 - SVE-1 Soil Vapor Extraction Well
 - VES-3 Decommissioned Soil Vapor Extraction Well (SCS, 1999)
 - VMP-1 Vapor Monitoring Probe

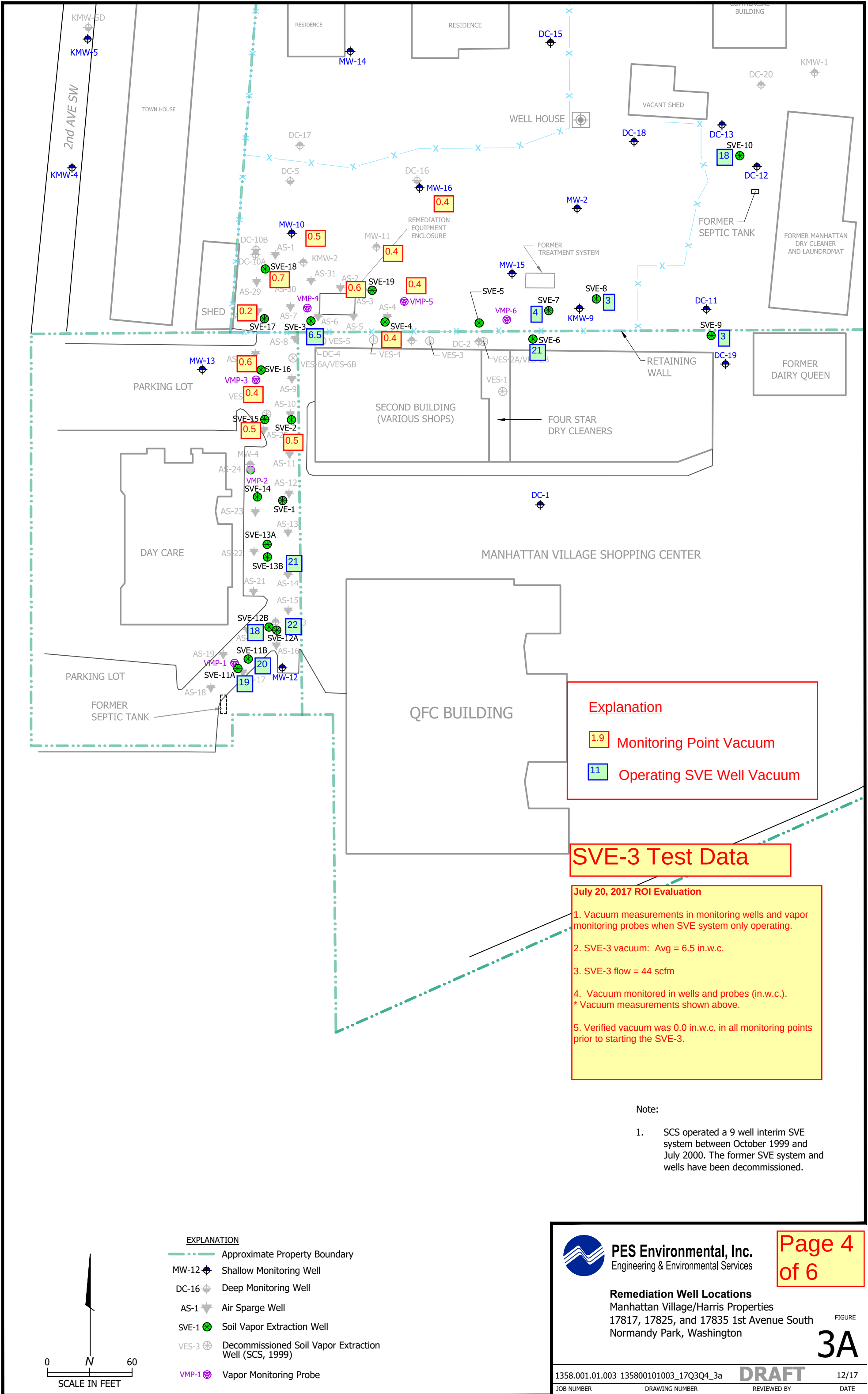


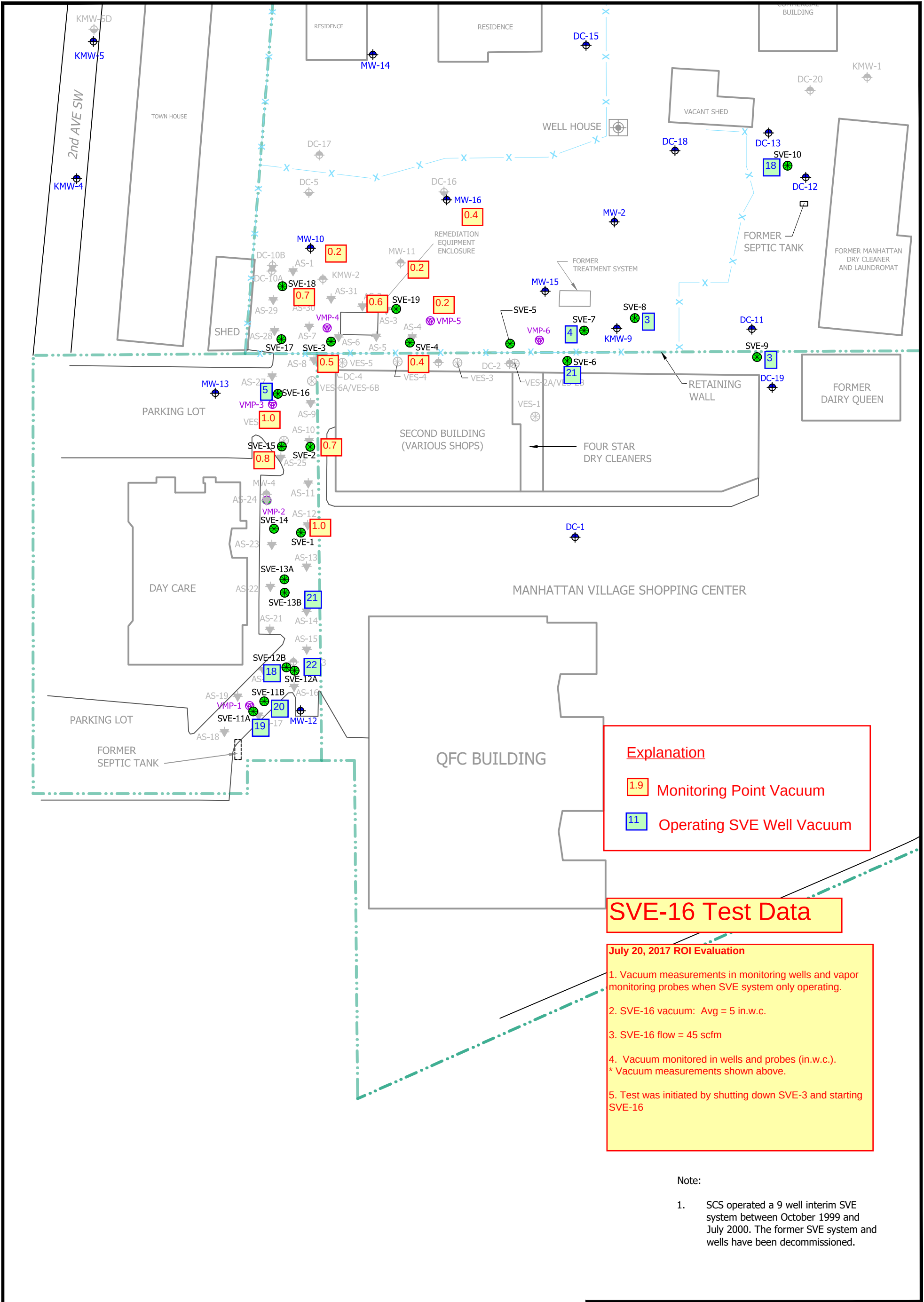
PES Environmental, Inc.
Engineering & Environmental Services

Remediation Well Locations
Manhattan Village/Harris Properties
17817, 17825, and 17835 1st Avenue South
Normandy Park, Washington

FIGURE

3A





Explanation

1.9 Monitoring Point Vacuum

11 Operating SVE Well Vacuum

SVE-16 Test Data

July 20, 2017 ROI Evaluation

1. Vacuum measurements in monitoring wells and vapor monitoring probes when SVE system only operating.

2. SVE-16 vacuum: Avg = 5 in.w.c.

3. SVE-16 flow = 45 scfm

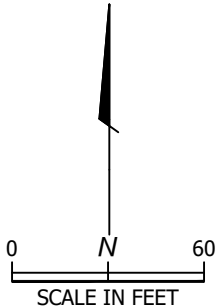
4. Vacuum monitored in wells and probes (in.w.c.).
* Vacuum measurements shown above.

5. Test was initiated by shutting down SVE-3 and starting SVE-16

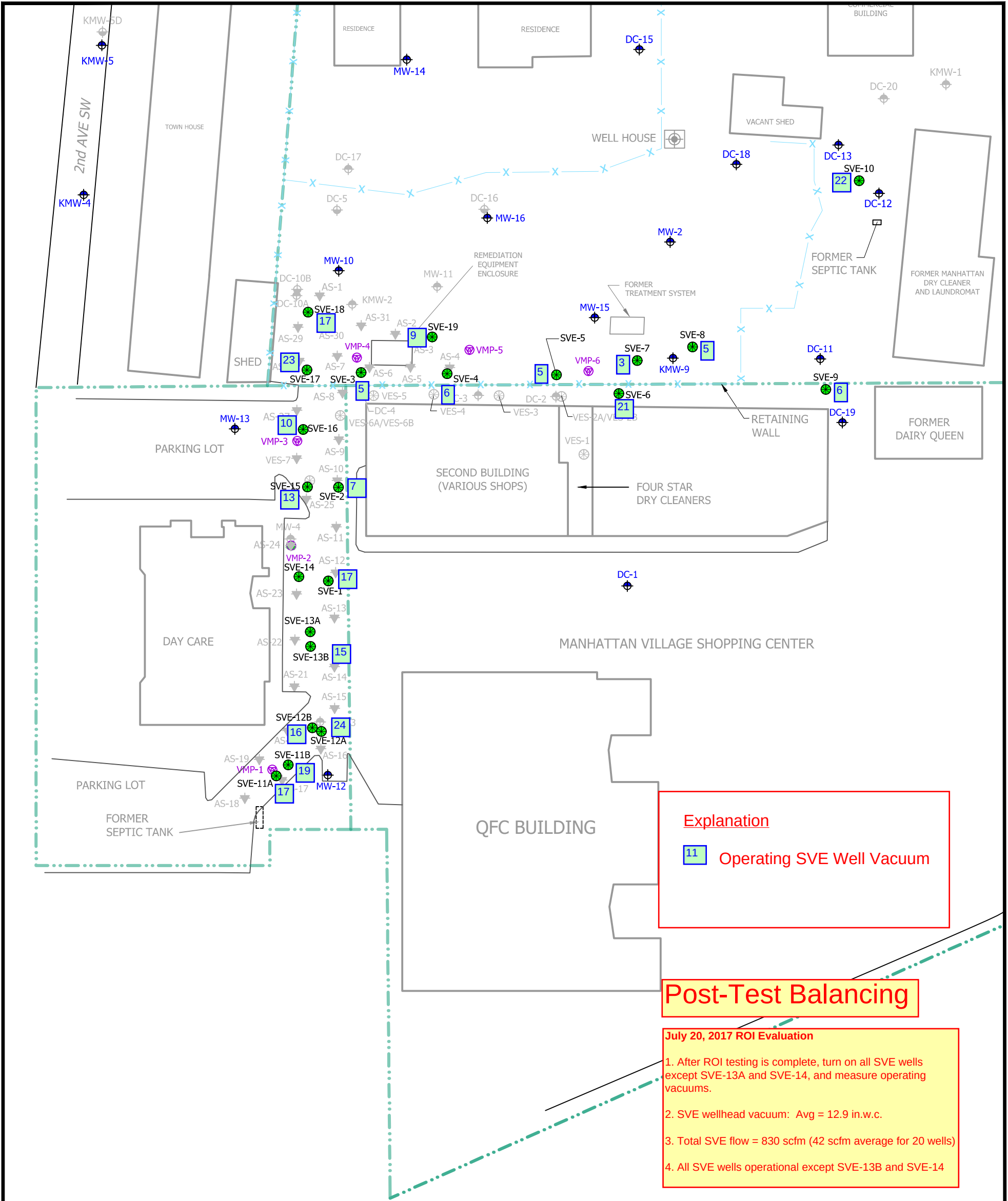
Note:

1. SCS operated a 9 well interim SVE system between October 1999 and July 2000. The former SVE system and wells have been decommissioned.

- EXPLANATION**
- Approximate Property Boundary
 - MW-12 Shallow Monitoring Well
 - DC-16 Deep Monitoring Well
 - AS-1 Air Sparge Well
 - SVE-1 Soil Vapor Extraction Well
 - VES-3 Decommissioned Soil Vapor Extraction Well (SCS, 1999)
 - VMP-1 Vapor Monitoring Probe

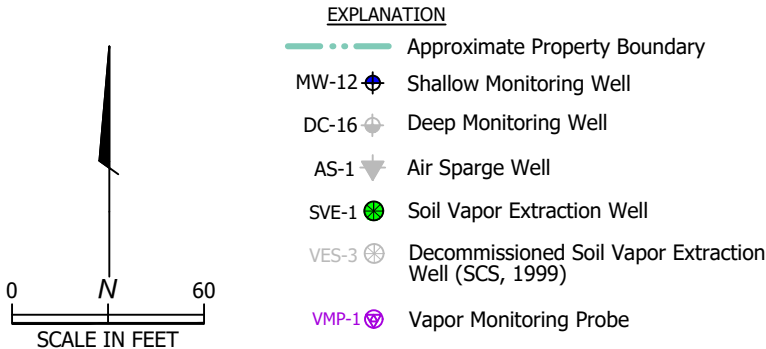


Remediation Well Locations
Manhattan Village/Harris Properties
17817, 17825, and 17835 1st Avenue South
Normandy Park, Washington



Note:

1. SCS operated a 9 well interim SVE system between October 1999 and July 2000. The former SVE system and wells have been decommissioned.



ATTACHMENT D
WELL COMPLETION DETAILS AND HISTORICAL GROUNDWATER DATA
SUMMARIES

- Table D1 – Well Completion Details
- Table D2 – Historical Summary of Groundwater Elevations (1999-2017)
- Table D3 – Historical Summary of Groundwater Analytical Results (1999-2017)

Table D1
Well Completion Details
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Well	Ecology Well Tag Number	Date Installed	Drilling Method	Location		Elevation (feet NAVD 88)			Monument Type	Boring Depth (feet)	Well Diameter (inches)	Screen Depth (ft bgs)		Slot Size (inch)	Filter Pack (ft bgs)	Seal (ft bgs)
				(feet NAD 83/91)		Monitoring Point	Surface Casing Rim	Ground Surface				Below Ground	Below Top of Casing			
				Northing	Easting											
Shallow Monitoring Wells																
MW-1		12/9/99	HSA	--	--	309.97	--	--	Flush	44	2	34-44	--	0.020	est. 32-44	0-est. 32
MW-2		12/9/99	HSA	165,149.8	1,268,724.6	308.34	309.13	309.12	Flush	43	2	33-43	32.22-42.22	0.020	est. 31-43	0-est. 31
MW-3		4/8/08	HSA	164,857.2	1,268,511.5	311.41	311.76	311.74	Flush	47	2	36-46	35.67-45.67	0.010	34-46	0-34
MW-4		4/8/08	HSA	164,968.5	1,268,493.6	310.47	311.03	311.02	Flush	44	2	34-44	33.45-43.45	0.010	32-44	0-32
MW-5		4/8/08	HSA	165,331.6	1,268,938.6	310.38	310.84	--	Flush	46	2	36-46	35.6-45.6	0.010	34-46	0-34
MW-6		4/9/08	HSA	165,615.5	1,268,908.5	304.14	304.71	304.68	Flush	45	2	35-45	34.46-44.46	0.010	33-45	0-35
MW-7		4/9/08	HSA	165,652.2	1,268,684.8	302.64	303.18	303.17	Flush	45	2	35-45	34.47-44.47	0.010	33-45	0-35
MW-8		8/18/08	HSA	165,681.2	1,268,349.8	280.68	281.05	280.97	Flush	26	2	13-23	12.71-22.71	0.010	11-23	0-11
MW-9		8/18/08	HSA	166,019.8	1,268,663.9	284.97	285.35	285.37	Flush	55	2	32-42	31.6-41.6	0.010	30-42	0-30
MW-10		2/3/11	HSA	165,132.3	1,268,522.8	306.71	307.20	307.19	Flush	42	2	32-42	31.52-41.52	0.010	30-42	0-30
MW-11		2/3/11	HSA	165,122.2	1,268,582.9	307.62	308.13	308.06	Flush	42	2	32-42	31.56-41.56	0.010	30-42	0-30
MW-12		3/28/12	HSA	164,825.0	1,268,516.1	312.80	313.12	313.10	Flush	46.5	2	36-46	35.7-45.7	0.010	34-46.5	0-34
MW-13		3/29/12	HSA	165,036.5	1,268,459.8	308.75	309.16	309.17	Flush	46.5	2	35-45	34.58-44.58	0.010	33-45	0-33
MW-14		3/27/12	HSA	165,261.1	1,268,564.6	303.82	304.24	--	Flush	38	2	28-38	27.6-37.6	0.010	26-38	0-26
MW-15		3/28/12	HSA	165,103.9	1,268,678.7	312.44	312.81	310.30	AG	46.5	2	35-45	37.14-47.14	0.010	33-45.5	0-33
MW-16	BHV646	5/16/13	HSA	165,164.5	1,268,613.3	310.37	311.21	307.92	AG	43	2	27.2-42.2	29.45-44.65	0.020	25-43	0-25
DC-1		10/12/98	HSA	164,940.2	1,268,698.6	312.82	313.34	--	Flush	47	2	40-45	39.5-44.5	0.020	37-47	0-37
DC-2		10/13/98	HSA	165,055.6	1,268,655.1	312.92	313.61	313.70	Flush	50	2	42-47	41.22-46.22	0.020	40-50	0-40
DC-3		10/13/98	HSA	165,056.4	1,268,607.7	313.11	313.68	313.79	Flush	48	2	43-48	42.32-47.32	0.020	41-48	0-41
DC-4		10/13/98	HSA	165,058.1	1,268,537.4	312.35	312.96	312.99	Flush	49	2	44-49	43.36-48.36	0.020	41-49	0-41
DC-6		1/22/99	HSA	--	--	308.46	--	--	Flush	45	2	40-45	--	0.020	37-45	0-37
DC-7		1/18/99	HSA	165,318.1	1,268,514.4	302.61	303.30	303.26	Flush	40	2	35-40	34.35-39.35	0.020	33-40	0-33
DC-8		1/18/99	HSA	165,328.8	1,268,685.4	306.23	306.70	306.59	Flush	42	2	37-42	36.64-41.64	0.020	34-42	0-34
DC-9A		4/6/99	HSA	165,124.7	1,268,587.3	308.02	--	--	Flush	38	2	33-38	32.6-37.6	0.020	31-38	0-31
DC-10A		4/5/99	HSA	165,117.2	1,268,497.2	307.73	307.83	307.72	Flush	37	2	32-37	32.01-37.01	0.020	30-37	0-30
DC-11		4/19/07	HSA	165,078.5	1,268,816.1	311.25	311.66	--	Flush	42	2	32-42	31.6-41.6	0.010	30-42	0-30
DC-12		4/18/07	HSA	165,179.4	1,268,851.9	311.25	311.58	--	Flush	42	2	32-42	31.7-41.7	0.010	30-42	0-30
DC-13		4/19/07	HSA	165,208.9	1,268,827.2	310.20	310.52	--	Flush	42	2	32-42	31.7-41.7	0.010	30-42	0-30
DC-14		4/17/07	HSA	165,355.0	1,268,812.6	308.94	309.49	--	Flush	45	2	35-45	34.4-44.4	0.010	33-45	0-33
DC-15		4/16/07	HSA	165,267.1	1,268,705.9	307.89	308.20	--	Flush	42	2	31-41	30.7-40.7	0.010	29-41	0-29
DC-17		4/16/07	HSA	165,194.2	1,268,528.6	305.16	305.58	305.35	Flush	40	2	30-40	29.81-39.81	0.010	28-40	0-28
DC-18		4/18/07	HSA	165,197.1	1,268,765.0	309.51	309.95	309.93	Flush	42	2	32-42	31.58-41.58	0.010	30-42	0-30
DC-19		6/1/07	HSA	165,039.3	1,268,829.6	313.62	313.82	--	Flush	47	2	37-47	36.8-46.8	0.010	35-47	0-35
DC-20		5/28/08	HSA	165,237.2	1,268,854.8	310.92	311.13	--	Flush	44	2	34-44	33.8-43.8	0.020	32-44	0-32
KMW-1		7/25/05	HSA	165,245.9	1,268,892.6	311.59	311.82	--	Flush	52	2	37-52	36.8-51.8	0.010	34-52	0-34
KMW-2		5/1/06	HSA	165,111.7	1,268,531.0	307.04	307.27	307.13	Flush	50	6	30-40	29.91-39.91	0.010	8-40	0-8
KMW-3		5/1/06	HSA	165,357.4	1,268,462.5	296.92	297.52	--	Flush	40	2	25-35	24.6-34.6	0.010	8-35	0-8
KMW-4		3/28/07	HSA	165,175.7	1,268,369.8	299.57	299.84	299.78	Flush	34	2	24-34	23.79-33.79	0.020	22-34	0-22
KMW-5		3/28/07	HSA	165,267.7	1,268,380.4	297.22	297.58	297.56	Flush	34	2	24-34	23.66-33.66	0.020	22-34	0-22
KMW-6		3/27/07	HSA	165,391.1	1,268,399.1	294.81	295.06	295.08	Flush	42.5	2	26-41	25.73-40.73	0.020	22-41	0-22
KMW-7		3/25/07	HSA	165,389.7	1,268,563.6	301.43	301.66	301.65	Flush	44	2	29-44	28.78-43.78	0.020	27-44	0-27
KMW-8		3/26/07	HSA	165,386.2	1,268,800.7	308.15	308.51	308.46	Flush	44	2	29-44	28.69-43.69	0.020	27-44	0-29
KMW-9		3/27/07	HSA	165,079.0	1,268,726.3	310.33	310.83	310.83	Flush	44	2	34-44	33.5-43.5	0.020	32-44	0-32

Table D1
Well Completion Details
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Well	Ecology Well Tag Number	Date Installed	Drilling Method	Location (feet NAD 83/91)		Elevation (feet NAVD 88)			Monument Type	Boring Depth (feet)	Well Diameter (inches)	Screen Depth (ft bgs)		Slot Size (inch)	Filter Pack (ft bgs)	Seal (ft bgs)
						Monitoring Point	Surface Casing Rim	Ground Surface				Below Ground	Below Top of Casing			
				Northing	Easting											
Deep Monitoring Wells																
DC-5		1/22/99	HSA	165,166.5	1,268,526.9	306.03	306.28	306.24	Flush	58.5	2	41-46	40.79-45.79	0.020	39-47	0-39
DC-9B		4/5/99	HSA	165,122.8	1,268,589.4	308.16	--	--	Flush	60	2	53-58	--	0.020	50.5-58	0-50.5
DC-10B		4/6/99	HSA	165,120.4	1,268,497.5	307.80	308.29	307.89	Flush	56	2	45-50	44.91-49.91	0.020	43-50	0-43
DC-16		4/18/07	HSA	165,169.7	1,268,611.5	307.12	307.79	--	Flush	61.5	2	50-60	49.3-59.3	0.010	50-60	0-50
KMW-5D		3/28/07	HSA	165,276.5	1,268,382.0	297.04	297.35	297.32	Flush	46	2	41-46	40.72-45.72	0.020	41-46	0-41
Former SCS Soil Vapor Extraction Wells (1999)																
VES-1 (B1)		1999	--	--	--	--	--	--	Flush	11.5	2	3-11	--	0.020	2.5-11.5	1.5-2.5
VES-2A		1999	--	--	--	--	--	--	Flush	6.5	2	3-6	--	0.020	2.5-6.5	1.5-2.5
VES-2B		1999	--	--	--	--	--	--	Flush	36	2	11.5-35.5	--	0.020	7.5-36	1.5-2.5/6.5-7.5
VES-3 (BH-15)		1999	--	--	--	--	--	--	Flush	6.5	2	3-6	--	0.020	2.5-6.5	1.5-2.5
VES-4 (BH-16)		1999	--	--	--	--	--	--	Flush	6.5	2	3-6	--	0.020	2.5-6.5	1.5-2.5
VES-5 (BH-17)		1999	--	--	--	--	--	--	Flush	6.5	2	3-6	--	0.010	2.5-6.5	1.5-2.5
VES-6A (BH-1)		1999	--	--	--	--	--	--	Flush	6.5	2	3-6	--	0.020	2.5-6.5	1.5-2.5
VES-6B (BH-1)		1999	--	--	--	--	--	--	Flush	36	2	11.5-35.5	--	0.020	7.5-36	1.5-2.5/6.5-7.5
VES-7		1999	--	--	--	--	--	--	Flush	6.5	2	3-6	--	0.020	2.5-6.5	1.5-2.5
Soil Vapor Extraction Wells																
SVE-1		6/29/09	HSA	164,943.5	1,268,516.2	311.85	312.02	--	Flush	35.5	2	10-35	9.7-34.7	0.020	8-35.5	0-8
SVE-2		6/29/09	HSA	165,000.3	1,268,522.6	312.41	312.58	--	Flush	35.5	2	10-35	9.6-34.6	0.020	8-35.5	0-8
SVE-3		6/30/09	HSA	165,070.2	1,268,536.4	308.28	--	307.84	Flush	30.5	2	10-30	10.44-30.44	0.020	8-30.5	0-8
SVE-4		6/30/09	HSA	165,069.1	1,268,589.2	308.90	--	308.31	Flush	30.5	2	10-30	10.59-30.59	0.020	8-30.5	0-8
SVE-5		6/30/09	HSA	165,068.8	1,268,655.3	309.91	--	309.31	Flush	30.5	2	10-30	10.6-30.6	0.020	8-30.5	0-8
SVE-6		6/26/09	AKVAC	165,057.5	1,268,693.4	313.03	313.57	--	Flush	10	2	5-10	4.6-9.6	0.010	4-10	0-4
SVE-7		6/30/09	HSA	165,077.5	1,268,704.6	310.71	--	309.95	Flush	30.5	2	10-30	10.76-30.76	0.020	8-30.5	0-8
SVE-8		6/30/09	HSA	165,085.8	1,268,738.3	311.48	--	310.56	Flush	30.5	2	10-30	10.92-30.92	0.020	8-30.5	0-8
SVE-9		6/29/09	HSA	165,060.0	1,268,819.5	313.31	--	312.13	Flush	30.5	2	10-30	11.18-31.18	0.020	8-30.5	0-8
SVE-10		6/30/09	HSA	165,187.1	1,268,839.8	311.06	311.28	--	Flush	30.5	2	10-30	9.8-29.8	0.020	8-30.5	0-8
SVE-11A	BIE307	11/18/13	HSA	164,824.5	1,268,484.7	--	311.21	--	Flush	20	4	5-19.98	4.6-19.58	0.020	3-20	0-3
SVE-11B	BIE301	11/18/13	HSA	164,831.2	1,268,492.0	--	311.43	--	Flush	57	4	20-35	19.6-34.6	0.020	18-36	0-18
SVE-12A	BIE303	11/19/13	HSA	164,851.6	1,268,512.2	--	312.06	--	Flush	20	4	5-19.98	4.6-19.58	0.020	3-20	0-3
SVE-12B	BIE304	11/20/13	HSA	164,853.8	1,268,506.7	--	311.52	--	Flush	57	4	20-35	19.6-34.6	0.020	18-36	0-18
SVE-13A	BIE306	11/22/13	HSA	164,912.3	1,268,505.4	--	310.95	--	Flush	20	4	5-19.98	4.6-19.58	0.020	3-20	0-3
SVE-13B	BIE305	11/21/13	HSA	164,903.3	1,268,505.6	--	310.99	--	Flush	57.5	4	20-35	19.6-34.6	0.020	18-36	0-18
SVE-14	BID732	10/13/14	HSA	164,945.9	1,268,498.5	--	311.06	--	Flush	36	4	19.63-34.63	19.23-34.23	0.020	18.3-36	3-18.3
SVE-15	BID736	10/15/14	HSA	165,000.5	1,268,503.7	--	311.30	--	Flush	36	4	20.61-34.96	20.21-34.56	0.020	19.3-36	3.5-19.3
SVE-16	BID737	10/15/14	HSA	165,035.5	1,268,501.1	--	310.83	--	Flush	36	4	20.49-34.79	20.09-34.39	0.020	18-36	3.5-18
SVE-17	BID709	9/24/14	HSA	165,071.8	1,268,503.4	--	308.39	--	Flush	31	4	19.91-29.91	19.51-29.51	0.020	18-31	3.3-18
SVE-18	BID708	9/23/14	HSA	165,107.0	1,268,504.1	--	307.34	--	Flush	31	4	19.79-29.79	19.39-29.39	0.020	17.9-31	16-17.9
SVE-19	BID715	9/29/14	HSA	165,091.9	1,268,579.7	--	308.53	--	Flush	31	4	19.99-29.99	19.59-29.59	0.020	18-31	3.5-18

Table D1
Well Completion Details
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Well	Ecology Well Tag Number	Date Installed	Drilling Method	Location		Elevation (feet NAVD 88)			Monument Type	Boring Depth (feet)	Well Diameter (inches)	Screen Depth (ft bgs)		Slot Size (inch)	Filter Pack (ft bgs)	Seal (ft bgs)
				(feet NAD 83/91)		Monitoring Point	Surface Casing Rim	Ground Surface				Below Ground	Below Top of Casing			
				Northing	Easting											
Vapor Monitoring Probes																
VMP-1 (B-5)		3/26/08	DP	164,828.0	1,268,482.4	310.91	311.01	--	Flush	30	0.75	10-15	9.7-14.7	0.010	7-30	0-7
VMP-2 (B-7)		3/25/08	DP	164,964.6	1,268,493.8	310.97	311.04	--	Flush	30	0.75	10-15	9.8-14.8	0.010	7-30	0-7
VMP-3 (B-9)		3/25/08	DP	165,028.4	1,268,497.6	310.58	310.71	--	Flush	30	0.75	10-15	9.9-14.9	0.010	7-30	0-7
VMP-4 (B-11)		3/27/08	DP	165,079.0	1,268,533.8	307.67	308.00	--	Flush	30	0.75	10-15	9.7-14.7	0.010	7-30	0-7
VMP-5 (B-12)		3/27/08	DP	165,083.7	1,268,602.8	308.22	308.48	--	Flush	25	0.75	10-15	9.7-14.7	0.010	7-25	0-7
VMP-6 (B-13)		3/27/08	DP	165,071.2	1,268,674.9	308.95	309.18	--	Flush	26	0.75	10-15	9.8-14.8	0.010	7-26	0-7
Recirculation Well																
TW-1		5/2/06	HSA	165,114.8	1,268,571.3	--	--	--	AG	50	6	25-35/45-50	--	0.010	22-35/40-50	0-22/35-40
Pilot Test Injection Well																
IW-1		--	--	--	--	--	--	--	AG	38	--	--	--	--	--	--
Air Sparging Wells																
AS-1	BHV647	5/17/13	HSA	165,116.9	1,268,511.0	--	307.23	307.34	Flush	48	1	43.8-45.8	43.4-45.4	0.010	43.5-48	0-43.5
AS-2	BID714	9/29/14	HSA	165,093.2	1,268,557.0	--	308.30	--	Flush	53	2	48.08-51.13	47.68-50.73	0.020	48-53	3.0-48
AS-3	BID718	10/1/14	HSA	165,091.7	1,268,574.0	--	308.44	--	Flush	51	2	48.14-50.14	47.74-49.74	0.020	46-51	3.6-46
AS-4	BID717	9/30/14	HSA	165,073.3	1,268,590.4	--	308.25	--	Flush	51	2	48.82-50.80	48.42-50.4	0.020	47.3-51	3.3-47.3
AS-5	BID716	9/30/14	HSA	165,073.7	1,268,566.0	--	307.97	--	Flush	52	2	48.77-50.79	48.37-50.39	0.020	47.5-52	3.5-47.5
AS-6	BID713	9/26/14	HSA	165,073.2	1,268,541.5	--	307.89	--	Flush	52	2	48.91-50.92	48.51-50.52	0.020	47.6-52	3.5-47.6
AS-7	BID710	9/24/14	HSA	165,080.3	1,268,521.9	--	308.01	--	Flush	50.5	2	46.93-48.91	46.53-48.51	0.020	46-50.5	3.5-43
AS-8	BID740	10/17/14	HSA	165,058.0	1,268,525.1	--	312.52	--	Flush	54	2	52.10-54.14	51.7-53.74	0.020	51-54.31	3.5-51
AS-9	BID739	10/16/14	HSA	165,029.5	1,268,522.9	--	312.52	--	Flush	54	2	51.09-53.11	50.69-52.71	0.020	50-54	4-50
AS-10	BID733	10/14/14	HSA	165,004.5	1,268,521.9	--	312.52	--	Flush	56	2	52.78-54.80	52.38-54.4	0.020	52-56	3.9-52
AS-11	BID731	10/13/14	HSA	164,976.2	1,268,521.3	--	312.57	--	Flush	54.5	2	52.27-54.27	51.87-53.87	0.020	50.51-54.5	3-50.5
AS-12	BID729	10/10/14	HSA	164,948.4	1,268,520.9	--	312.34	--	Flush	54.24	2	52.06-54.07	51.66-53.67	0.020	50.7-54.24	3.5-50.7
AS-13	BID728	10/9/14	HSA	164,920.9	1,268,520.2	--	311.72	--	Flush	54	2	51.64-53.67	51.24-53.27	0.020	50.7-54	3.5-50.7
AS-14	BID726	10/8/14	HSA	164,891.0	1,268,520.2	--	311.93	--	Flush	54.09	2	51.88-53.92	51.48-53.52	0.020	50.9-54.09	3.3-50.09
AS-15	BID723	10/6/14	HSA	164,865.7	1,268,520.3	--	312.35	--	Flush	54	2	50.89-52.87	50.49-52.47	0.020	50-54	3.5-50
AS-16	BID724	10/7/14	HSA	164,841.0	1,268,511.9	--	312.37	--	Flush	54	2	51.89-53.97	51.49-53.57	0.020	51-54.04	3.3-51
AS-17	BID721	10/3/14	HSA	164,821.9	1,268,488.3	--	311.44	--	Flush	54.02	2	51.87-53.85	51.47-53.45	0.020	50.5-54.02	3.3-50.5
AS-18	BID719	10/2/14	HSA	164,810.9	1,268,465.6	--	310.51	--	Flush	54.5	2	50.37-52.35	49.97-51.95	0.020	49.5-54.5	3.6-49.5
AS-19	BID720	10/3/14	HSA	164,834.5	1,268,474.4	--	310.67	--	Flush	54.08	2	51.94-53.91	51.54-53.51	0.020	50.7-54.08	3.0-54.08
AS-20	BID722	10/6/14	HSA	164,852.1	1,268,491.4	--	311.00	--	Flush	54	2	50.96-52.94	50.56-52.54	0.020	49.6-54	3.5-49.6
AS-21	BID725	10/7/14	HSA	164,879.0	1,268,495.8	--	310.98	--	Flush	55	2	51.92-53.92	51.52-53.52	0.020	50.7-55	3.5-50.7
AS-22	BID727	10/8/14	HSA	164,907.4	1,268,496.1	--	310.72	--	Flush	55	2	52.38-54.40	51.98-54	0.020	51.5-55	3.5-51.5
AS-23	BID730	10/10/14	HSA	164,935.3	1,268,497.1	--	310.88	--	Flush	55	2	52.72-54.76	52.32-54.36	0.020	52-55	3.7-55
AS-24	BID734	10/14/14	HSA	164,963.7	1,268,494.9	--	311.08	--	Flush	55	2	52.68-54.74	52.28-54.34	0.020	52-55	3.5-52
AS-25	BID735	10/15/14	HSA	164,993.3	1,268,503.1	--	311.33	--	Flush	56	2	53.35-55.36	52.95-54.96	0.020	51.9-56	3.5-51.9
AS-26	BID738	10/16/14	HSA	165,018.0	1,268,497.2	--	310.75	--	Flush	55.5	2	53.10-54.14	52.7-53.74	0.020	52-55.5	4-52
AS-27	BID741	10/17/14	HSA	165,047.3	1,268,497.3	--	310.99	--	Flush	55.5	2	53.10-55.14	52.7-54.74	0.020	52-55.5	4-52
AS-28	BID706	9/22/14	HSA	165,077.4	1,268,498.9	--	308.11	--	Flush	50.5	2	47.94-49.88	47.54-49.48	0.020	47.5-50.5	3.5-47.5
AS-29	BID707	9/23/14	HSA	165,098.0	1,268,498.4	--	307.74	--	Flush	51	2	48.10-50.08	47.7-49.68	0.020	47-51	3.3-47
AS-30	BID711	9/25/14	HSA	165,100.2	1,268,516.2	--	307.36	--	Flush	52	2	48.24-50.24	47.84-49.84	0.020	46.8-52	3.8-46.8
AS-31	BID712	9/26/14	HSA	165,098.2	1,268,535.6	--	308.10	--	Flush	52.5	2	48.86-50.89	48.46-50.49	0.020	47.6-52.5	3.5-47.6

Table D1

Well Completion Details
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Well	Ecology Well Tag Number	Date Installed	Drilling Method	Location (feet NAD 83/91)		Elevation (feet NAVD 88)			Monument Type	Boring Depth (feet)	Well Diameter (inches)	Screen Depth (ft bgs)		Slot Size (inch)	Filter Pack (ft bgs)	Seal (ft bgs)
				Northing	Easting	Monitoring Point	Surface Casing Rim	Ground Surface				Below Ground	Below Top of Casing			
Notes: 1. Northing and easting in feet relative to the Washington State Plane System North Zone (NAD 83/91) 2. Elevations in feet relative to the North American Vertical Datum (NAVD 88) 3. Monitoring point = top of the PVC well casing 4. All depths shown in feet below ground surface (ft bgs) 5. All wells completed with Schedule 40 PVC with the exception of AS-1 (Schdedule 80 PVC) 6. Drilling methods include hollow stem auger (HSA), direct push (DP), and vacuum truck with air knife (AKVAC) 7. '-- = not documented or unknown 8. Surface elevations for the direct push borings represents ground surface adjacent to the boring 9. Screened intervals are documented on boring logs and are typically based on a field measurements relative to ground surface at the time of drilling. Screened intervals relative to top of casing are estimated using well field construction measurements, surveyed top of casing elevations, surveyed ground surface elevations, and in some cases surveyed monument rim elevations. If ground or rim elevations are not surveyed, then top of casing is assumed to be 0.4 ft depth. 10. Monitoring wells MW-1, DC-6, DC-9A, DC-9B are missing or destroyed. The 1999 SCS VES wells have been decommissioned.																

Table D2
Historical Summary of Groundwater Elevations (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

PES Environmental, Inc.

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)
MW-1	12/10/1999	309.97	37.44	272.53
MW-1	2/9/2005	309.97	39.52	270.45
MW-1	4/11/2006	309.97	37.78	272.19
MW-1	10/26/2006	309.97	39.22	270.75
MW-1	4/24/2007	309.97	36.61	273.36
MW-1	8/21/2008	309.97	37.32	272.65
MW-2	12/10/1999	307.69	35.60	272.09
MW-2	11/5/2010	307.69	37.03	270.66
MW-2	2/11/2011	307.69	35.81	271.88
MW-2	5/30/2011	307.69	34.40	273.29
MW-2	7/19/2011	307.69	34.71	272.98
MW-2	10/17/2011	307.69	35.80	271.89
MW-2	4/2/2012	307.69	36.11	271.58
MW-2	5/28/2013	308.56	35.73	272.83
MW-2	4/14/2014	308.56	36.17	272.39
MW-2	10/21/2014	308.34	36.48	271.86
MW-2	12/11/2015	308.34	36.89	271.45
MW-2	12/13/2016	308.34	36.09	272.25
MW-2	3/13/2017	308.34	34.93	273.41
MW-2	7/17/2017	308.34	33.97	274.37
MW-2	10/20/2017	308.34	35.45	272.89
MW-3	8/21/2008	311.49	39.77	271.72
MW-3	11/5/2010	311.49	39.43	272.06
MW-3	2/11/2011	311.49	38.10	273.39
MW-3	5/30/2011	311.49	36.66	274.83
MW-3	7/19/2011	311.49	37.03	274.46
MW-3	10/17/2011	311.49	38.18	273.31
MW-3	4/2/2012	311.49	38.39	273.10
MW-3	5/28/2013	311.62	38.09	273.53
MW-3	10/21/2014	311.41	38.91	272.50
MW-3	12/9/2015	311.41	39.28	272.13
MW-3	12/13/2016	311.41	38.44	272.97
MW-3	3/13/2017	311.41	37.09	274.32
MW-3	7/17/2017	311.41	36.21	275.20
MW-3	10/20/2017	311.41	37.61	273.80

Table D2
Historical Summary of Groundwater Elevations (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

PES Environmental, Inc.

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)
MW-4	11/5/2010	310.54	38.74	271.80
MW-4	2/11/2011	310.54	37.41	273.13
MW-4	5/30/2011	310.54	35.99	274.55
MW-4	7/19/2011	310.54	36.37	274.17
MW-4	10/17/2011	310.54	37.50	273.04
MW-4	4/2/2012	310.54	37.67	272.87
MW-4	5/28/2013	310.68	37.40	273.28
MW-4	10/21/2014	310.47	38.13	272.34
MW-4	12/9/2015	310.47	38.60	271.87
MW-4	12/13/2016	310.47	37.36	273.11
MW-4	3/13/2017	310.47	36.42	274.05
MW-4	7/17/2017	310.47	35.59	274.88
MW-4	10/20/2017	310.47	37.17	273.30
MW-5	8/21/2008	310.28	39.96	270.32
MW-5	11/5/2010	310.28	39.73	270.55
MW-5	2/11/2011	310.28	38.60	271.68
MW-5	5/30/2011	310.28	37.24	273.04
MW-5	7/19/2011	310.28	37.51	272.77
MW-5	10/17/2011	310.28	38.54	271.74
MW-5	4/2/2012	310.28	38.90	271.38
MW-5	10/21/2014	310.38	39.17	271.21
MW-5	12/9/2015	310.38	39.69	270.69
MW-5	12/13/2016	310.38	38.80	271.58
MW-5	3/13/2017	310.38	37.80	272.58
MW-5	7/17/2017	310.47	36.80	273.67
MW-5	10/20/2017	310.47	38.17	272.30
MW-6	8/21/2008	304.27	37.46	266.81
MW-6	11/5/2010	304.27	37.25	267.02
MW-6	2/11/2011	304.27	36.30	267.97
MW-6	5/30/2011	304.27	35.50	268.77
MW-6	7/19/2011	304.27	35.38	268.89
MW-6	10/17/2011	304.27	36.24	268.03
MW-6	4/2/2012	304.27	36.53	267.74
MW-6	10/21/2014	304.14	37.79	266.35
MW-6	12/9/2015	304.14	37.22	266.92
MW-6	12/13/2016	304.14	36.49	267.65
MW-6	3/13/2017	304.14	35.68	268.46
MW-6	7/17/2017	304.14	34.79	269.35
MW-6	10/20/2017	304.14	38.24	265.90

Table D2
Historical Summary of Groundwater Elevations (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

PES Environmental, Inc.

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)
MW-7	8/21/2008	302.76	39.00	263.76
MW-7	11/5/2010	302.76	38.74	264.02
MW-7	2/11/2011	302.76	37.61	265.15
MW-7	5/30/2011	302.76	36.09	266.67
MW-7	7/19/2011	302.76	36.43	266.33
MW-7	10/17/2011	302.76	37.43	265.33
MW-7	4/2/2012	302.76	37.52	265.24
MW-7	5/28/2013	302.76	37.48	265.28
MW-7	10/30/2014	302.64	35.80	266.84
MW-7	12/9/2015	302.64	38.75	263.89
MW-7	12/13/2016	302.64	37.79	264.85
MW-7	3/13/2017	302.64	36.79	265.85
MW-7	7/17/2017	302.64	35.75	266.89
MW-7	10/20/2017	302.64	37.16	265.48
MW-8	8/21/2008	280.08	12.78	267.30
MW-8	2/11/2011	280.08	11.11	268.97
MW-8	5/30/2011	280.08	10.20	269.88
MW-8	7/19/2011	280.08	10.66	269.42
MW-8	10/17/2011	280.08	11.52	268.56
MW-8	4/2/2012	280.08	11.09	268.99
MW-8	10/21/2014	280.68	12.12	268.56
MW-8	12/9/2015	280.68	11.81	268.87
MW-8	12/13/2016	280.68	11.40	269.28
MW-8	3/13/2017	280.68	10.30	270.38
MW-8	7/17/2017	280.68	10.26	270.42
MW-8	10/20/2017	280.68	10.25	270.43
MW-9	8/21/2008	285.11	32.24	252.87
MW-9	11/5/2010	285.11	31.98	253.13
MW-9	2/11/2011	285.11	30.93	254.18
MW-9	5/30/2011	285.11	29.76	255.35
MW-9	7/19/2011	285.11	30.12	254.99
MW-9	10/17/2011	285.11	31.04	254.07
MW-9	4/2/2012	285.11	31.05	254.06
MW-9	10/21/2014	284.97	31.68	253.29
MW-9	12/9/2015	284.97	32.06	252.91
MW-9	12/13/2016	284.97	31.24	253.73
MW-9	3/13/2017	284.97	30.20	254.77
MW-9	7/17/2017	284.97	29.59	255.38
MW-9	10/20/2017	284.97	30.75	254.22

Table D2
Historical Summary of Groundwater Elevations (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

PES Environmental, Inc.

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)
MW-10	2/11/2011	306.70	34.04	272.66
MW-10	5/30/2011	306.70	32.69	274.01
MW-10	7/19/2011	306.70	33.05	273.65
MW-10	10/17/2011	306.70	34.13	272.57
MW-10	4/2/2012	306.70	34.31	272.39
MW-10	5/28/2013	306.91	34.03	272.88
MW-10	10/21/2014	306.71	34.81	271.90
MW-10	12/9/2015	306.71	35.22	271.49
MW-10	12/13/2016	306.71	34.41	272.30
MW-10	3/13/2017	306.71	33.15	273.56
MW-10	7/17/2017	306.71	32.34	274.37
MW-10	10/20/2017	306.71	33.82	272.89
MW-11	2/11/2011	307.63	35.01	272.62
MW-11	5/30/2011	307.63	33.63	274.00
MW-11	7/19/2011	307.63	33.97	273.66
MW-11	10/17/2011	307.63	35.05	272.58
MW-11	4/2/2012	307.63	35.29	272.34
MW-11	5/28/2013	307.85	34.98	272.87
MW-11	10/21/2014	307.62	35.78	271.84
MW-11	12/9/2015	307.62	36.16	271.46
MW-11	12/13/2016	307.62	35.33	272.29
MW-11	3/13/2017	307.62	34.11	273.51
MW-11	7/17/2017	307.62	33.25	274.37
MW-11	10/20/2017	307.62	34.74	272.88
MW-12	4/2/2012	312.92	39.69	273.23
MW-12	5/28/2013	312.95	39.40	273.55
MW-12	10/21/2014	312.80	40.20	272.60
MW-12	12/9/2015	312.80	40.59	272.21
MW-12	12/13/2016	312.80	39.70	273.10
MW-12	3/13/2017	312.80	38.39	274.41
MW-12	7/17/2017	312.80	37.47	275.33
MW-12	10/20/2017	312.80	39.01	273.79
MW-13	4/2/2012	308.88	36.04	272.84
MW-13	5/28/2013	308.90	35.82	273.08
MW-13	10/21/2014	308.75	36.66	272.09
MW-13	12/9/2015	308.75	37.00	271.75
MW-13	12/13/2016	308.75	36.13	272.62
MW-13	3/13/2017	308.75	34.78	273.97
MW-13	7/17/2017	308.75	33.99	274.76
MW-13	10/20/2017	308.75	35.45	273.30

Table D2
Historical Summary of Groundwater Elevations (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

PES Environmental, Inc.

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)
MW-14	4/2/2012	303.78	31.84	271.94
MW-14	5/28/2013	303.82	31.57	272.25
MW-14	10/21/2014	303.82	32.34	271.48
MW-14	12/11/2015	303.82	32.65	271.17
MW-14	12/13/2016	303.82	31.90	271.92
MW-14	3/13/2017	303.82	30.73	273.09
MW-14	7/17/2017	303.82	29.94	273.88
MW-14	10/20/2017	303.82	31.36	272.46
MW-15	4/2/2012	312.40	39.92	272.48
MW-15	5/28/2013	312.44	39.55	272.89
MW-15	4/14/2014	312.44	39.97	272.47
MW-15	10/21/2014	312.44	40.31	272.13
MW-15	12/9/2015	312.44	40.77	271.67
MW-15	12/13/2016	312.44	39.90	272.54
MW-15	3/13/2017	312.44	38.72	273.72
MW-15	7/17/2017	312.44	37.77	274.67
MW-15	10/20/2017	312.44	39.25	273.19
MW-16	5/28/2013	310.37	37.78	272.59
MW-16	10/21/2014	310.37	38.52	271.85
MW-16	12/9/2015	310.37	38.96	271.41
MW-16	12/13/2016	310.37	38.12	272.25
MW-16	3/13/2017	310.37	36.92	273.45
MW-16	7/17/2017	310.37	36.04	274.33
MW-16	10/20/2017	310.37	37.50	272.87

Table D2
Historical Summary of Groundwater Elevations (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

PES Environmental, Inc.

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)
DC-1	2/3/1999	312.46	38.31	274.15
DC-1	4/16/1999	312.46	36.08	276.38
DC-1	12/8/1999	312.46	39.13	273.33
DC-1	4/26/2000	312.46	38.30	274.16
DC-1	8/3/2000	312.46	39.01	273.45
DC-1	11/14/2000	312.46	40.29	272.17
DC-1	3/6/2001	312.46	41.11	271.35
DC-1	6/20/2001	312.46	41.46	271.00
DC-1	9/17/2001	312.46	41.78	270.68
DC-1	12/20/2001	312.46	41.43	271.03
DC-1	3/13/2002	312.46	39.75	272.71
DC-1	9/17/2002	312.46	39.75	272.71
DC-1	12/10/2002	312.46	40.69	271.77
DC-1	3/31/2003	312.46	40.33	272.13
DC-1	9/3/2003	312.46	40.69	271.77
DC-1	3/16/2004	312.46	39.77	272.69
DC-1	9/7/2004	312.46	40.57	271.89
DC-1	2/9/2005	312.46	41.31	271.15
DC-1	4/24/2007	312.46	38.29	274.17
DC-1	8/21/2008	312.72	40.93	271.79
DC-1	11/5/2010	312.72	40.64	272.08
DC-1	2/11/2011	312.72	39.37	273.35
DC-1	5/30/2011	312.72	37.91	274.81
DC-1	7/19/2011	312.72	38.21	274.51
DC-1	10/17/2011	312.72	39.37	273.35
DC-1	4/2/2012	312.72	39.72	273.00
DC-1	5/28/2013	312.82	39.30	273.52
DC-1	10/21/2014	312.82	40.05	272.77
DC-1	12/9/2015	312.82	40.51	272.31
DC-1	12/13/2016	312.82	39.63	273.19
DC-1	3/13/2017	312.82	38.46	274.36
DC-1	7/17/2017	312.82	37.40	275.42
DC-1	10/20/2017	312.82	39.26	273.56

Table D2
Historical Summary of Groundwater Elevations (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

PES Environmental, Inc.

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)
DC-2	2/3/1999	312.80	39.04	273.76
DC-2	4/16/1999	312.80	36.90	275.90
DC-2	12/8/1999	312.80	39.88	272.92
DC-2	4/26/2000	312.80	39.11	273.69
DC-2	8/3/2000	312.80	39.85	272.95
DC-2	11/14/2000	312.80	41.04	271.76
DC-2	3/6/2001	312.80	41.82	270.98
DC-2	6/20/2001	312.80	42.18	270.62
DC-2	9/17/2001	312.80	42.50	270.30
DC-2	12/20/2001	312.80	42.12	270.68
DC-2	3/13/2002	312.80	40.45	272.35
DC-2	6/13/2002	312.80	39.64	273.16
DC-2	9/17/2002	312.80	40.50	272.30
DC-2	12/10/2002	312.80	41.42	271.38
DC-2	3/31/2003	312.80	41.03	271.77
DC-2	9/3/2003	312.80	41.41	271.39
DC-2	3/16/2004	312.80	40.51	272.29
DC-2	9/7/2004	312.80	41.30	271.50
DC-2	2/9/2005	312.80	41.99	270.81
DC-2	4/24/2007	312.80	39.03	273.77
DC-2	8/21/2008	313.04	41.65	271.39
DC-2	11/5/2010	313.04	41.34	271.70
DC-2	2/11/2011	313.04	40.08	272.96
DC-2	5/30/2011	313.04	38.67	274.37
DC-2	7/19/2011	313.04	38.98	274.06
DC-2	10/17/2011	313.04	40.08	272.96
DC-2	4/2/2012	313.04	40.41	272.63
DC-2	10/21/2014	312.92	40.78	272.14
DC-2	12/9/2015	312.92	41.22	271.70
DC-2	12/13/2016	312.92	40.36	272.56
DC-2	3/13/2017	312.92	39.19	273.73
DC-2	7/17/2017	312.92	38.20	274.72
DC-2	10/20/2017	312.92	39.71	273.21

Table D2
Historical Summary of Groundwater Elevations (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

PES Environmental, Inc.

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)
DC-3	10/21/1998	312.98	39.68	273.30
DC-3	2/3/1999	312.98	39.22	273.76
DC-3	4/16/1999	312.98	37.13	275.85
DC-3	12/8/1999	312.98	40.10	272.88
DC-3	4/26/2000	312.98	39.33	273.65
DC-3	8/3/2000	312.98	40.08	272.90
DC-3	11/14/2000	312.98	41.27	271.71
DC-3	3/6/2001	312.98	42.05	270.93
DC-3	6/20/2001	312.98	42.37	270.61
DC-3	9/17/2001	312.98	42.73	270.25
DC-3	12/20/2001	312.98	42.30	270.68
DC-3	3/13/2002	312.98	40.66	272.32
DC-3	6/13/2002	312.98	39.87	273.11
DC-3	9/17/2002	312.98	40.75	272.23
DC-3	12/10/2002	312.98	41.65	271.33
DC-3	3/31/2003	312.98	41.25	271.73
DC-3	9/3/2003	312.98	41.65	271.33
DC-3	3/16/2004	312.98	40.71	272.27
DC-3	9/7/2004	312.98	41.54	271.44
DC-3	2/9/2005	312.98	42.21	270.77
DC-3	4/24/2007	312.98	39.26	273.72
DC-3	8/21/2008	313.23	41.89	271.34
DC-3	11/5/2010	313.23	41.58	271.65
DC-3	2/11/2011	313.23	40.30	272.93
DC-3	5/30/2011	313.23	38.89	274.34
DC-3	7/19/2011	313.23	39.22	274.01
DC-3	10/17/2011	313.23	40.34	272.89
DC-3	4/2/2012	313.23	40.62	272.61
DC-3	10/21/2014	313.11	41.07	272.04
DC-3	12/9/2015	313.11	41.47	271.64
DC-3	12/13/2016	313.11	40.59	272.52
DC-3	3/13/2017	313.11	39.39	273.72
DC-3	7/17/2017	313.11	38.44	274.67
DC-3	10/20/2017	313.11	39.94	273.17

Table D2
Historical Summary of Groundwater Elevations (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

PES Environmental, Inc.

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)
DC-4	10/21/1998	312.20	39.96	272.24
DC-4	2/3/1999	312.20	38.37	273.83
DC-4	4/16/1999	312.20	36.34	275.86
DC-4	12/8/1999	312.20	39.32	272.88
DC-4	4/26/2000	312.20	38.55	273.65
DC-4	8/3/2000	312.20	39.33	272.87
DC-4	11/14/2000	312.20	40.52	271.68
DC-4	3/6/2001	312.20	41.29	270.91
DC-4	6/20/2001	312.20	41.60	270.60
DC-4	9/17/2001	312.20	41.89	270.31
DC-4	12/20/2001	312.20	41.49	270.71
DC-4	3/13/2002	312.20	39.86	272.34
DC-4	6/13/2002	312.20	39.11	273.09
DC-4	9/17/2002	312.20	40.00	272.20
DC-4	12/10/2002	312.20	40.92	271.28
DC-4	3/31/2003	312.20	40.44	271.76
DC-4	9/3/2003	312.20	40.88	271.32
DC-4	3/16/2004	312.20	39.94	272.26
DC-4	9/7/2004	312.20	40.81	271.39
DC-4	2/9/2005	312.20	41.42	270.78
DC-4	4/24/2007	312.20	38.50	273.70
DC-4	8/21/2008	312.12	41.13	270.99
DC-4	11/5/2010	312.12	40.81	271.31
DC-4	2/11/2011	312.12	39.51	272.61
DC-4	5/30/2011	312.12	38.13	273.99
DC-4	7/19/2011	312.12	38.48	273.64
DC-4	10/17/2011	312.12	39.57	272.55
DC-4	4/2/2012	312.12	38.82	273.30
DC-4	5/28/2013	312.56	39.50	273.06
DC-4	10/21/2014	312.35	40.34	272.01
DC-4	12/9/2015	312.35	40.34	272.01
DC-4	12/13/2016	312.35	39.84	272.51
DC-4	3/13/2017	312.35	38.59	273.76
DC-4	7/17/2017	312.35	37.70	274.65
DC-4	10/20/2017	312.35	39.50	272.85

Table D2
Historical Summary of Groundwater Elevations (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

PES Environmental, Inc.

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)
DC-5	2/3/1999	305.86	32.48	273.38
DC-5	4/16/1999	305.86	30.46	275.40
DC-5	4/11/2006	305.86	33.74	272.12
DC-5	4/24/2007	306.10	32.56	273.54
DC-5	8/21/2008	306.10	35.15	270.95
DC-5	11/5/2010	306.10	34.86	271.24
DC-5	2/11/2011	306.10	33.59	272.51
DC-5	5/30/2011	306.10	32.23	273.87
DC-5	7/19/2011	306.10	32.58	273.52
DC-5	10/17/2011	306.10	33.65	272.45
DC-5	4/2/2012	306.10	33.86	272.24
DC-5	5/28/2013	306.25	33.60	272.65
DC-5	12/13/2016	306.25	33.95	272.30
DC-5	3/13/2017	306.25	32.70	273.55
DC-6	2/3/1999	308.46	35.03	273.43
DC-6	4/16/1999	308.46	32.92	275.54

Table D2
Historical Summary of Groundwater Elevations (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

PES Environmental, Inc.

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)
DC-7	2/3/1999	302.50	29.89	272.61
DC-7	4/16/1999	302.50	28.05	274.45
DC-7	12/8/1999	302.50	30.76	271.74
DC-7	4/26/2000	302.50	30.12	272.38
DC-7	8/3/2000	302.50	30.84	271.66
DC-7	11/14/2000	302.50	31.90	270.60
DC-7	3/6/2001	302.50	32.60	269.90
DC-7	6/20/2001	302.50	32.91	269.59
DC-7	9/17/2001	302.50	33.25	269.25
DC-7	12/20/2001	302.50	32.75	269.75
DC-7	3/13/2002	302.50	31.22	271.28
DC-7	6/13/2002	302.50	30.57	271.93
DC-7	9/17/2002	302.50	31.44	271.06
DC-7	12/10/2002	302.50	32.27	270.23
DC-7	3/31/2003	302.50	31.78	270.72
DC-7	9/3/2003	302.50	32.26	270.24
DC-7	2/9/2005	302.50	32.67	269.83
DC-7	4/11/2006	302.50	31.05	271.45
DC-7	10/26/2006	302.50	32.58	269.92
DC-7	4/24/2007	302.50	29.96	272.54
DC-7	8/21/2008	302.78	32.48	270.30
DC-7	11/5/2010	302.78	32.15	270.63
DC-7	2/11/2011	302.78	30.91	271.87
DC-7	5/30/2011	302.78	29.68	273.10
DC-7	7/19/2011	302.78	30.03	272.75
DC-7	10/17/2011	302.78	31.04	271.74
DC-7	4/2/2012	302.78	31.12	271.66
DC-7	5/28/2013	302.88	30.94	271.94
DC-7	10/21/2014	302.61	31.71	270.90
DC-7	12/16/2015	302.61	31.79	270.82
DC-7	12/13/2016	302.61	31.19	271.42
DC-7	3/13/2017	302.61	30.03	272.58
DC-7	7/17/2017	302.61	29.37	273.24
DC-7	10/20/2017	302.61	30.51	272.10

Table D2
Historical Summary of Groundwater Elevations (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

PES Environmental, Inc.

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)
DC-8	2/3/1999	306.09	33.45	272.64
DC-8	4/16/1999	306.09	31.43	274.66
DC-8	12/8/1999	306.09	34.27	271.82
DC-8	4/26/2000	306.09	33.55	272.54
DC-8	8/3/2000	306.09	34.26	271.83
DC-8	11/14/2000	306.09	35.37	270.72
DC-8	3/6/2001	306.09	36.11	269.98
DC-8	6/20/2001	306.09	36.45	269.64
DC-8	9/17/2001	306.09	36.75	269.34
DC-8	12/20/2001	306.09	36.40	269.69
DC-8	3/13/2002	306.09	34.82	271.27
DC-8	6/13/2002	306.09	34.05	272.04
DC-8	9/17/2002	306.09	34.85	271.24
DC-8	12/10/2002	306.09	35.74	270.35
DC-8	3/31/2003	306.09	35.71	270.38
DC-8	9/3/2003	306.09	35.73	270.36
DC-8	2/9/2005	306.09	36.26	269.83
DC-8	4/11/2006	306.09	34.60	271.49
DC-8	10/26/2006	306.09	36.00	270.09
DC-8	4/24/2007	306.11	33.47	272.64
DC-8	11/5/2010	306.38	35.69	270.69
DC-8	2/11/2011	306.38	34.49	271.89
DC-8	5/30/2011	306.38	33.15	273.23
DC-8	7/19/2011	306.38	33.46	272.92
DC-8	10/17/2011	306.38	34.51	271.87
DC-8	4/2/2012	306.38	34.77	271.61
DC-8	5/28/2013	306.46	34.45	272.01
DC-8	10/21/2014	306.46	35.17	271.29
DC-8	12/9/2015	306.23	35.58	270.65
DC-8	12/13/2016	306.23	34.71	271.52
DC-8	3/13/2017	306.23	33.65	272.58
DC-8	7/17/2017	306.23	32.75	273.48
DC-8	10/20/2017	306.23	34.14	272.09
DC-9A	4/16/1999	307.76	32.19	275.57
DC-9A	12/8/1999	307.76	35.03	272.73
DC-9A	4/26/2000	307.76	34.35	273.41
DC-9A	8/3/2000	307.76	35.11	272.65
DC-9A	11/14/2000	307.76	36.30	271.46
DC-9A	4/11/2006	307.76	35.45	272.31
DC-9A	8/8/2006	307.76	36.25	271.51
DC-9A	11/2/2006	307.76	36.90	270.86
DC-9A	4/24/2007	307.75	34.30	273.45
DC-9A	8/21/2008	308.02	36.92	271.10

Table D2
Historical Summary of Groundwater Elevations (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

PES Environmental, Inc.

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)
DC-9B	4/16/1999	307.91	32.34	275.57
DC-9B	3/6/2001	307.91	37.22	270.69
DC-9B	6/20/2001	307.91	37.52	270.39
DC-9B	9/17/2001	307.91	37.87	270.04
DC-9B	12/20/2001	307.91	37.45	270.46
DC-9B	4/11/2006	307.91	35.65	272.26
DC-9B	8/8/2006	307.91	36.40	271.51
DC-9B	10/26/2006	307.91	37.15	270.76
DC-9B	4/24/2007	307.94	34.45	273.49
DC-9B	8/21/2008	308.16	37.05	271.11
DC-10A	4/16/1999	307.59	31.85	275.74
DC-10A	12/8/1999	307.59	34.82	272.77
DC-10A	4/26/2000	307.59	34.05	273.54
DC-10A	8/3/2000	307.59	34.86	272.73
DC-10A	11/14/2000	307.59	36.05	271.54
DC-10A	2/11/2011	307.72	34.99	272.73
DC-10A	5/30/2011	307.72	33.65	274.07
DC-10A	7/19/2011	307.72	34.07	273.65
DC-10A	10/17/2011	307.72	35.12	272.60
DC-10A	4/2/2012	307.72	35.23	272.49
DC-10A	5/28/2013	307.93	35.04	272.89
DC-10A	10/21/2014	307.73	35.83	271.90
DC-10A	12/9/2015	307.73	36.19	271.54
DC-10A	12/13/2016	307.73	35.35	272.38
DC-10A	3/13/2017	307.73	34.09	273.64
DC-10A	7/17/2017	307.73	33.29	274.44
DC-10A	10/20/2017	307.73	34.79	272.94

Table D2
Historical Summary of Groundwater Elevations (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

PES Environmental, Inc.

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)
DC-10B	4/16/1999	307.66	31.92	275.74
DC-10B	3/6/2001	307.66	36.89	270.77
DC-10B	6/20/2001	307.66	37.46	270.20
DC-10B	9/17/2001	307.66	37.55	270.11
DC-10B	12/20/2001	307.66	37.03	270.63
DC-10B	2/9/2005	307.66	36.98	270.68
DC-10B	4/11/2006	307.66	35.24	272.42
DC-10B	4/24/2007	307.66	34.08	273.58
DC-10B	8/21/2008	307.89	36.74	271.15
DC-10B	11/5/2010	307.89	36.40	271.49
DC-10B	2/11/2011	307.89	35.06	272.83
DC-10B	5/30/2011	307.89	33.72	274.17
DC-10B	7/19/2011	307.89	34.09	273.80
DC-10B	10/17/2011	307.89	35.15	272.74
DC-10B	4/2/2012	307.89	35.34	272.55
DC-10B	12/13/2016	307.89	35.45	272.44
DC-11	4/24/2007	311.02	37.29	273.73
DC-11	11/5/2010	311.02	39.59	271.43
DC-11	2/11/2011	311.02	38.36	272.66
DC-11	5/30/2011	311.02	36.91	274.11
DC-11	4/2/2012	311.02	38.67	272.35
DC-11	4/14/2014	311.25	38.73	272.52
DC-11	10/21/2014	311.25	39.00	272.25
DC-11	12/9/2015	311.25	39.48	271.77
DC-11	12/13/2016	311.25	38.56	272.69
DC-11	3/13/2017	311.25	37.49	273.76
DC-11	7/17/2017	311.25	36.43	274.82
DC-11	10/20/2017	311.25	37.66	273.59

Table D2
Historical Summary of Groundwater Elevations (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

PES Environmental, Inc.

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)
DC-12	4/24/2007	310.90	37.54	273.36
DC-12	8/21/2008	310.90	40.05	270.85
DC-12	11/5/2010	310.90	39.79	271.11
DC-12	2/11/2011	310.90	38.60	272.30
DC-12	5/30/2011	310.90	37.17	273.73
DC-12	7/19/2011	310.90	37.45	273.45
DC-12	10/17/2011	310.90	38.54	272.36
DC-12	4/2/2012	310.90	38.91	271.99
DC-12	5/28/2013	311.25	38.50	272.75
DC-12	4/14/2014	311.25	38.93	272.32
DC-12	10/27/2014	311.25	39.23	272.02
DC-12	12/9/2015	311.25	39.70	271.55
DC-12	12/13/2016	311.25	38.80	272.45
DC-12	3/13/2017	311.25	37.72	273.53
DC-12	7/17/2017	311.25	36.71	274.54
DC-12	10/20/2017	311.25	38.20	273.05
DC-13	4/24/2007	310.85	36.64	274.21
DC-13	8/21/2008	310.85	39.13	271.72
DC-13	11/5/2010	310.85	38.88	271.97
DC-13	2/11/2011	310.85	37.68	273.17
DC-13	5/30/2011	310.85	36.28	274.57
DC-13	7/19/2011	310.85	36.57	274.28
DC-13	10/17/2011	310.85	37.65	273.20
DC-13	4/2/2012	310.85	38.01	272.84
DC-13	5/28/2013	310.20	37.61	272.59
DC-13	4/14/2014	310.20	38.02	272.18
DC-13	10/27/2014	310.20	38.37	271.83
DC-13	12/9/2015	310.20	38.37	271.83
DC-13	12/13/2016	310.20	37.89	272.31
DC-13	3/13/2017	310.20	36.82	273.38
DC-13	7/17/2017	310.20	37.82	272.38
DC-13	10/20/2017	310.20	37.26	272.94

Table D2
Historical Summary of Groundwater Elevations (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

PES Environmental, Inc.

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)
DC-14	4/24/2007	308.60	36.15	272.45
DC-14	8/21/2008	308.60	38.59	270.01
DC-14	11/5/2010	308.60	38.34	270.26
DC-14	2/11/2011	308.60	37.18	271.42
DC-14	5/30/2011	308.60	35.83	272.77
DC-14	7/19/2011	308.60	36.12	272.48
DC-14	10/17/2011	308.60	37.14	271.46
DC-14	4/2/2012	308.60	37.49	271.11
DC-14	5/28/2013	308.94	37.10	271.84
DC-14	10/21/2014	308.94	37.77	271.17
DC-14	12/9/2015	308.94	38.23	270.71
DC-14	12/13/2016	308.94	37.40	271.54
DC-14	3/13/2017	308.94	36.38	272.56
DC-14	7/17/2017	308.94	35.40	273.54
DC-14	10/20/2017	308.94	36.78	272.16
DC-15	4/24/2007	307.54	34.64	272.90
DC-15	11/5/2010	307.54	36.93	270.61
DC-15	2/11/2011	307.54	35.68	271.86
DC-15	5/30/2011	307.54	34.32	273.22
DC-15	7/19/2011	307.54	34.62	272.92
DC-15	10/17/2011	307.54	35.68	271.86
DC-15	4/2/2012	307.54	35.94	271.60
DC-15	5/28/2013	307.89	35.61	272.28
DC-15	4/14/2014	307.89	36.02	271.87
DC-15	10/21/2014	307.89	36.35	271.54
DC-15	12/9/2015	307.89	36.79	271.10
DC-15	12/13/2016	307.89	35.91	271.98
DC-15	3/13/2017	307.89	34.82	273.07
DC-15	7/17/2017	307.89	33.91	273.98
DC-15	10/20/2017	307.89	34.31	273.58
DC-16	4/24/2007	307.12	33.81	273.31
DC-16	8/21/2008	307.12	36.41	270.71
DC-16	11/5/2010	307.12	36.10	271.02
DC-16	2/11/2011	307.12	34.85	272.27
DC-16	5/30/2011	307.12	33.48	273.64
DC-16	7/19/2011	307.12	33.83	273.29
DC-16	10/17/2011	307.12	34.91	272.21
DC-16	4/2/2012	307.12	35.14	271.98
DC-16	12/13/2016	307.12	35.15	271.97
DC-16	3/13/2017	307.12	34.80	272.32

Table D2
Historical Summary of Groundwater Elevations (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

PES Environmental, Inc.

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)
DC-17	4/24/2007	304.89	31.65	273.24
DC-17	5/28/2013	305.16	32.65	272.51
DC-17	10/21/2014	305.16	33.44	271.72
DC-17	12/16/2015	305.16	33.58	271.58
DC-17	3/13/2017	305.16	31.80	273.36
DC-17	7/17/2017	305.16	--	--
DC-17	10/20/2017	305.16	32.51	272.65
DC-18	4/24/2007	309.37	36.10	273.27
DC-18	5/28/2013	309.64	37.05	272.59
DC-18	10/21/2014	309.51	37.81	271.70
DC-18	12/9/2015	309.51	38.26	271.25
DC-18	12/13/2016	309.51	37.35	272.16
DC-18	3/13/2017	309.51	36.26	273.25
DC-18	7/17/2017	309.51	35.28	274.23
DC-18	10/20/2017	309.51	36.73	272.78
DC-19	8/21/2008	313.53	42.02	271.51
DC-19	11/5/2010	313.53	41.75	271.78
DC-19	2/11/2011	313.53	40.52	273.01
DC-19	5/30/2011	313.53	39.06	274.47
DC-19	7/19/2011	313.53	39.36	274.17
DC-19	10/17/2011	313.53	40.47	273.06
DC-19	4/2/2012	313.53	40.85	272.68
DC-19	5/28/2013	313.62	40.40	273.22
DC-19	12/9/2015	313.62	41.66	271.96
DC-19	12/13/2016	313.62	40.73	272.89
DC-19	3/13/2017	313.62	39.65	273.97
DC-19	7/17/2017	313.62	38.57	275.05
DC-19	10/20/2017	313.62	40.07	273.55
DC-20	5/28/2013	310.92	38.42	272.50
DC-20	4/14/2014	310.92	38.86	272.06
DC-20	10/21/2014	310.92	39.12	271.80
DC-20	12/15/2015	310.92	39.44	271.48
DC-20	12/13/2016	310.92	38.69	272.23
DC-20	3/13/2017	310.92	37.65	273.27
DC-20	7/17/2017	310.92	36.64	274.28
DC-20	10/20/2017	310.92	38.08	272.84

Table D2
Historical Summary of Groundwater Elevations (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

PES Environmental, Inc.

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)
KMW-1	4/24/2007	311.21	38.15	273.06
KMW-1	8/21/2008	311.21	40.60	270.61
KMW-1	11/5/2010	311.21	40.37	270.84
KMW-1	2/11/2011	311.21	39.19	272.02
KMW-1	5/30/2011	311.21	37.79	273.42
KMW-1	7/19/2011	311.21	38.06	273.15
KMW-1	10/17/2011	311.21	39.13	272.08
KMW-1	4/2/2012	311.21	39.50	271.71
KMW-1	5/28/2013	311.59	39.08	272.51
KMW-1	10/21/2014	311.59	39.81	271.78
KMW-1	12/9/2015	311.59	40.29	271.30
KMW-1	12/13/2016	311.59	39.36	272.23
KMW-1	3/13/2017	311.59	38.34	273.25
KMW-1	7/17/2017	311.59	37.31	274.28
KMW-1	10/20/2017	311.59	38.85	272.74
KMW-2	4/24/2007	306.90	33.33	273.57
KMW-2	8/21/2008	306.90	35.96	270.94
KMW-2	11/5/2010	306.90	34.59	272.31
KMW-2	2/11/2011	306.90	34.32	272.58
KMW-2	5/30/2011	306.90	32.96	273.94
KMW-2	7/19/2011	306.90	33.30	273.60
KMW-2	10/17/2011	306.90	34.39	272.51
KMW-2	4/2/2012	306.90	34.59	272.31
KMW-2	5/28/2013	307.25	34.30	272.95
KMW-2	10/21/2014	307.04	35.14	271.90
KMW-2	12/9/2015	307.04	35.51	271.53
KMW-2	12/13/2016	307.04	34.70	272.34
KMW-2	3/13/2017	307.04	33.42	273.62
KMW-2	7/17/2017	307.04	32.60	274.44
KMW-2	10/20/2017	307.04	34.02	273.02
KMW-3	4/24/2007	296.92	24.51	272.41
KMW-3	8/21/2008	296.92	27.01	269.91
KMW-3	11/5/2010	296.92	26.37	270.55
KMW-3	5/30/2011	296.92	24.22	272.70
KMW-3	7/19/2011	296.92	24.61	272.31
KMW-3	10/17/2011	296.92	25.58	271.34
KMW-3	4/2/2012	296.92	25.59	271.33
KMW-3	10/21/2014	296.92	26.25	270.67
KMW-3	12/13/2016	296.92	25.69	271.23
KMW-3	3/13/2017	296.92	24.33	272.59
KMW-3	7/17/2017	296.92	23.99	272.93
KMW-3	10/20/2017	296.92	25.35	271.57

Table D2
Historical Summary of Groundwater Elevations (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

PES Environmental, Inc.

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)
KMW-4	4/24/2007	299.45	25.95	273.50
KMW-4	8/21/2008	299.45	28.62	270.83
KMW-4	11/5/2010	299.45	28.22	271.23
KMW-4	2/11/2011	299.45	26.87	272.58
KMW-4	5/30/2011	299.45	25.59	273.86
KMW-4	7/19/2011	299.45	25.99	273.46
KMW-4	10/17/2011	299.45	27.07	272.38
KMW-4	4/2/2012	299.45	27.10	272.35
KMW-4	10/21/2014	299.57	27.80	271.77
KMW-4	12/9/2015	299.57	28.08	271.49
KMW-4	12/13/2016	299.57	27.24	272.33
KMW-4	3/13/2017	299.57	25.90	273.67
KMW-4	7/17/2017	299.57	25.25	274.32
KMW-4	10/20/2017	299.57	27.26	272.31
KMW-5	4/24/2007	297.10	24.32	272.78
KMW-5	8/21/2008	297.10	26.85	270.25
KMW-5	11/5/2010	297.10	26.49	270.61
KMW-5	2/11/2011	297.10	25.21	271.89
KMW-5	5/30/2011	297.10	24.00	273.10
KMW-5	7/19/2011	297.10	24.41	272.69
KMW-5	10/17/2011	297.10	25.41	271.69
KMW-5	4/2/2012	297.10	25.37	271.73
KMW-5	5/28/2013	297.22	25.30	271.92
KMW-5	10/21/2014	297.22	26.09	271.13
KMW-5	12/9/2015	297.22	26.30	270.92
KMW-5	12/13/2016	297.22	25.52	271.70
KMW-5	3/13/2017	297.22	24.30	272.92
KMW-5	7/17/2017	297.22	24.75	272.47
KMW-5	10/20/2017	297.22	24.82	272.40
KMW-5D	4/24/2007	296.94	24.19	272.75
KMW-5D	8/21/2008	296.94	26.72	270.22
KMW-5D	11/5/2010	296.94	26.35	270.59
KMW-5D	2/11/2011	296.94	25.10	271.84
KMW-5D	5/30/2011	296.94	23.89	273.05
KMW-5D	7/19/2011	296.94	24.28	272.66
KMW-5D	10/17/2011	296.94	25.28	271.66
KMW-5D	4/2/2012	296.94	25.19	271.75
KMW-5D	12/13/2016	296.94	25.40	271.54
KMW-5D	3/13/2017	296.94	25.19	271.75

Table D2
Historical Summary of Groundwater Elevations (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

PES Environmental, Inc.

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)
KMW-6	4/24/2007	294.70	22.40	272.30
KMW-6	8/21/2008	294.70	24.90	269.80
KMW-6	11/5/2010	294.70	24.51	270.19
KMW-6	2/11/2011	294.70	23.26	271.44
KMW-6	5/30/2011	294.70	22.12	272.58
KMW-6	7/19/2011	294.70	22.52	272.18
KMW-6	10/17/2011	294.70	23.48	271.22
KMW-6	4/2/2012	294.70	23.39	271.31
KMW-6	10/21/2014	294.81	21.05	273.76
KMW-6	12/9/2015	294.81	24.31	270.50
KMW-6	12/13/2016	294.81	23.53	271.28
KMW-6	3/13/2017	294.81	22.34	272.47
KMW-6	7/17/2017	294.81	21.90	272.91
KMW-6	10/20/2017	294.81	23.31	271.50
KMW-7	4/24/2007	301.32	29.22	272.10
KMW-7	8/21/2008	301.32	31.65	269.67
KMW-7	11/5/2010	301.32	31.36	269.96
KMW-7	2/11/2011	301.32	30.14	271.18
KMW-7	5/30/2011	301.32	28.92	272.40
KMW-7	7/19/2011	301.32	29.27	272.05
KMW-7	10/17/2011	301.32	30.25	271.07
KMW-7	4/2/2012	301.32	30.35	270.97
KMW-7	10/21/2014	301.43	30.88	270.55
KMW-7	12/15/2015	301.43	31.03	270.40
KMW-7	12/13/2016	301.43	30.40	271.03
KMW-7	3/13/2017	301.43	28.98	272.45
KMW-7	7/17/2017	301.43	28.61	272.82
KMW-7	10/20/2017	301.43	30.19	271.24
KMW-8	4/24/2007	308.08	35.73	272.35
KMW-8	8/21/2008	308.08	38.14	269.94
KMW-8	11/5/2010	308.08	37.87	270.21
KMW-8	2/11/2011	308.08	36.72	271.36
KMW-8	5/30/2011	308.08	35.40	272.68
KMW-8	7/19/2011	308.08	35.68	272.40
KMW-8	10/17/2011	308.08	36.71	271.37
KMW-8	4/2/2012	308.08	37.02	271.06
KMW-8	10/21/2014	308.15	37.34	270.81
KMW-8	12/9/2015	308.15	37.76	270.39
KMW-8	12/13/2016	308.15	36.92	271.23
KMW-8	3/13/2017	308.15	35.94	272.21
KMW-8	7/17/2017	308.15	34.98	273.17
KMW-8	10/20/2017	308.15	36.35	271.80

Table D2
Historical Summary of Groundwater Elevations (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

PES Environmental, Inc.

Location	Date	Well Casing Elevation (feet NAVD88)	Depth to Water (feet below well casing)	Water Level Elevation (feet NAVD88)
KMW-9	4/24/2007	310.18	36.49	273.69
KMW-9	11/5/2010	310.18	38.78	271.40
KMW-9	2/11/2011	310.18	37.51	272.67
KMW-9	5/30/2011	310.18	36.11	274.07
KMW-9	7/19/2011	310.18	36.49	273.69
KMW-9	10/17/2011	310.18	37.51	272.67
KMW-9	4/2/2012	310.18	37.84	272.34
KMW-9	4/14/2014	310.53	37.91	272.62
KMW-9	10/21/2014	310.33	38.24	272.09
KMW-9	12/9/2015	310.33	38.71	271.62
KMW-9	12/13/2016	310.33	37.79	272.54
KMW-9	3/13/2017	310.33	36.65	273.68
KMW-9	7/17/2017	310.33	35.66	274.67
KMW-9	10/20/2017	310.33	37.16	273.17
<u>NOTES:</u> 1. '-- = not measured or not applicable. 2. Well monument types: flush grade monuments and above ground (AG) monuments. 3. Depth to water is measured from top of well casing. 4. Elevations are reported relative to North American Vertical Datum of 1988 (NAVD 88). 5. Top of casing (TOC) elevations were surveyed by D.R. Strong Consulting Engineers, Inc. in February and May 213 and by Lanktree Land Surveying, Inc. in July 215.				

Table D3

PES Environmental, Inc.

Historical Summary of Groundwater Analytical Results (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)	Other VOCs detected (µg/l)
Shallow Monitoring Wells			
MW-1	12/10/1999	21.6	
MW-1	7/25/2005	15	
MW-1	4/11/2006	14	
MW-1	10/26/2006	11	
MW-1	4/25/2007	13	
* Monitoring well cannot be located			
MW-2	12/10/1999	16.7	
MW-2	4/5/2012	7.1	
MW-2	5/30/2013	2.4	
MW-2	4/14/2014	3.2	
MW-2	10/24/2014	1.4	
MW-2	12/11/2015	1.00 U	
MW-2	3/13/2017	6.02	
MW-2	7/18/2017	2.43	
MW-2	10/26/2017	1.55	
MW-3	4/14/2008	2.31	Chloroform (0.990)
MW-3	11/1/2010	2.9	
MW-3	5/31/2011	2.0 U	
MW-3	7/20/2011	2.0 U	
MW-3	10/18/2011	6.1	
MW-3	4/4/2012	5.8	
MW-3	5/29/2013	4.0	
MW-3	10/24/2014	1.0	
MW-3	12/10/2015	1.34	
MW-3	12/14/2016	1.00 U	
MW-3	3/13/2017	1.00 U	
MW-3	7/18/2017	1.76	
MW-3	10/25/2017	4.21	
MW-4	4/14/2008	33	Chloroform (0.780), cis-1,2-DCE (0.320), TCE (0.490)
MW-4	3/9/2010	7.8	
MW-4	11/1/2010	16	
MW-4	5/31/2011	10	
MW-4	7/21/2011	25	
MW-4	10/19/2011	21	
MW-4	4/4/2012	11	
MW-4	5/29/2013	8.1	
MW-4	10/29/2014	7.3	
MW-4	12/14/2015	4.89	
MW-4	12/14/2016	1.00 U	
MW-4	3/14/2017	1.00 U	
MW-4	7/18/2017	1.40	
MW-4	10/25/2017	3.23	

Table D3

PES Environmental, Inc.

Historical Summary of Groundwater Analytical Results (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)	Other VOCs detected (µg/l)
MW-5	4/11/2008	0.470	
MW-5	4/2/2012	2.0 U	
MW-6	4/15/2008	2.0 U	
MW-6	4/2/2012	2.0 U	
MW-7	4/16/2008	22.4	
MW-7	4/2/2012	14	
MW-7	10/29/2014	20	
MW-7	12/15/2015	7.42	
MW-7	3/17/2017	8.08	
MW-7	7/19/2017	7.20	
MW-7	10/25/2017	7.47	
MW-8	8/21/2008	0.20 J	
MW-8	4/2/2012	2.0 U	
MW-9	8/21/2008	0.10 J	
MW-9	4/2/2012	2.0 U	
MW-9	10/24/2014	1.0 U	
MW-9	12/10/2015	1.00 U	
MW-9	3/13/2017	1.00 U	
MW-9	10/23/2017	0.500 U	
MW-10	2/8/2011	10	
MW-10	5/31/2011	2.0 U	
MW-10	7/20/2011	4.1	
MW-10	10/18/2011	4.9	
MW-10	4/6/2012	6.7	
MW-10	5/29/2013	4.1	
MW-10	10/24/2014	1.7	
MW-10	12/11/2015	1.00 U	TCE (3.22)
MW-10	12/14/2016	1.13	
MW-10	3/14/2017	1.09	
MW-10	7/18/2017	1.00 U	
MW-10	10/23/2017	0.500 U	
MW-11	2/8/2011	47	
MW-11	5/31/2011	2.0 U	Acetone (51)
MW-11	7/20/2011	2.0 U	Acetone (154)
MW-11	10/18/2011	2.0 U	Acetone (130)
MW-11	4/6/2012	29	
MW-11	5/31/2013	22	
MW-11	10/29/2014	15	
MW-11	12/14/2015	11.9	
MW-11	12/15/2016	7.99	
MW-11	3/16/2017	4.66	
MW-11	7/19/2017	2.52	
MW-11	10/26/2017	2.15	

Table D3

PES Environmental, Inc.

Historical Summary of Groundwater Analytical Results (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)	Other VOCs detected (µg/l)
MW-12	4/4/2012	2.0 U	
MW-12	5/28/2013	1.0 U	
MW-12	10/23/2014	1.0 U	
MW-12	12/10/2015	1.00 U	
MW-12	12/14/2016	1.00 U	
MW-12	3/13/2017	1.00 U	
MW-12	7/18/2017	1.00 U	
MW-12	10/23/2017	0.500 U	
MW-13	4/3/2012	2.0 U	
MW-13	5/30/2013	1.0 U	
MW-13	10/23/2014	1.0 U	
MW-13	12/10/2015	1.00 U	
MW-13	12/13/2016	1.00 U	
MW-13	3/14/2017	1.00 U	
MW-13	7/18/2017	1.00 U	
MW-13	10/23/2017	0.500 U	
MW-14	4/5/2012	2.0 U	
MW-14	5/29/2013	1.0 U	
MW-14	10/30/2014	1.0 U	
MW-14	12/11/2015	1.00 U	
MW-14	3/14/2017	1.00 U	
MW-14	10/24/2017	0.910	
MW-15	4/5/2012	2.0 U	
MW-15	5/28/2013	1.0 U	
MW-15	4/14/2014	1.0 U	
MW-15	10/23/2014	1.0 U	
MW-15	12/10/2015	1.00 U	
MW-15	3/14/2017	1.00 U	
MW-15	10/24/2017	0.954	
MW-16	5/31/2013	2.5	
MW-16	10/23/2014	1.3	
MW-16	12/11/2015	1.20	
MW-16	12/13/2016	1.63	
MW-16	3/16/2017	1.13	
MW-16	7/18/2017	1.00 U	
MW-16	10/24/2017	1.26	

Table D3

PES Environmental, Inc.

Historical Summary of Groundwater Analytical Results (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)	Other VOCs detected (µg/l)
DC-1	10/21/1998	0.60	Toluene (0.8)
DC-1	2/3/1999	0.5 U	
DC-1	4/7/1999	0.5 U	Toluene (8.7)
DC-1	12/8/1999	1.0 U	
DC-1	4/26/2000	1.0 U	
DC-1	8/3/2000	1.0 U	
DC-1	11/14/2000	1.0 U	
DC-1	3/6/2001	1.0 U	
DC-1	6/20/2001	1.0 U	
DC-1	9/17/2001	1.0 U	
DC-1	12/20/2001	1.0 U	
DC-1	3/13/2002	1.0 U	
DC-1	9/17/2002	1.0 U	
DC-1	12/10/2002	1.0 U	
DC-1	3/31/2003	1.0 U	
DC-1	9/3/2003	1.0 U	
DC-1	3/16/2004	1.0 U	
DC-1	9/7/2004	1.0 U	
DC-1	4/25/2007	0.2 U	
DC-1	4/4/2012	2.0 U	
DC-2	10/21/1998	2.4	Chloroform (1.8), Toluene (0.6)
DC-2	2/3/1999	0.7	
DC-2	4/7/1999	0.5 U	Chloroform (1.4), Toluene (14)
DC-2	12/8/1999	0.5 U	
DC-2	4/26/2000	1.0 U	
DC-2	8/3/2000	1.0 U	
DC-2	11/14/2000	1.0 U	
DC-2	3/6/2001	1.0 U	
DC-2	6/20/2001	1.0 U	
DC-2	9/17/2001	1.0 U	
DC-2	12/20/2001	1.0 U	
DC-2	3/13/2002	4.0	
DC-2	6/13/2002	1.0 U	
DC-2	9/17/2002	1.0 U	
DC-2	12/10/2002	0.50	
DC-2	3/31/2003	3.37	
DC-2	9/3/2003	1.0 U	
DC-2	3/16/2004	0.74	
DC-2	9/7/2004	1.0 U	
DC-2	4/26/2007	1.2	
DC-2	4/14/2008	0.340	Chloroform (1.60)
DC-2	11/3/2010	2.0 U	
DC-2	5/31/2011	2.0 U	
DC-2	7/21/2011	2.0 U	
DC-2	10/18/2011	2.0 U	
DC-2	4/4/2012	2.0 U	

Table D3

PES Environmental, Inc.

Historical Summary of Groundwater Analytical Results (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)	Other VOCs detected (µg/l)
DC-3	10/28/1998	54	Chloroform (1.9), Toluene (0.6)
DC-3	2/4/1999	25	
DC-3	4/8/1999	36	Chloroform (1.2), Toluene (15)
DC-3	12/8/1999	45	
DC-3	4/26/2000	56	
DC-3	8/3/2000	25	
DC-3	11/14/2000	1.0 U	
DC-3	3/6/2001	4.7	
DC-3	6/20/2001	2.8	
DC-3	9/17/2001	1.0 U	
DC-3	12/20/2001	9.2	
DC-3	3/13/2002	40.0	
DC-3	6/13/2002	42.3	
DC-3	9/17/2002	33.4	
DC-3	12/10/2002	5.40	
DC-3	3/31/2003	7.34	
DC-3	9/3/2003	2.08	
DC-3	3/16/2004	1.0 U	
DC-3	9/7/2004	3.43	
DC-3	4/26/2007	42.0	
DC-3	4/14/2008	27.8	Chloroform (1.50)
DC-3	3/9/2010	2.0 U	
DC-3	11/3/2010	2.0 U	
DC-3	5/30/2011	3.9	
DC-3	7/20/2011	12	
DC-3	10/18/2011	6.7	
DC-3	4/4/2012	2.9	
DC-3	10/27/2014	1.4	
DC-3	12/11/2015	1.49	
DC-3	12/14/2016	1.00 U	
DC-3	3/14/2017	2.11	
DC-3	7/18/2017	1.00 U	
DC-3	10/24/2017	0.786	

Table D3

PES Environmental, Inc.

Historical Summary of Groundwater Analytical Results (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)	Other VOCs detected (µg/l)
DC-4	10/28/1998	227	Chloroform (0.9), Toluene (0.7)
DC-4	2/4/1999	144	
DC-4	4/8/1999	110	Toluene (2.6)
DC-4	12/8/1999	71	
DC-4	4/26/2000	120	
DC-4	8/3/2000	42	
DC-4	11/14/2000	64	
DC-4	3/6/2001	52	TCE (3.0)
DC-4	6/20/2001	40	
DC-4	9/17/2001	23	
DC-4	12/20/2001	15	
DC-4	3/13/2002	55	
DC-4	6/13/2002	17.9	
DC-4	9/17/2002	28.8	
DC-4	12/10/2002	22.4	
DC-4	3/31/2003	12.5	
DC-4	9/3/2003	14.1	
DC-4	3/16/2004	19.8	
DC-4	9/7/2004	18.5	
DC-4	4/26/2007	19.0	
DC-4	4/11/2008	30.2	Chloroform (1.2)
DC-4	3/9/2010	9.2	
DC-4	11/3/2010	13	
DC-4	5/31/2011	2.0 U	Acetone (46)
DC-4	7/20/2011	2.0 U	Acetone (77)
DC-4	10/18/2011	22	
DC-4	4/4/2012	22	
DC-4	5/30/2013	11	
DC-4	10/29/2014	13	
DC-4	12/14/2015	5.49	
DC-4	12/14/2016	1.00 U	
DC-4	3/14/2017	1.00 U	
DC-4	7/18/2017	1.00 U	
DC-4	10/24/2017	0.500 U	

Table D3

PES Environmental, Inc.

Historical Summary of Groundwater Analytical Results (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)	Other VOCs detected (µg/l)
DC-6	2/4/1999	5.1	
DC-6	4/8/1999	3.7	Chloroform(1.3), Toluene (2.3)
* Monitoring well cannot be located			
DC-7	2/4/1999	74	
DC-7	4/8/1999	64	Toluene (1.3)
DC-7	12/8/1999	107	
DC-7	4/26/2000	130	
DC-7	8/3/2000	50	
DC-7	11/14/2000	130	
DC-7	3/6/2001	140	
DC-7	6/20/2001	96	
DC-7	9/17/2001	81	
DC-7	12/20/2001	47	
DC-7	3/13/2002	31	
DC-7	6/13/2002	41.5	
DC-7	9/17/2002	77.7	
DC-7	12/10/2002	91.8	
DC-7	3/31/2003	40.1	
DC-7	9/3/2003	57.4	
DC-7	7/25/2005	37.0	
DC-7	4/11/2006	23.0	
DC-7	10/26/2006	51.0	
DC-7	4/24/2007	27.0	
DC-7	4/16/2008	50.8	
DC-7	11/3/2010	34	
DC-7	6/1/2011	15	
DC-7	7/21/2011	38	
DC-7	10/18/2011	42	
DC-7	4/5/2012	18	
DC-7	5/30/2013	15	
DC-7	10/30/2014	23	
DC-7	12/16/2015	13.3	
DC-7	3/17/2017	10.4	
DC-7	10/23/2017	6.67 J	

Table D3

PES Environmental, Inc.

Historical Summary of Groundwater Analytical Results (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)	Other VOCs detected (µg/l)
DC-8	2/4/1999	56	Toluene (1.2)
DC-8	4/8/1999	48	
DC-8	12/8/1999	98	
DC-8	4/26/2000	87	
DC-8	8/3/2000	70	
DC-8	11/14/2000	130	
DC-8	3/6/2001	82	
DC-8	6/20/2001	80	
DC-8	9/17/2001	62	
DC-8	12/20/2001	50	
DC-8	3/13/2002	31	
DC-8	6/13/2002	26.6	
DC-8	9/17/2002	38.4	
DC-8	12/10/2002	53.1	
DC-8	3/31/2003	36.4	
DC-8	9/3/2003	34.7	
DC-8	7/25/2005	26.0	
DC-8	4/11/2006	14.0	
DC-8	10/26/2006	28.0	
DC-8	4/24/2007	24.0	
DC-8	4/16/2008	39.4	
DC-8	11/3/2010	25	
DC-8	6/1/2011	11	
DC-8	7/21/2011	25	
DC-8	10/19/2011	26	
DC-8	4/5/2012	18	
DC-8	5/30/2013	11	
DC-8	10/30/2014	18	
DC-8	12/16/2015	8.61	
DC-8	3/16/2017	9.69	
DC-8	7/19/2017	8.94	
DC-8	10/23/2017	14.8	
DC-9A	4/8/1999	135	Toluene (3.2)
DC-9A	12/8/1999	73	
DC-9A	4/26/2000	240	
DC-9A	8/3/2000	110	
DC-9A	4/11/2006	78	
DC-9A	8/8/2006	49	
DC-9A	11/2/2006	2.9	
DC-9A	4/26/2007	33	

* Monitoring well cannot be located

Table D3

PES Environmental, Inc.

Historical Summary of Groundwater Analytical Results (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)	Other VOCs detected (µg/l)
DC-10A	4/8/1999	150	Toluene (1.7)
DC-10A	12/8/1999	73	TCE (1.1)
DC-10A	4/26/2000	210	
DC-10A	4/5/2012	41	
DC-10A	5/31/2013	19	
DC-10A	10/30/2014	17	
DC-10A	12/15/2016	10.8	
DC-10A	3/17/2017	8.62	
DC-10A	7/19/2017	4.69	
DC-10A	10/26/2017	4.72	
DC-11	4/26/2007	12	
DC-11	3/9/2010	4.6	
DC-11	11/1/2010	4.8	
DC-11	4/4/2012	3.1	
DC-11	4/15/2014	1.2	
DC-11	10/27/2014	1.4	
DC-11	12/11/2015	1.48	
DC-11	3/15/2017	1.97	
DC-11	10/26/2017	1.35	
DC-12	4/25/2007	16	
DC-12	4/4/2012	3.7	
DC-12	5/30/2013	2.3	
DC-12	4/15/2014	1.4	
DC-12	10/27/2014	1.8	
DC-12	12/14/2015	2.04	
DC-12	3/15/2017	2.02	
DC-12	10/27/2017	1.66	
DC-13	4/25/2007	15	
DC-13	4/16/2008	23	
DC-13	3/1/2010	10	
DC-13	11/2/2010	9.2	
DC-13	4/5/2012	6.4	
DC-13	5/30/2013	1.7	
DC-13	4/14/2014	3.2	
DC-13	10/27/2014	2.7	
DC-13	12/14/2015	2.78	
DC-13	3/15/2017	4.32	
DC-13	10/27/2017	2.79	

Table D3

PES Environmental, Inc.

Historical Summary of Groundwater Analytical Results (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)	Other VOCs detected (µg/l)
DC-14	4/25/2007	11	
DC-14	4/3/2012	11	
DC-14	5/30/2013	6.0	
DC-14	10/29/2014	19	
DC-14	12/15/2015	6.02	
DC-14	3/16/2017	6.20	
DC-14	7/19/2017	4.94	
DC-14	10/26/2017	5.40	Chloroform (2.23)
DC-15	4/24/2007	11	
DC-15	4/5/2012	20	
DC-15	4/15/2014	10	
DC-15	10/30/2014	5.8	
DC-15	12/16/2015	5.93	
DC-15	3/16/2017	8.96	
DC-15	10/23/2017	7.42	
DC-17	4/25/2007	47	
DC-17	4/16/2008	74.6	
DC-17	5/31/2013	21	
DC-17	10/23/2014	17	
DC-17	12/16/2015	15.1	
DC-17	3/17/2017	13.9	
DC-17	10/23/2017	8.06	
DC-18	4/25/2007	19	
DC-18	4/5/2012	7.2	
DC-18	5/30/2013	4.8	
DC-18	10/28/2014	3.0	
DC-18	12/14/2015	3.19	
DC-18	3/16/2017	3.24	
DC-18	10/26/2017	3.26	Chloroform (3.00)
DC-19	6/4/2007	0.79	
DC-19	4/14/2008	0.66	
DC-19	4/4/2012	2.0 U	
DC-20	6/2/2008	8.1	
DC-20	5/30/2013	1.7	
DC-20	4/14/2014	1.4	
DC-20	10/28/2014	1.0 U	
DC-20	12/15/2015	1.74	1,2-Dichlororopropane (1.82)
DC-20	3/15/2017	2.00	
DC-20	10/27/2017	0.991	

Table D3

PES Environmental, Inc.

Historical Summary of Groundwater Analytical Results (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)	Other VOCs detected (µg/l)
KMW-1	4/11/2006	1.0 U	
KMW-1	10/26/2006	1.0 U	
KMW-1	4/25/2007	0.2 U	
KMW-1	4/14/2008	0.2 U	Chloroform (0.450)
KMW-1	4/3/2012	2.0 U	
KMW-2	6/12/2006	130	
KMW-2	8/8/2006	130	
KMW-2	10/26/2006	190	
KMW-2	4/24/2007	63	
KMW-2	4/16/2008	96	
KMW-2	3/8/2010	81	
KMW-2	11/3/2010	74	
KMW-2	6/1/2011	12	Acetone (140)
KMW-2	7/20/2011	44	
KMW-2	10/19/2011	40	
KMW-2	4/6/2012	25	
KMW-2	5/31/2013	22	
KMW-2	10/29/2014	18	
KMW-2	12/15/2015	15	
KMW-2	12/15/2016	1.18	
KMW-2	3/14/2017	1.00 U	
KMW-2	7/18/2017	1.00 U	
KMW-2	10/24/2017	0.500 U	
KMW-3	6/12/2006	20	
KMW-3	10/26/2006	13	
KMW-3	4/24/2007	9.9	
KMW-3	11/2/2010	11	
KMW-3	5/31/2011	6.2	
KMW-3	7/20/2011	12	
KMW-3	10/18/2011	11	
KMW-3	4/3/2012	6.8	
KMW-3	10/28/2014	1.0 U	
KMW-3	3/14/2017	3.23	
KMW-3	10/26/2017	5.78	
KMW-4	4/25/2007	0.73	
KMW-4	4/3/2012	2.0 U	
KMW-5	4/25/2007	0.82	
KMW-5	4/3/2012	2.0 U	
KMW-6	4/24/2007	3.8	
KMW-6	4/3/2012	2.0 U	

Table D3

PES Environmental, Inc.

Historical Summary of Groundwater Analytical Results (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)	Other VOCs detected (µg/l)
KMW-7	4/24/2007	3.8	
KMW-7	4/15/2008	3.9	
KMW-7	11/3/2010	2.0 U	
KMW-7	5/30/2011	2.3	
KMW-7	7/20/2011	2.0 U	
KMW-7	10/18/2011	2.0 U	
KMW-7	4/3/2012	3.3	
KMW-7	10/28/2014	2.0	p-isopropyltoluene (2.8)
KMW-7	12/15/2015	2.17	
KMW-7	3/16/2017	1.17	
KMW-7	10/25/2017	0.500 U	
KMW-8	4/24/2007	11	
KMW-8	4/15/2008	17.4	
KMW-8	4/3/2012	10	
KMW-8	10/28/2014	5.9	
KMW-8	12/15/2015	3.98	
KMW-8	3/16/2017	6.71	
KMW-8	7/19/2017	5.00	
KMW-8	10/26/2017	4.99	Chloroform (1.15)
KMW-9	4/26/2007	9.3	
KMW-9	3/8/2010	4.4	
KMW-9	11/4/2010	2.8	
KMW-9	4/5/2012	4.0	
KMW-9	4/15/2014	1.0	
KMW-9	10/27/2014	1.0 U	
KMW-9	12/10/2015	1.47	
KMW-9	3/15/2017	2.07	
KMW-9	10/26/2017	0.770	
Deep Monitoring Wells			
DC-5	2/4/1999	2.4	
DC-5	4/8/1999	1.6	Chloroform (2.6), Toluene (1.0)
DC-5	7/25/2005	37	
DC-5	4/11/2006	1.3	
DC-5	4/26/2007	2.1	
DC-5	11/3/2010	2.1	
DC-5	5/30/2011	2.0 U	
DC-5	7/19/2011	2.0 U	
DC-5	10/18/2011	2.0 U	
DC-5	4/6/2012	2.0 U	
DC-5	5/29/2013	1.0 U	

Table D3

PES Environmental, Inc.

Historical Summary of Groundwater Analytical Results (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)	Other VOCs detected (µg/l)
DC-9B	4/8/1999	1.4	Chloroform (1.4), Toluene (2.9)
DC-9B	3/6/2001	2.0	
DC-9B	6/20/2001	1.0 U	
DC-9B	9/17/2001	1.0 U	
DC-9B	12/20/2001	6.4	
DC-9B	7/25/2005	1.0 U	
DC-9B	4/11/2006	1.0 U	
DC-9B	8/8/2006	1.0 U	
DC-9B	10/26/2006	1.0 U	
DC-9B	4/26/2007	0.2 U	
DC-9B	4/15/2008	0.60	
* Monitoring well has been decommissioned			
DC-10B	4/8/1999	1.8	Chloroform (1.2), Toluene (1.9)
DC-10B	3/6/2001	3.3	TCE (1.7)
DC-10B	6/20/2001	2.4	
DC-10B	9/17/2001	1.0 U	
DC-10B	12/20/2001	1.0 U	
DC-10B	7/25/2005	1.0 U	
DC-10B	4/11/2006	1.0 U	
DC-10B	4/26/2007	0.34	
DC-10B	11/3/2010	2.6	
DC-10B	5/30/2011	2.0 U	Acetone (290)
DC-10B	7/19/2011	2.0 U	Acetone (54)
DC-10B	10/18/2011	2.0 U	Acetone (31)
DC-10B	4/6/2012	2.0 U	

Table D3

PES Environmental, Inc.

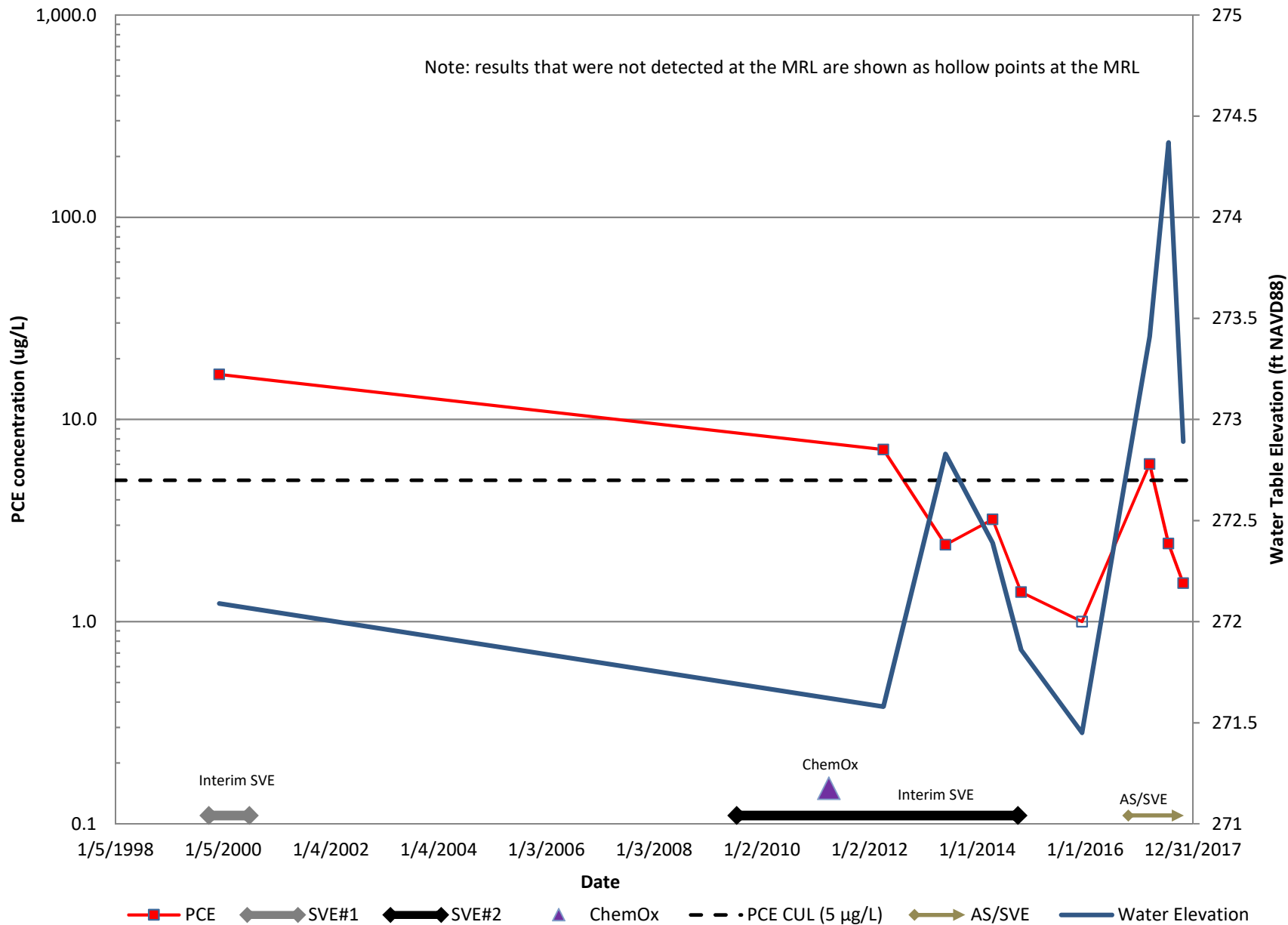
Historical Summary of Groundwater Analytical Results (1999 - 2017)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

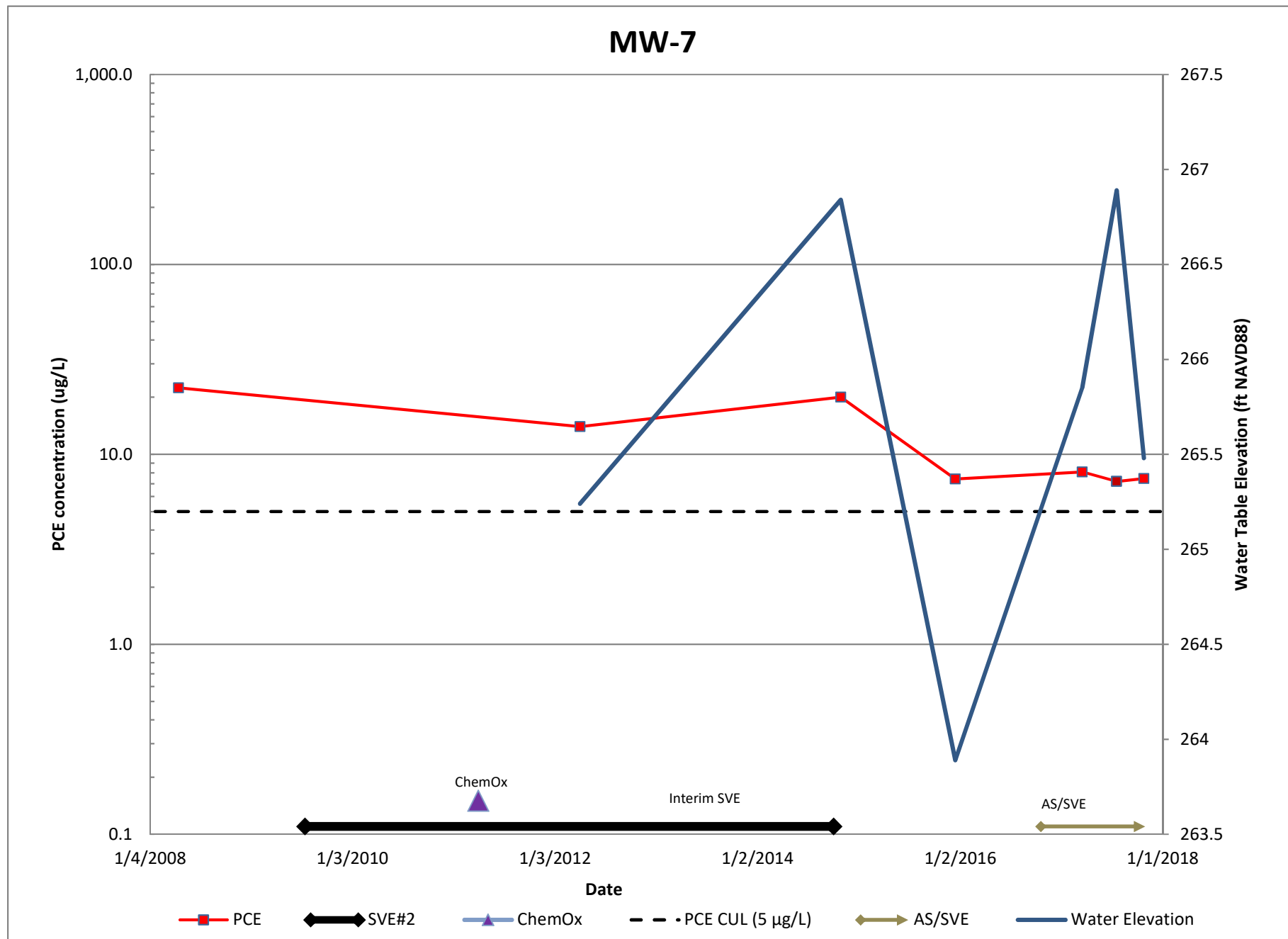
Monitoring Well	Date	PCE (µg/l)	Other VOCs detected (µg/l)
DC-16	4/25/2007	0.42	
DC-16	11/5/2010	2.0 U	
DC-16	5/31/2011	2.0 U	
DC-16	7/19/2011	2.0 U	
DC-16	10/18/2011	2.0 U	
DC-16	4/6/2012	2.0 U	
KMW-5D	4/25/2007	0.2 U	
KMW-5D	4/3/2012	2.0 U	
<u>NOTES:</u> 1. Tetrachloroethene (PCE) concentrations in micrograms per liter (µg/l). 2. Groundwater samples analyzed using USEPA Method 8260B. 3. U = concentration not detected at or above the laboratory practical quantitation limit (PQL). 4. J = the identification of the analyte is acceptable; the reported value is an estimate 5. Detected concentrations are shown in bold. 6. Concentrations exceeding the cleanup level are bold and shaded. 7. Other detected VOCs are below their respective cleanup level unless otherwise noted. 8. Shallow monitoring wells are screened at the top of the shallow aquifer, and deep monitoring wells are screened below and deeper within the shallow aquifer. 9. Review of historical results indicate that DC-17 was inadvertently sampled as DC-5 in 2010, 2011 and 2012. This table reports the 2010 - 2012 DC-17 data as DC-5.			

**ATTACHMENT E
TIME TREND PLOTS**

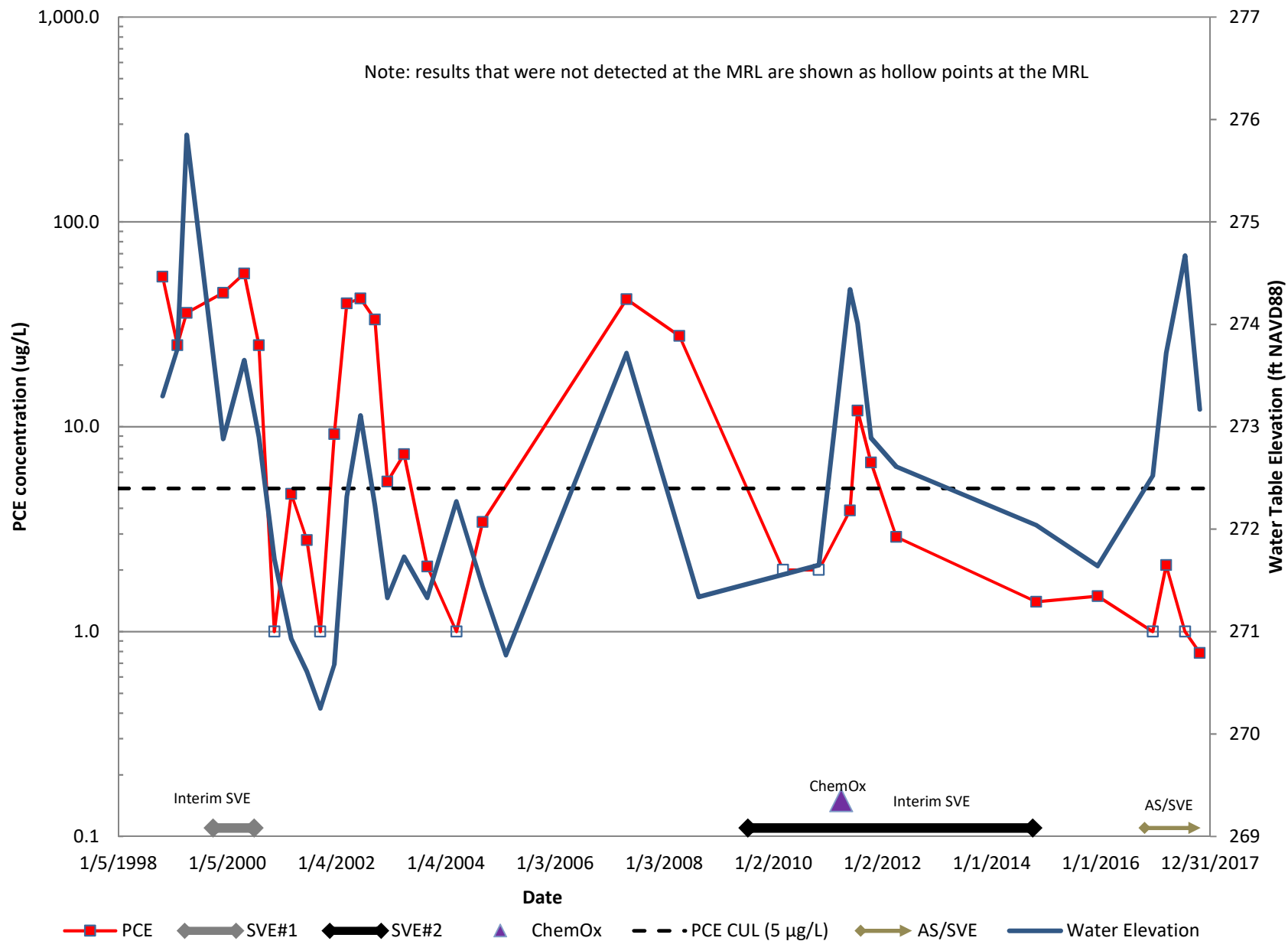
MW-2

Note: results that were not detected at the MRL are shown as hollow points at the MRL

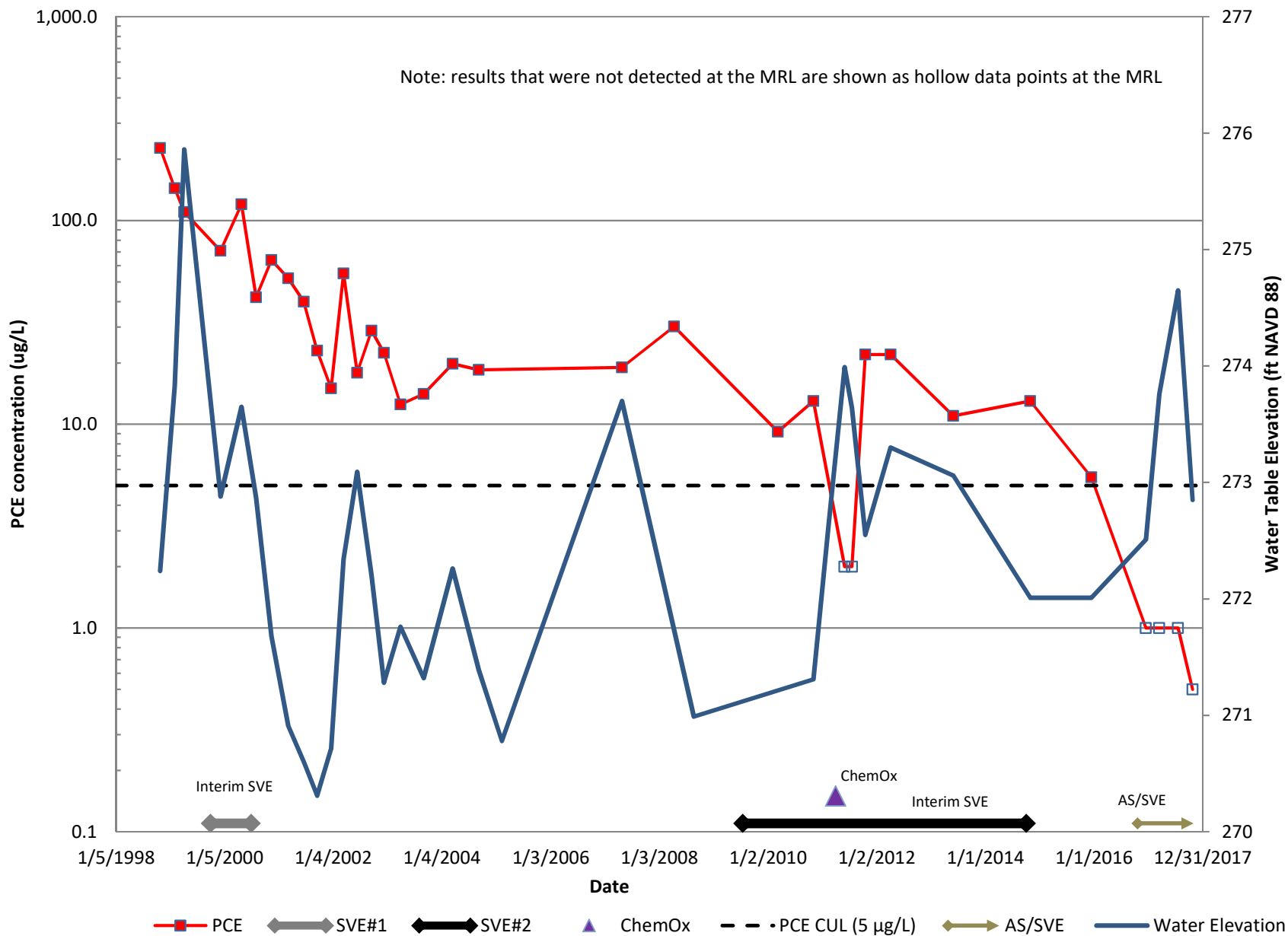




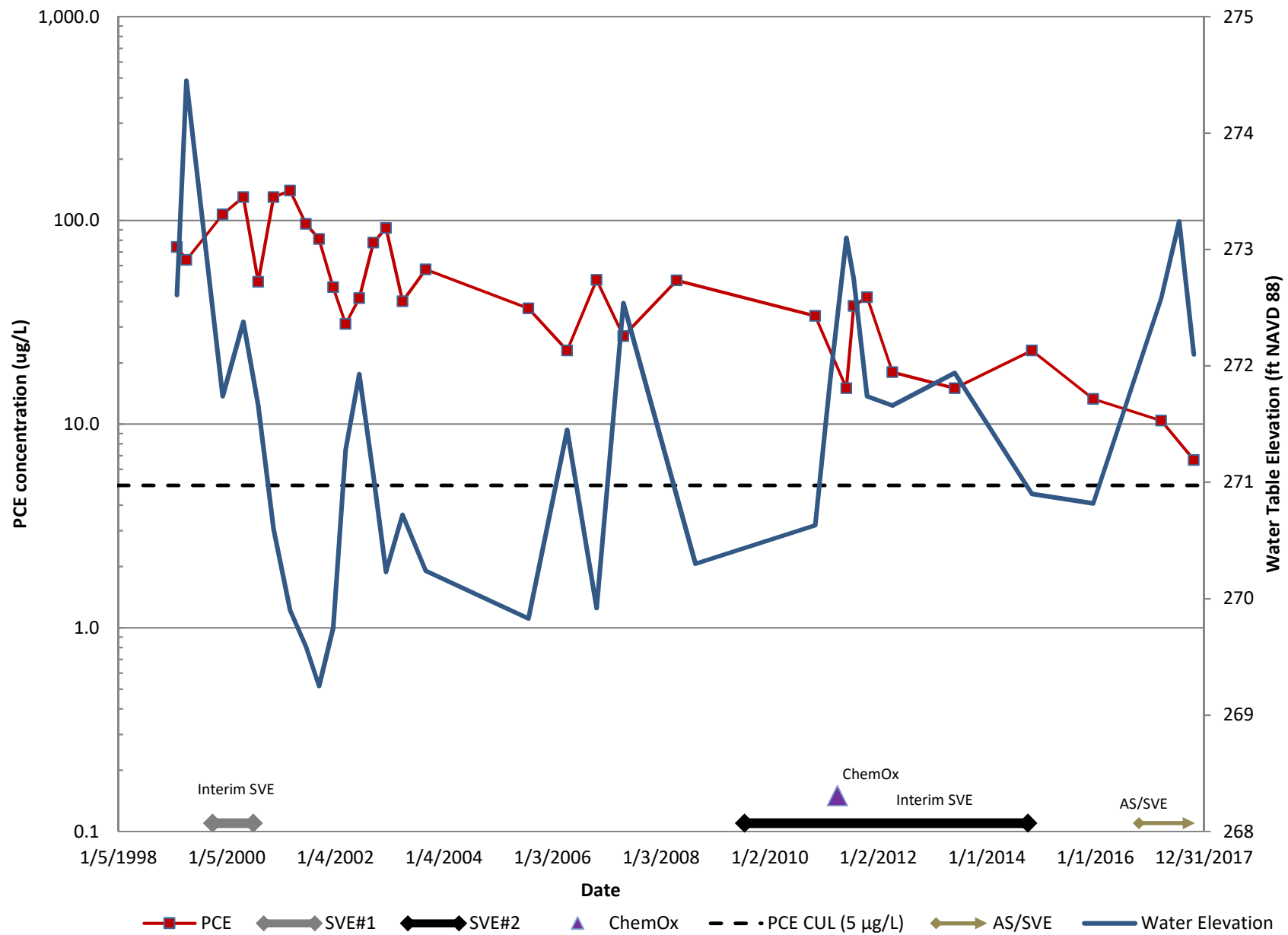
DC-3



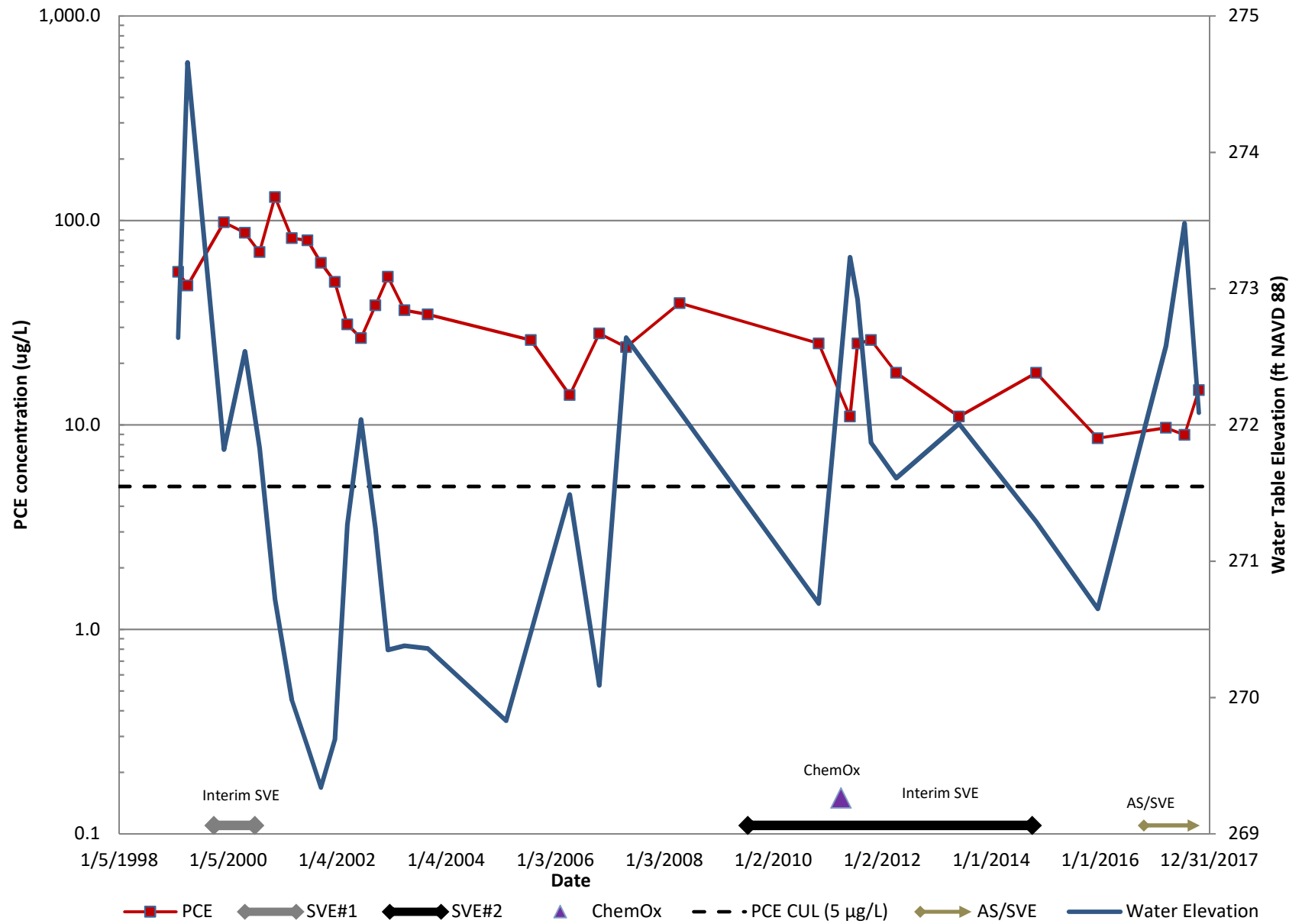
DC-4



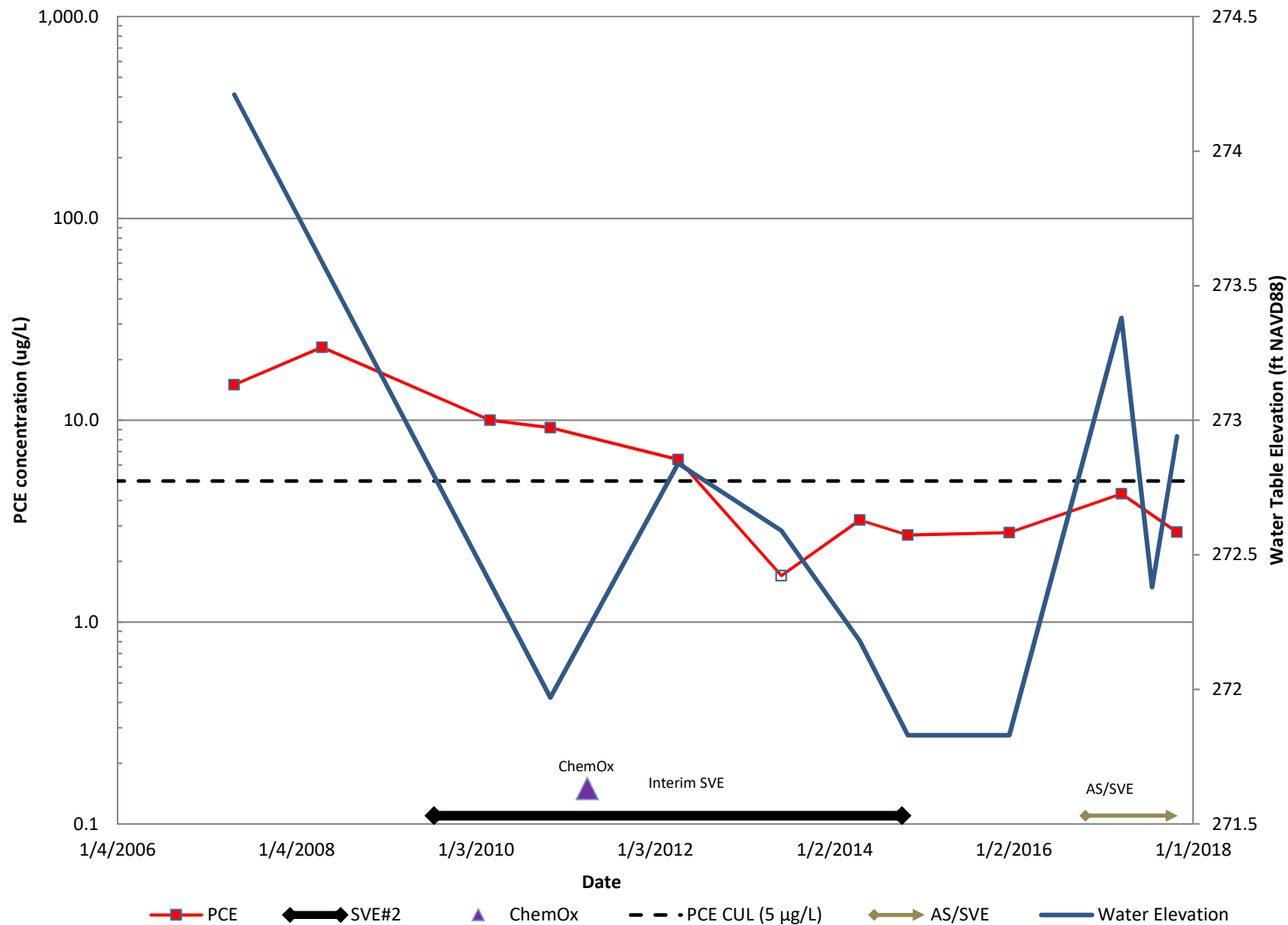
DC-7

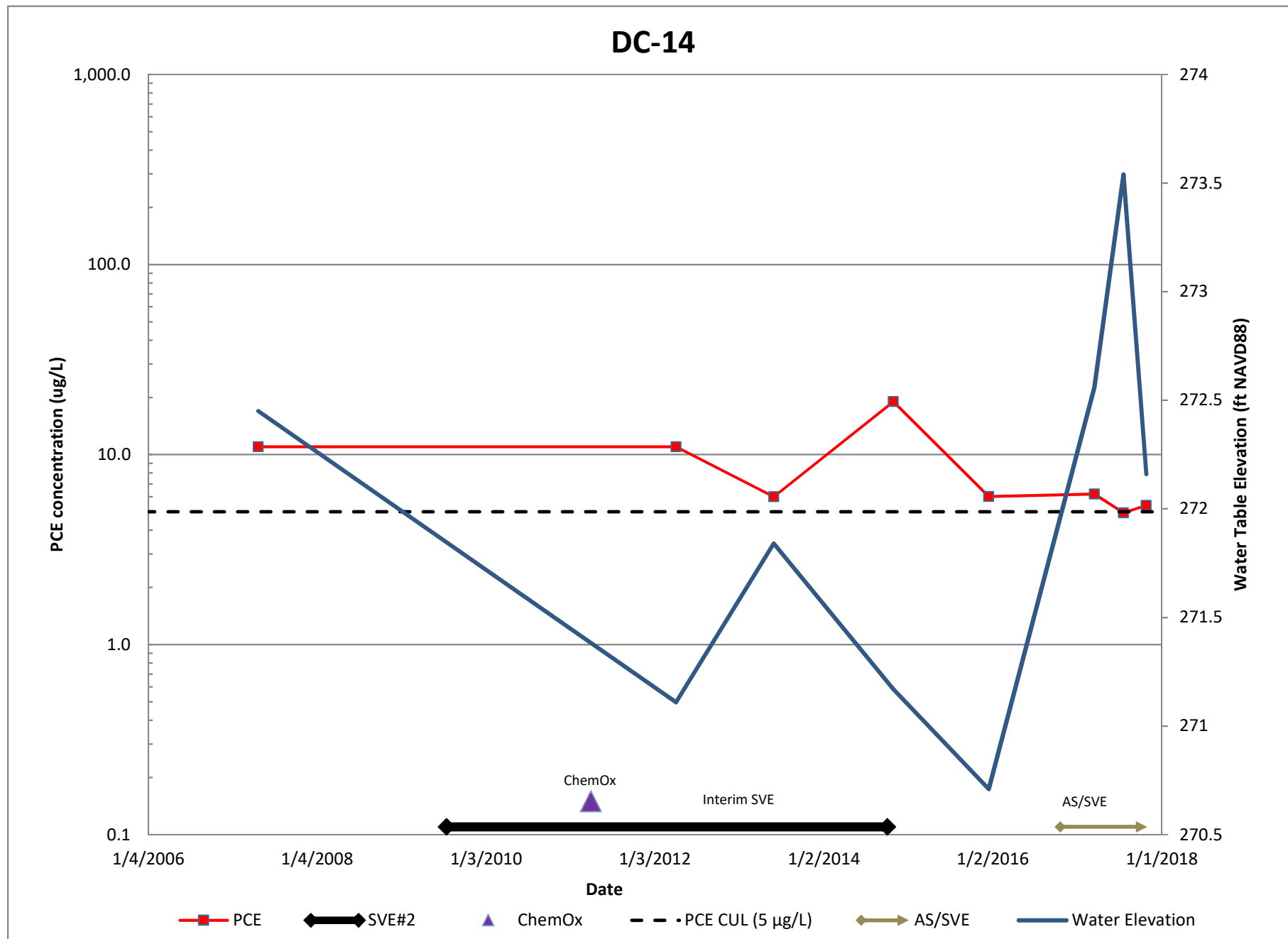


DC-8



DC-13





DC-15

