PES Environmental, Inc.
Engineering & Environmental Services

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STATUS REPORT – 2019
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, supplemental remedial investigations, and groundwater monitoring and sampling performed in 2019. This letter also includes the design report for expanding the soil vapor extraction system (SVE) and conducting shallow excavation to treat contaminated vadose zone soil. The work was performed at 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. The O&M and sampling were conducted in accordance with the Remedial Action Work Plan (RAWP[1]) and the Operations and Maintenance Plan (O&M Plan)[2]. A Sampling and Analysis Plan (SAP) is included as Appendix H to the RAWP.

REMEDIATION SYSTEM O&M

Air Sparging and Soil Vapor Extraction System Description

The air sparging (AS) and 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).

[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.

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 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 below ground surface (ft 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.

Soil Vapor Extraction System O&M

The AS/SVE system was shut-off on December 13, 2018 to evaluate potential for rebound of tetrachlorethene (PCE) concentrations in groundwater and to perform vapor intrusion soil gas sampling in March and June. Due to limited evidence of PCE concentration rebound in groundwater, the AS system was allowed to remain off-line indefinitely. The SVE system was restarted on June 6 following completion of the vapor intrusion sampling work. Performance groundwater monitoring and vapor intrusion soil gas sampling are discussed in later sections of this report.

O&M activities during the reporting period included field inspections, testing, and O&M of SVE components monthly. Specific work included documenting and maintaining the operational status of the SVE equipment, general operating conditions (leaks, breakage, alarms), 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 November 2019.

Performance vapor samples were collected periodically from the SVE discharge stack, and the samples were analyzed by ALS Environmental (an accredited laboratory) for VOCs by United States 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.

Once restarted in June the SVE system operated with virtually no downtime, except for a 41-day period when auto-dialer did not notify PES that the system remained shut-down following a power outage in late August. Review of conditions during the next routine O&M visit indicated

that the battery backup had failed. PES replaced the batteries and the SVE system operated with minimal issues for the remainder of the reporting period. The remediation system has operated with 75% uptime since start-up in 2016. The majority of downtime is related to planned shutdowns for rebound testing and routine performance groundwater sampling events. The SVE system operating data is summarized in Table 1.

The SVE system operation has been focused on the areas shown in 2018 to contain PCE concentrations in vadose zone soil above the cleanup level (CUL)[3]. These areas include the SVE wells closest to the Four Star Cleaners (SVE-5, -6, -7, -8), the former Manhattan Cleaners and Coin-Op Laundry (Manhattan Cleaners; SVE-10), and the wells behind the QFC building (SVE-11A, -12A). Several other nearby wells have been operating, mainly to provide makeup air to prevent the blower from shutting down on low flow rate alarm. These supplemental wells vary based on flow needs but generally include SVE-2, -3, -15, -16, and -18.

The SVE system operated with a total flow rate of between 542 and 609 standard cubic feet per minute (scfm) and vacuums of 28 to 52 inches of water column (in.w.c.) on the SVE well field. Individual SVE wells operated between approximately 30 to 65 scfm per well, with an average flow of 49 scfm per well.

SVE Sampling. The SVE system effluent stack was sampled twice during the reporting period. The PCE concentrations were 440 micrograms per cubic meter (µg/m^3) in July and 310 µg/m^3 in October. The individual SVE wells were not sampled during the reporting period.

The PCE removal rates averaged 0.016 pounds per day (lb/day) over the operating period. A total of 3.1 pounds of PCE was removed between June 6, 2019 and December 27, 2019, and a total of 120.8 pounds of PCE have been removed throughout the lifetimes of the SVE systems that operated from September 2009 through December 27, 2019. The PCE mass removal rate in 2019 was relatively consistent with 2018. Charts showing SVE effluent PCE concentrations and cumulative PCE mass removal are included as Attachments A1 and A2. Copies of the laboratory analytical reports and data validation memorandum are included in Attachment B.

The SVE system discharge has remained 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.

SUPPLEMENTAL INVESTIGATIONS

Supplemental investigations were conducted at the Site in February, March, June, October, and November 2019. In February and March, two monitoring wells were installed in SW 178th Street for the purpose of delineating the groundwater plume near the northern edge of the Harris property. Later in March and in June, two rounds of soil gas samples were collected to evaluate potential for vapor intrusion with SVE system off-line. The work conducted from October and

[3] PES Environmental, Inc. *Status Report – November 2017 through December 2018, Manhattan Village Shopping Center and Harris Properties, Normandy Park, Washington*. July 2.

November 2019 was associated with a passive flux meter (PFM) study. The following summarizes the supplemental assessments that were completed in 2019.

Monitoring Well Installations – February, March, and October 2019

The work included drilling and installing four new monitoring wells (MW-17 through MW-20), well development, disposal of investigation related wastes, and surveying. Other associated work included repairing six monitoring wells which were paved over by the City of Normandy Park (City) and redeveloping monitoring wells near the northern end of the Harris property. The locations for the new monitoring wells and soil gas probes are included on the attached Figure 4.

Drilling. PES oversaw the drilling and installation of monitoring wells MW-17 and MW-18 on February 28 and March 1, 2019; and oversaw drilling and installation of monitoring wells MW-19 and MW-20 on October 16 and 17, 2019 (Figure 4). The wells were drilled and installed by Washington State licensed drillers using a hollow stem auger drilling rig consistent with the Washington State well regulations (WAC 173-160). Holt Services, Inc. was subcontracted for MW-17 and MW-18, and Cascade drilling was subcontracted for MW-19 and MW-20. Drilling locations were cleared for utilities prior to drilling, and the first 7 to 9 ft were advanced with an air knife and vacuum truck.

- MW-17 and MW-18. These wells were installed in SW 178th Street to evaluate shallow soil and groundwater conditions north of the Harris property. MW-17 and MW-18 were drilled to 39.5 ft bgs and 41.5 ft bgs, respectively.

- MW-19 and MW-20. These wells were installed on the Harris Property near the northern property line to serve as monitoring wells in the PFM study. These wells were installed as a deep and shallow pair (MW-19 and MW-20, respectively) with screened intervals that cover the entire perched water bearing zone. MW-19 was drilled to 55.5 ft bgs and MW-20 was drilled to 46 ft bgs.

  These wells were installed approximately 27 feet northwest of DC-8, which has had some of the highest PCE concentrations over the last several years. Ideally the new wells would have been installed in a line between DC-8 and MW-18 (Figure 4), but a diagonal crossing power line and multiple large trees forced the well locations to be moved to the west.

Soil samples were collected using a standard split-spoon sampler. Samples were collected at 5-ft intervals in MW-17 and MW-18 and in the first 25 feet of MW-19. MW-19 and MW-20 were continuously sampled starting at 25 ft and 30 ft, respectively. Each soil sample was screened with a photoionization detector (PID) for the presence of VOCs and observed for lithology. The aggregate portions of saturated samples in MW-19 and MW-20 were further evaluated to estimate relative percentages of fine, medium, and coarse-grained sand. Lithologic observations and PID readings were recorded on field boring log forms (Attachment C). Field grain size distributions are summarized on Table C1.

Soil samples were collected and field preserved using EPA Method 5035 protocols and were placed in laboratory supplied containers, sealed, labeled, and placed in a cooler on ice under chain-of-custody protocols for delivery to Fremont Analytical Laboratory (Fremont), a Washington State accredited analytical laboratory. Samples from each boring were selected for analysis of VOCs by EPA Method 8260.

All drilling and non-dedicated sampling equipment was decontaminated between each drilling location. Soil cuttings and decontamination water were placed into 55-gallon DOT-rated drums and temporarily stored on the Harris property pending disposal.

Well Installation and Development. Depth to groundwater was measured in nearby monitoring wells to provide a reference point for setting the well screen depths.

- MW-17 and MW-18. The wells were completed with 10-ft long screened intervals spanning the seasonal groundwater table. MW-17 was screened from 28 to 38 ft bgs and MW-18 was screened from 30 to 40 ft bgs.

- MW-19 and MW-20. The screened intervals for the monitoring well pair were designed so that the two 5-ft long PFMs could be installed end-to-end within the saturated screened interval. MW-19 was screened from approximately 44 to 54 ft bgs and MW-20 was screened across the seasonal groundwater table from 30 to 45 ft bgs.

The wells were constructed with 2-inch diameter Schedule 40 PVC, 0.020-inch PVC slotted screen and a filter pack. The well annular space above the filter pack was filled with bentonite chips (hydrated), and a bentonite grout seal. The wells were completed with 8-inch diameter heavy duty traffic rated monuments and set in concrete. The wells and concrete surrounds in SW 178th street were painted black to match the surrounding asphalt pavement. Well completion details are summarized in Table D1.

MW-17 and MW-18 were developed on March 5, 2019; and MW-19 and MW-20 were developed on October 24, 2019. The purpose of development was to remove sediment from the well and filter pack and create a hydraulic connection with the perched aquifer. Bailing, surging, and pumping was used to develop the wells. Approximately 44.5 gallons was removed from MW-17, 57 gallons from MW-18, 75 gallons from MW-19, and 80 gallons from MW-20. Development water was placed into 55-gallon DOT-rated drums and temporarily stored on the Harris property pending disposal.

Subsurface Conditions. Soil encountered during the subsurface investigation consisted predominantly of sand, sand with silt, silty sands, sandy silts, and silt with sand, all with variable gravel. Fill material composed of silty sand was encountered in the upper 8 ft bgs, consistent with previous investigations. The fill was underlain by a fine to medium sand, sand with silt, and silty sand to the maximum depth of exploration (55.5 ft bgs). The sand layer contained discontinuous layers of silty sand and silt and became denser below approximately 22 to 25 ft in MW-17 and MW-18 and below approximately 34 ft bgs in MW-19 and MW-20. Coarser sand

and pockets of gravel were also encountered below the denser soil. Other features including gradational grain size variation, bedding, and fining upward sequences, appear to be consistent with previous interpretations of these units as recessional outwash. Heaving conditions were observed in MW-19 and 50 gallons of water was added during drilling to control the heave.

No odors were detected in any of the borings. Field PID readings did not exceed 1.7 part per million by volume (ppmv). Wet soil was generally encountered between 34 to 38 ft bgs in the borings at the time of drilling in MW-17 and MW-18, and between 33 to 37 ft bgs in MW-19 and MW-20.

Soil Analytical Results. Three discrete soil samples each were collected from MW-17 and MW-18, four samples were collected from MW-19, and two samples from MW-20. PCE exceeded the Ecology Model Toxics Control Act (MTCA) Method A CUL (0.050 milligrams per kilogram [mg/kg]) in one sample collected from MW-17 (0.0543 mg/kg at 35 ft bgs) and in two soil samples collected from MW-19 (0.0717 mg/kg at 35 ft bgs, 0.107 mg/kg at 39 ft bgs). PCE was detected below the CUL in MW-18 (30 and 35 ft bgs) and in MW-20 (30 ft bgs), and PCE was below the laboratory practical quantitation limit (PQL) in the remaining samples. These samples were collected from saturated soil and the detected PCE concentrations are assumed to be the associated with the groundwater plume. Soil results are summarized on Table 2. Historical soil data is included in Attachment C4.

Well Monument Repair. The flush-with-grade well monuments for MW-17, MW-18, KMW-3, KMW-6, KMW-7, and KMW-8 were paved over by the City during the spring of 2019. The City identified the well locations on the new pavement so they could be located, dug-out, and repaired. PES was on-site on October 16 and 17, 2019, to oversee the repair of the monuments by Cascade. The existing monuments were jack hammered out, and new traffic rated monuments were installed in their place. The 2-inch PVC well casings were extended upwards, if needed, for proper wellhead construction. A right-of-way (ROW) permit and traffic control plan was acquired from the City prior to the work. Figure 4 shows the locations of the wells.

Monitoring Well Redevelopment. PES redeveloped ten monitoring wells on October 16 and 17, 2019. The work included the six wells which had been paved over and repaired (see above) and four other wells which have been critical for monitoring the PCE plume including DC-7, DC-8, DC-15, and DC-17. The wells were redeveloped using light bailing and surging followed by pumping, up and down the screened interval. The total volume of water removed from each well during the well redevelopment included 40 gallons (MW-17), 35 gallons (MW-18), 65 gallons (KMW-3), 70 gallons (KMW-6), 40 gallons (KMW-7), 55 gallons (KMW-8), 55 gallons (DC-7), 55 gallons (DC 8), 35 gallons (DC 15), and 55 gallons (DC-17).

Surveying. MW-17, MW-18, MW-19, and MW-20 were surveyed on March 3 and October 25, 2019, by Lanktree Surveying, Inc., a licensed Washington State surveyor. The October 25 work also included surveying the post-repair elevations of KMW-3, KMW-6, KMW-7, and KMW-8.

Surveyed locations were relative to the North American Datum of 1983 (NAD 83) and North American Vertical Datum of 1988 (NAVD 88).

Vapor Intrusion Assessment – March and June 2019

A vapor intrusion assessment was conducted at the Property in February, March and June 2019 to evaluate the potential for chlorinated solvent vapors to intrude into the former Manhattan Cleaners suite on the Harris Property and into the existing Four-Star Cleaners on the MVSC property. The work included coordinating with the property owners and tenants for locating acceptable probe installation locations, installing seven temporary soil vapor monitoring probes (SVS-11 through SVS-17), and conducting two rounds of sampling (March and June 2019). Existing soil gas probe SVS-10, near the location of the former PCE dry cleaning machine, was also sampled. Soil gas sampling was performed during a period where the SVE system was temporarily shut down (December 13, 2018 through June 5, 2019). The locations of the soil gas probes are included on the attached Figure 4.

Temporary Soil Vapor Probe Installations. On February 22 and 28, 2019, PES installed seven temporary soil vapor probes on the MVSC and Harris properties. Two temporary soil vapor probes (SVS-11 and SVS-17) were installed on the MVSC property. SVS-11 was installed in the dry cleaner (Four-Star Cleaners) suite near the back door. SVS-17 was installed the alley behind (north) of the Four-Star Cleaners near SVE-6 to evaluate soil gas conditions near existing remediation well SVE-6. The temporary soil vapor probe locations on the MVSC property are shown on Figure 5.

Five temporary soil vapor probes (SVS-12, SVS-13, SVS-14, SVS-15, and SVS-16) were installed in the former Manhattan Cleaners suite on the Harris property (currently occupied by Archie's Restaurant). SVS-14, SVS-15, and SVS-16 were installed on the back (west) wall of the suite, and two probes (SVS-12 and SVS-13) were installed in the center of the kitchen area. The temporary soil vapor probe locations on the Harris property are shown on Figure 6.

The seven probes located inside the buildings (all probes except SVS-17) were installed on February 22, 2019, and were constructed by drilling a hole using a roto-hammer to an approximate depth of 2 feet, placing Teflon tubing and 6-inch long stainless-steel screen in the borehole, installing a Vapor PinTM (with extensions) for sample collection, and sealing the boring with a small threaded end cap. Sand filter pack material was placed around the screen and the upper annulus was sealed with bentonite. The screen depths for these soil vapor probes were at 1.3 ft bgs.

The temporary probe in the alley (SVS-17) was installed on February 28, 2019, by ESN Drilling (a Washington State licensed driller) using a direct push drill rig. The boring was hand-cleared to a depth of 3 ft, advanced to 5 ft bgs, followed by installation of a 6-inch long stainless-steel screen, sand filter pack, bentonite seal, and 6-inch diameter traffic rated well monument set in concrete. The screen depth for SVS-17 was 4.5 to 5 ft bgs.

Soil Vapor Sampling. Soil vapor samples were collected on March 11 and June 3, 2019. All of the soil vapor probes were sampled in March, however, the sample from SVS-12 was not analyzed due to a failed flow controller. All soil vapor probes except SVS-16 were sampled in June. SVS-16 was not sampled due to its monitoring port being clogged with floor wax.

During sampling, PES installed a plastic shroud that is sealed and weighted at the ground surface. To test for potential leaks, PES performed a "shut-in test" in the above-ground laboratory-provided sampling equipment (flow controller, pressure gauge, sampling manifold, fittings), and confirmed that the sampling equipment did not lose more than one-inch of mercury (Hg) vacuum per minute using a syringe or peristaltic pump.

Prior to collecting each subslab soil vapor sample, approximately three tubing pore volumes was purged from the monitoring point at a rate below 200 milliliters per minute (ml/min) using either a peristaltic pump or syringe. PES leak-tested the probe assembly using an inert tracer gas (ultra-high purity helium) and a field helium gas meter. The helium was maintained at a concentration of approximately 20 percent within the shroud. If helium was detected during purging at a concentration greater than 10 percent of the shroud concentration, the vapor probe was resealed, and the leak test repeated.

Samples were collected at 200 ml per minute into laboratory provided, batch certified one-liter summa cannisters. The canister valve was closed while the canister remained under negative pressure, and the samples were submitted for VOC analysis by EPA Method TO-15 to Pace Analytical (a Washington State-accredited laboratory). The 24-hour barometric pressure preceding and during the March and June soil vapor sampling events is provided in Attachment E.

Soil Vapor Sampling Results. For the purposes of this discussion, only PCE and its daughter breakdown products, trichloroethene (TCE), cis-1,2-dichloroethene (cDCE), trans-1,2-dichloroethene (tDCE), and vinyl chloride are included. PCE, TCE, and vinyl chloride results have been compared to their modified MTCA Method B commercial remediation screening levels (SLs)[4] of 1,067 micrograms per cubic meter ($\mu g/m^3$), 36.7 $\mu g/m^3$, and 31.7 $\mu g/m^3$, respectively. Ecology has not assigned SLs for cDCE nor tDCE.

- Subslab soil vapor samples (SVS-10 through SVS-16). PCE was detected above the PQL in each of the subslab samples, but only exceeded the SL in SVS-13 in June (1,500 $\mu g/m^3$). SVS-13 is located near the middle of former Manhattan Cleaners suite. TCE was detected below the SL in the samples from SVS-10 (March) and SVS-11 (June), and cDCE was detected in SVS-11 (June). Neither vinyl chloride nor tDCE were detected in any of the subslab soil vapor samples.

[4] Commercial remediation screening levels (SLs) for PCE, TCE, and vinyl chloride have been calculated using Equation 750-2 (Washington Administrative Code 173-340-750). Per Ecology's *Frequently Asked Questions (FAQs) Regarding Vapor Intrusion (VI) and Ecology's Draft VI Guidance Implementation Memorandum No. 21* (November 1, 2018), an exposure frequency (EF) factor of 0.3 was used (instead of 1.0) to reflect a commercial exposure of 52 weeks at 50 hours per week. Ecology has not assigned vapor intrusion SLs to cDCE or tDCE.

- Soil vapor samples from SVS-17. PCE and TCE exceeded their SLs in March and June, and vinyl chloride exceeded the SL in March. cDCE and tDCE were detected in both the March and June samples. The March and June concentrations of PCE were 26,900 and 104,000 µg/m^3, and TCE were 319 and 3,290 µg/m^3, respectively. The March vinyl chloride concentration was 44.7 µg/m^3. cDCE and tDCE were also detected in both samples. The March and June concentrations of cDCE were 1,230 and 8,600 µg/m^3, and tDCE were 43.4 and 519 µg/m^3, respectively.

Table 3 summarizes the subslab soil vapor sample results for the March and June 2019 sampling events.

Passive Flux Meter Study - October and November 2019

The purpose of the PFM study was to evaluate PCE mass flux and groundwater velocity (or Darcy velocity) across the majority of the shallow perched water bearing zone along the conceptual barrier wall alignment. Mass flux is the contaminant mass moving across a unit area of the aquifer. These data collected from the PFM study will be used to develop design elements and potential costs for evaluating the feasibility of implementing of a permeable reactive barrier (PRB) to cut-off the PCE plume and thereby improve natural attenuation of PCE concentrations downgradient from the PRB.

The PFM study measured the Darcy velocities and PCE mass flux and identified PCE transport zones in the monitoring well pair MW-19/MW-20 located along the northern Harris property line. PFMs are activated carbon filled sock-like devices that can be installed in two-inch diameter monitoring wells and are sold by EnviroFlux of Gainesville, Florida. The activated carbon in the PFMs is pre-loaded with four tracers, each having a known sorption coefficient (Kd). Once installed, the PFMs are left in a groundwater monitoring well for several weeks; during which time, the tracers are depleted at a rate proportional to the groundwater velocity. Simultaneously, the activated carbon sorbs the migrating PCE from passing groundwater. After the prescribed period of deployment, PFMs are retrieved, and discrete interval samples of activated carbon are placed in jars and sent to EnviroFlux for laboratory analysis. The residual mass of tracers in each sample are used to estimate groundwater velocity and the mass of PCE in each sample is used to estimate a PCE concentration in the passing groundwater. Multiplying the groundwater velocity by PCE concentration results in a mass flux of PCE (mg) passing through a unit area of aquifer (square meter[m^2]) per unit time (day).

PFM Installation and Development. PES installed the PFMs in MW-19 and MW-20 on November 7, 2019. Two 5-ft long PFMs were deployed in series in the saturated screened interval of each well. PFM-1 and PFM-2 were installed in MW-19 and PFM-3 and PFM-4 were installed in MW-20. In MW-19, PFM-1 was placed from approximately 49 ft to 54 ft bgs and PFM-2 was placed from approximately 44 ft to 49 ft bgs. In MW-20, PFM-3 was placed from approximately 40 ft to 45 ft bgs and PFM-4 was placed from approximately 34 ft to 40 ft bgs. Each PFM includes 4 discrete 1-ft long sampling zones which allows 8 intervals to be tested in each well (16 total samples).

PFM Extraction and Sampling. The PFMs remained in the wells for approximately 2.5 weeks and were retrieved by PES on November 25, 2019. The carbon was sampled in accordance with EnviroFlux instructions, and the samples were submitted to EnviroFlux for laboratory analysis. Samples were collected in approximate 1-foot increments throughout the screen intervals and preserved in glassware provided by EnviroFlux. The sample IDs are identified by the approximate screened interval depths as deployed in the monitoring wells. The samples were analyzed for PCE and Darcy groundwater velocity. Note that the PFM media extended slightly beyond the well screen intervals and into the blank casing. The small portions of the PFM media in the blank casing were not sampled.

PFM Study Results. The results of the PFM study provided by EnviroFlux are included in Attachment F. The calculated Darcy groundwater velocities and PCE flux for each sample interval are tabulated in Tables F1 and F2 and shown graphically on Charts F1 and F2. The average PCE mass flux and discharge rates for each monitoring well are listed in Tables F3, F4, and F5 and their associated charts.

The Darcy groundwater velocities ranged from 5.9 to 20.8 centimeters per day (cm/day) (average velocity of 13.2 cm/day) in the deep well MW-19 and 3.7 to 15.4 cm/day (average velocity of 8.3 cm/day) in the shallow well MW-20. The data suggests that Darcy velocities are slightly higher in deeper groundwater and overall vary by a factor nearly 6 across the perched saturated zone.

The PFM study found that the highest PCE mass flux zone appears to be between approximately 36 and 38 ft bgs where the average mass flux was approximately 0.054 $mg/m^2/day$. The highest mass flux zone was approximately 1 to 3 feet below the groundwater table during the test period. This highest rate of flux was roughly only two times the average mass flux through the shallower screened MW-20 (0.024 milligrams $mg/m^2/day$). The average mass flux in the deeper screened MW-19, however, was 0.002 $mg/m^2/day$, or less than 5 percent of the maximum mass flux and less than 10 percent of the average mass flux in MW-20. These data indicate that PCE mass flux is greatest in shallow groundwater.

As described above, the PFM data is used to estimate the PCE concentration in groundwater. This can be calculated from the data in Attachment F by dividing the flux by the Darcy velocity. In doing so, the average PCE concentration in MW-19 was estimated at 0.02 micrograms per liter (µg/L) and at 0.36 µg/L in MW-20. This pattern is consistent with historical groundwater monitoring results from other areas of the Site which have indicated decreasing PCE concentrations with depth (see historical results for monitoring well pairs MW-9A/MW-9B and MW-10A/MW-10B in Table D3).

It should be noted that the PFM study was conducted near the seasonal low groundwater time of year and therefore, the PCE mass flux during seasonal high groundwater (e.g., winter and late spring) was not specifically evaluated. However, based on long term groundwater monitoring results and consistency of data, we believe that PCE mass flux is occurring year-round in shallow groundwater. Overall, the PFM test results indicate that preferred PCE mass flux zone is in shallow groundwater and decreases with depth.

PERFORMANCE GROUNDWATER MONITORING AND SAMPLING

Four rounds of groundwater performance monitoring and sampling were conducted during the reporting period. The scope included water level monitoring in select shallow and deep wells, and sampling shallow wells per the RAWP.

- March 2019 performance sampling of two new monitoring wells MW-17 and MW-18.
- May 2019 performance sampling consisted of 3 monitoring wells including MW-10, MW-11 and DC-17 to monitor for potential rebound following shut-down of the air sparging system in December 2018;
- October 2019 performance sampling consisted of 15 monitoring wells including MW-2, MW-7, MW-9, MW-10, MW-17, MW-18, MW-19, MW-20, DC-7, DC-8, DC-15, DC-17, KMW-3, KMW-7, and KMW-8.
- December 2019 performance sampling consisted of resampling of monitoring wells MW-19 and MW-20 to confirm the non-detect results in October.

Groundwater Level Monitoring

Groundwater levels were measured from sampled wells prior to sample collection during each sampling event on March 6, 2019, May 21, 2019, October 24 through 29, 2019, and December 4, 2019. The sampling event in October was the only event where groundwater levels were measured in all monitoring 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.

Groundwater Sampling

Groundwater samples were collected using low-flow sampling techniques. For each sampling event, a bladder pump with a dedicated bladder 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, dissolved oxygen (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 typically set within approximately one to two feet below the top of the screen. For the sampling events in May and October, well MW-10 was sampled instead of DC-10A because DC-10A did not have a sufficient volume of water in order to collect a sample. Samples were collected into preserved 40-ml VOA sampling containers and submitted to Pace Analytical in Mt. Juliet, TN (a Washington State accredited laboratory) for analysis of VOCs by EPA Method 8260C.

Quality Assurance/Quality Control

Equipment blank, trip blank, and field duplicate samples were collected in accordance with the 2016 SAP. Equipment blank and field duplicate samples are to be collected at a rate of approximately one per twenty samples, and a trip blank is to be submitted with each cooler. Equipment blank and field blank samples were collected and analyzed at the appropriate frequency during the reporting period. One trip blank was analyzed per cooler, except in March 2019. Duplicate samples collected during the reporting period were from DC-17 (May) and DC-7 (October).

Water Level Monitoring Results

Water level measurements and groundwater elevations for the four sampling events in 2019 are summarized in Table 3, and field parameter measurements are summarized in Table 4. Groundwater levels were only measured once in all wells during 2019; however, based on previous data, groundwater elevations in the shallow wells on the Property vary seasonally, with the lowest levels in fall and highest levels in spring to early summer. Groundwater elevations in October 2019 ranged from 252.75 to 271.84 feet above NAVD 88.

The groundwater gradients in October remained generally consistent with historical results, with a north-northwest directional component on the Property and a more northerly component across SW 178th Street. The gradient across the Property (0.005 ft/ft) is approximately an order of magnitude lower than the gradient to the north of the Property (0.03 ft/ft). The on-Property gradient is estimated from MW-12 to DC-7, and the off-Property gradient is estimated from MW-7 to MW-9. The 2019 groundwater elevations and elevation contours are shown on Figure 7. Monitoring well details are included as Attachment D1, and a complete summary of historical groundwater elevations is included as Attachment D2.

Groundwater Analytical Results

The laboratory analytical results from the March, May, October, and December 2019 sampling events for PCE are summarized on Table 5 and shown on Figure 7. A complete summary of historical PCE concentrations in groundwater monitoring wells is included as Attachment D3.

The results from the March 2019 sampling event (2 wells) are summarized as follows:

- PCE was above Ecology's Model Toxics Control Act (MTCA) Method A cleanup level (CUL; 5 µg/L) in MW-17 and MW-18 at concentrations of 6.82 and 11.4 µg/L, respectively.

The results from the May 2019 sampling event (3 wells) are summarized as follows:

- PCE was below the CUL in two wells (MW-10 and MW-11); and
- PCE was above the CUL in DC-17 at a concentration of 8.62 µg/L.

The results from the October 2019 sampling event (15 wells) are summarized as follows:

- PCE was below the laboratory PQL in three wells including MW-9, MW-19, and MW-20;
- PCE was below the CUL in five wells including MW-2, MW-10, MW-17, KMW-3, and KMW-7; and
- PCE remained above the CUL in seven wells including MW-7, MW-18, DC-7, DC-8, DC-15, DC-17, and KMW-8 at concentrations between 5.72 and 17.1 µg/L.

The results from the December 2019 sampling event (2 wells) are summarized as follows:

- PCE was below the PQL in MW-19 and MW-20, which was consistent with the findings from the October 2019 results.

Discussion of Groundwater Monitoring Results

By the October 2019 sampling event, PCE had been below the CUL for at least five consecutive sampling events in all wells within the AS zone of influence (ZOI). The groundwater data tables and historical time trend plots (Attachment G) indicate the following:

- Rebound monitoring. Rebound monitoring in conducted in May showed relatively stable PCE concentrations following shut-down of the AS/SVE system for 5 months. The wells closest to the AS ZOI (MW-10 and MW-11) increased slightly but remained below the CUL. DC-17, further downgradient, barely changed and remained above the CUL. The next monitoring event in October showed that PCE in MW-10 continued to stay below the CUL and showed that DC-17 had decreased to its lowest ever concentration (5.72 µg/L). Note that MW-10 had been substituted for DC-10A which did not have enough groundwater in the screen for sampling during either event;
- MW-17. PCE in this new well was slightly above the CUL in March (6.82 µg/L) and below the CUL in October (2.85 µg/m^3) in its first two monitoring events. These results suggest that MW-17 may be near the edge of the plume;
- MW-18. PCE in this new well was consistent in March and October at 11.4 and 11.3 µg/L, respectively. MW-18 is located approximately 58 feet north of DC-8 (15.0 µg/L in October) and 265 feet south of MW-7 (7.13 µg/L), and the results suggest that MW-18 is in a flow path between DC-8 and MW-7;
- MW-19. PCE in this new well was below the PQL in October and in December and are consistent with historical results from other deep screened wells at the Site;
- MW-20. PCE in this new well was below the PQL in October and December and the results were unexpected considering that this well is only 27 feet northwest of DC-8.

The results, however, are consistent with the calculated PCE concentrations in the PFM study (Attachment F) which estimated PCE concentrations to be between approximately 0.04 and 0.7 µg/L in the eight samples collected along the 10 ft screened interval;

- MVSC property and southern half of Harris property. PCE concentrations in the MVSC property and in the southern half of Harris property remained below the CUL;

- Northern half of Harris property and in SW 178th Street. PCE concentrations remained above the CUL in DC-7, DC-8, DC-15, and KMW-8 and were slightly higher in October 2019 compared to October 2018. As noted above, PCE is also above the CUL in new well MW-18;

- MW-7. PCE concentrations in downgradient well MW-7 on the Dunn Lumber property continued an overall decreasing trend although the PCE concentration in October 2019 was slightly higher than the historical low concentration in October 2018; and

- MW-9. PCE has never been detected above the laboratory MRL in the furthest downgradient monitoring well MW-9.

Laboratory Data Validation

The laboratory analytical reports for the groundwater monitoring and sampling events were validated in accordance with the EPA guidelines for organic data review[5]. All of the data was judged to be acceptable for their intended use. Copies of the laboratory analytical reports and data validation memoranda are included in Attachment B.

RESIDUALS MANAGEMENT AND DISPOSAL

Residuals accumulated during the reporting period included SVE system condensate, groundwater sampling purge and decontamination water, and supplemental investigation derived soil. SVE system condensate is managed within the operating SVE system until sufficient volume can be generated for disposal and a waste profile sample is collected shortly prior to disposal. Groundwater sampling purge water, decontamination water, and supplemental investigation soil cuttings were placed in 55-gallon drums and temporarily stored adjacent to the remediation system enclosure. Waste profile samples were collected at the end of each sampling event. Copies of laboratory reports containing waste profile data are included in Attachment B, and copies of disposal documentation are included in Attachment H.

- **Wastewater Disposal.** 850 gallons of SVE system condensate were disposed of as non-hazardous wastewater by Marine Vacuum Service, Inc. on July 8, 2019. A total

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

of 6,700 gallons of wastewater related to the supplemental investigation and groundwater sampling was disposed of as hazardous waste at the Clean Harbors Grassy Mountain facility in Utah June 6 and December 20, 2019.

- **Soil Disposal.** Approximately 6,000 pounds of soil cuttings contaminated with PCE (F002-listed soil) was generated during the supplemental investigations. The soil was disposed as hazardous waste at the Clean Harbors Grassy Mountain facility in Utah on June 6 and December 20, 2019.

SVE SYSTEM EXPANSION AND SOIL EXCAVATION DESIGN

PES prepared a design for expanding the SVE system near the Four Star Cleaners and the former Manhattan Cleaners, and for excavating shallow impacted soil in the unpaved area west of the former Manhattan Cleaners. The purpose of the work is to expedite treatment of vadose zone PCE by targeting depth and locations which exceeded the soil CUL in the 2018 confirmation soil samples near the Four Star Cleaners, the former Manhattan Cleaners, and behind the QFC building. The previous soil sampling results indicate that interim SVE system installed in 2009 SVE has been effective at removing PCE from shallow vadose zone soil (except for in unpaved areas) and less effective at treating deeper soil. The previous results also indicate that the SVE wells behind the QFC building need additional time to treat PCE in soil to below the CUL. The October 2019 design (Attachment I) includes the basis for design, SVE and excavation layouts, details for well and wellhead construction, system manifolds, piping, and trenches.

The SVE expansion design includes six new SVE wells to supplement the existing 22-well SVE system. Three wells will be located near the Four Star Cleaners and three wells will be located near the former Manhattan Cleaners. The proposed SVE wells are screened to target the vadose zone below 10 ft bgs and the wells will operate in tandem with four nearby existing SVE wells including SVE-6, SVE-7, SVE-8, and SVE-10. The existing shallow SVE wells SVE-11A and SVE-12A (see Figure 3) will continue to operate to treat remaining shallow PCE impacted soil (at 5 to 6 ft bgs) west of the QFC building.

The existing SVE blower and condensate management equipment have sufficient capacity to handle the planned expansion. The expanded system is expected to operate at a total flow rate of approximately 500 scfm. The SVE blower is controlled by a variable speed drive and has an operating capacity of between approximately 500 scfm to more than 900 scfm with between 30 and 40 in.w.c. vacuum available at the manifold. The new SVE wells are expected to operate similar to the existing SVE wells that have operated between roughly 20 and 60 scfm with an estimated 40 to 50 ft ZOI.

The 2018 confirmation soil sampling indicated that SVE has had limited effect on treating soil just beneath the unpaved ground surface on behind the former Manhattan Cleaners. Therefore, a shallow excavation will be conducted to remove PCE impacts exceeding the CUL in shallow soil to the west of the former Manhattan Cleaners. Based on prior soil sampling in this area, the excavation is anticipated to be approximately 300 square ft by up to 4 ft deep. Soil samples will be collected prior to excavation to further delineate the extents of PCE exceeding the CUL.

Confirmation soil samples will be collected to document conditions at the bottom and sidewalls of the completed excavation.

PES has met with and had communications with the City. The City will require submittal of a State Environmental Policy Act (SEPA) application and a grading permit to complete the construction. The City has indicated that the application review and public comment period should be expected to take approximately 6 to 8 weeks to complete.

SUMMARY AND CONCLUSIONS

The SVE system was shut down from mid-December 2018 through early June 2019 so that vapor intrusion could be evaluated in areas that are serviced by the SVE system. Two rounds of subslab soil vapor samples were collected from two locations inside the Four Star Cleaners suite, five locations inside the former Manhattan Cleaners suite, and in the asphalt paved alley near existing SVE well SVE-6 (behind Four Star Cleaners). One round of samples was collected in March and the other was collected in early June. PCE exceeded the commercial remediation SL by a factor of 1.5 in a single subslab soil vapor sample (SVS-13 beneath former Manhattan Cleaners). The remainder of the samples were well below SLs. However, the soil gas sample collected near SVE-6 (SVS-17) contained PCE and TCE at up to 100 times higher than the SL.

The SVE system was restarted shortly after the June soil vapor sampling event. Stack sampling indicates that SVE operation continues to remove PCE from vadose zone soil at a low rate. SVE operation also protects against vapor intrusion into occupied commercial indoor spaces and prevents vadose zone soil impacts from re-impacting groundwater. The 2018 confirmation soil sampling results and 2019 soil vapor sampling indicate that the existing SVE operations could be optimized by targeting SVE to depths and locations where PCE impacts remain above the CUL. The results also suggest that excavating shallow PCE contaminated soil in the accessible area behind the former Manhattan Cleaners suite will be more effective for achieving the CUL in shallow soil compared to continued SVE.

Groundwater monitoring results indicate that PCE concentrations on the MVSC property and on the southern half of the Harris property continue to remain below the CUL. Wells within the AS ZOI have been below the CUL for at least 5 consecutive quarters and shutting down the AS system for the first six months of 2019 did not appear to result in significant rebound of PCE concentrations in nearby monitoring wells. Therefore, the AS system has been left off-line indefinitely.

New monitoring wells MW-17 and MW-18 were installed in SW 178th Street to evaluate plume conditions directly south of the Harris property. The wells were sampled in March and October. MW-17 was slightly above the CUL in March and below the CUL in October, and the results indicate that this well may be on the edge of the plume. MW-18 was above the CUL in both sampling events.

On the west side of the Harris property, monitoring data has shown that the AS/SVE system has treated the southwest corner to below the CUL (MW-10, MW-11, DC-10A), and PCE in the

northwest corner is naturally attenuating to very close to the CUL in KMW-3 and has been consistently below the CUL in KMW-7. Because the concentrations are so close to the CUL and overall trending downward, we do not think that additional groundwater remediation on the west side of the Harris property is warranted. PCE should continue to decline over time such that it no longer causes groundwater to exceed the CUL off the property in this area.

On the east side of the Harris property, monitoring data has shown PCE has been below the CUL on the property since 2013 (DC-11, DC-12, DC-13). The only area which exceeds the CUL is the area in SW 178th St near KMW-8 and former DC-14. PCE has been naturally attenuating to very close to the CUL and is expected to continue to decline over time to below the CUL. Additional groundwater remediation on the east side of the Harris property is also not warranted.

PCE in groundwater in the north central portion of the Harris property, however, continues to exceed the CUL in DC-8 and DC-15. New monitoring well MW-18 confirms that the plume extends into SW 178th Street and indicates that the above CUL results in MW-7 on Dunn Lumber property are likely associated with contaminant releases on the Property. Downgradient monitoring well MW-9 continues to bound the plume to the north and has remained below the PQL for more than a decade. Passive remediation technologies are being considered to contain the plume in this area of the Site to prevent PCE concentrations greater than the CUL from migrating off the Harris property.

New deep/shallow monitoring well pair MW-19 and MW-20 were installed on the Harris property near the northern property line to evaluate rates of PCE flux in the area. The wells were installed as close to DC-8 as practical, however PCE in samples collected in October and December were unexpectedly below the CUL. These results, along with the long term below CUL results in DC-2, DC-3, and DC-14 suggest that the plume may not be contiguous across the western half of the Harris property.

PFM testing in MW-19 and MW-20 was commenced in early November prior to receiving the October groundwater monitoring results. The PFM study found that the preferred PCE transport zones were indicated in the upper part of the saturated zone at approximately 36 to 38 ft and decreased with depth. PCE flux in MW-20 and were more than 10 times the flux in the deeper screened well MW-19. These results appear to consistent with historical sampling of other shallow/deep monitoring well pairs. The results of the PFM study will be used to develop design elements and potential costs for evaluating the feasibility of implementing a PRB to cut-off the PCE plume the north-central end of the Harris property, and allow for faster natural attenuation of the PCE concentrations to the north of the property.

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.

Kim S. Vick, L.G.
Senior Geologist

Matthew V. Dahl, P.E.
Senior Engineer

Attachments:

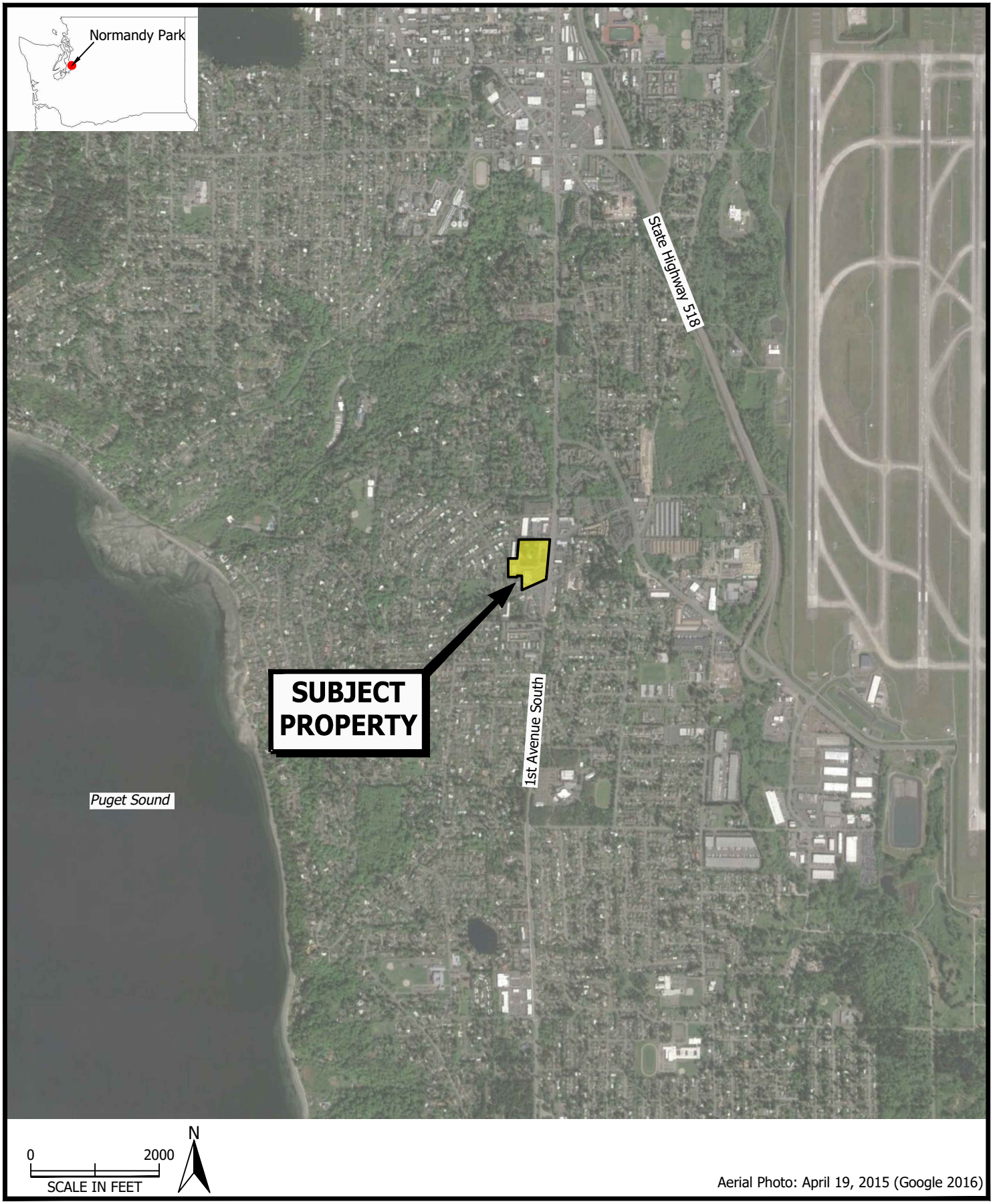
List of Abbreviations
Figures 1 through 7
Tables 1 through 6
Attachment A through I

LIST OF ABBREVIATIONS

AS	Air Sparging
bgs	Below Ground Surface
cm/day	Centimeters per Day
CUL	MTCA Method A Cleanup Level
DCE	Dichloroethene
DO	Dissolved Oxygen
DOT	Department of Transportation
Ecology	Washington State Department of Ecology
EPA	Environmental Protection Agency
ft	Foot (or feet)
in.w.c.	Inches of Water Column
lb	Pound or Pounds
Manhattan Cleaners	Manhattan Cleaners and Coin-Op Laundry
µg/L	Micrograms per Liter (parts per billion)
$\mu g/m^3$	Micrograms per Cubic Meter
mg/kg	Milligrams per Kilogram (parts per million)
$mg/m^2/day$	Milligrams per Square Meter per Day
MTCA	Model Toxics Control Act
MVSC	Manhattan Village Shopping Center
NAD 83	North American Datum of 1983
NAVD 88	North American Vertical Datum of 1988
O&M	Operation & Maintenance
ORP	Oxidation Reduction Potential
PCE	Perchloroethylene/Tetrachloroethylene
PES	PES Environmental, Inc.
PFM	Passive Flux Meter
PID	Photoionization Detector
PQL	Practical Quantitation Limit
PRB	Permeable Reactive Barrier
PSCAA	Puget Sound Clean Air Agency
PVC	Polyvinyl Chloride
RAWP	Remedial Action Work Plan
ROW	Right-of-Way
SAP	Sampling and Analysis Plan
scfm	Standard Cubic Feet per Minute
SEPA	State Environmental Policy Act
SVE	Soil Vapor Extraction
TCE	Trichloroethene
TOC	Top of Casing
VCP	Voluntary Cleanup Program
VOA	Volatile Organic Analysis
VOC	Volatile Organic Compound
WAC	Washington Administrative Code
ZOI	Zone of Influence

ILLUSTRATIONS

- Figure 1– Subject Property Location Map
- Figure 2 – Site Plan
- Figure 3 – Existing Remediation Well Locations
- Figure 4 – Well and Boring Location Map
- Figure 5 – PCE in Soil Gas on Manhattan Village Property
- Figure 6 – PCE in Soil Gas on Harris Property
- Figure 7 – Groundwater Elevations and PCE Concentrations – October 2019



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

FIGURE
1

1358.001.02.016 135800102016_2019_Q3Q4_1-2	MVD	5/20
JOB NUMBER DRAWING NUMBER	REVIEWED BY	DATE

SW 176th STREET

RESIDENCES

SW 177th STREET

1st AVE SOUTH

RESIDENCES

DUNN LUMBER

DUNN LUMBER

FORMER WATER SUPPLY WELL

COMMERCIAL

SW 178th STREET

2nd AVE SW

TOWN HOUSES

RESIDENCE

RESIDENCE

HARRIS PROPERTY

COMMERCIAL BUILDING

VACANT SHED

WELL HOUSE

RETAINING WALL

FORMER TREATMENT SYSTEM

REMEDIATION EQUIPMENT ENCLOSURE

FORMER SEPTIC TANK

FORMER MANHATTAN DRY CLEANER AND LAUNDROMAT

SHED

1st AVE SOUTH

COMMERCIAL

PARKING LOT

RETAINING WALL

FORMER DAIRY QUEEN

SECOND BUILDING (VARIOUS SHOPS)

FOUR STAR DRY CLEANERS

DAY CARE

MANHATTAN VILLAGE SHOPPING CENTER

PARKING LOT

QFC BUILDING

FORMER SEPTIC TANK

EXPLANATION

- Approximate Property Boundary
- SS — Sanitary Sewer
- SD — Storm Drain
- G — Natural Gas
- W — Water
- E — Overhead Electrical
- E — Buried Electrical
- T — Telephone

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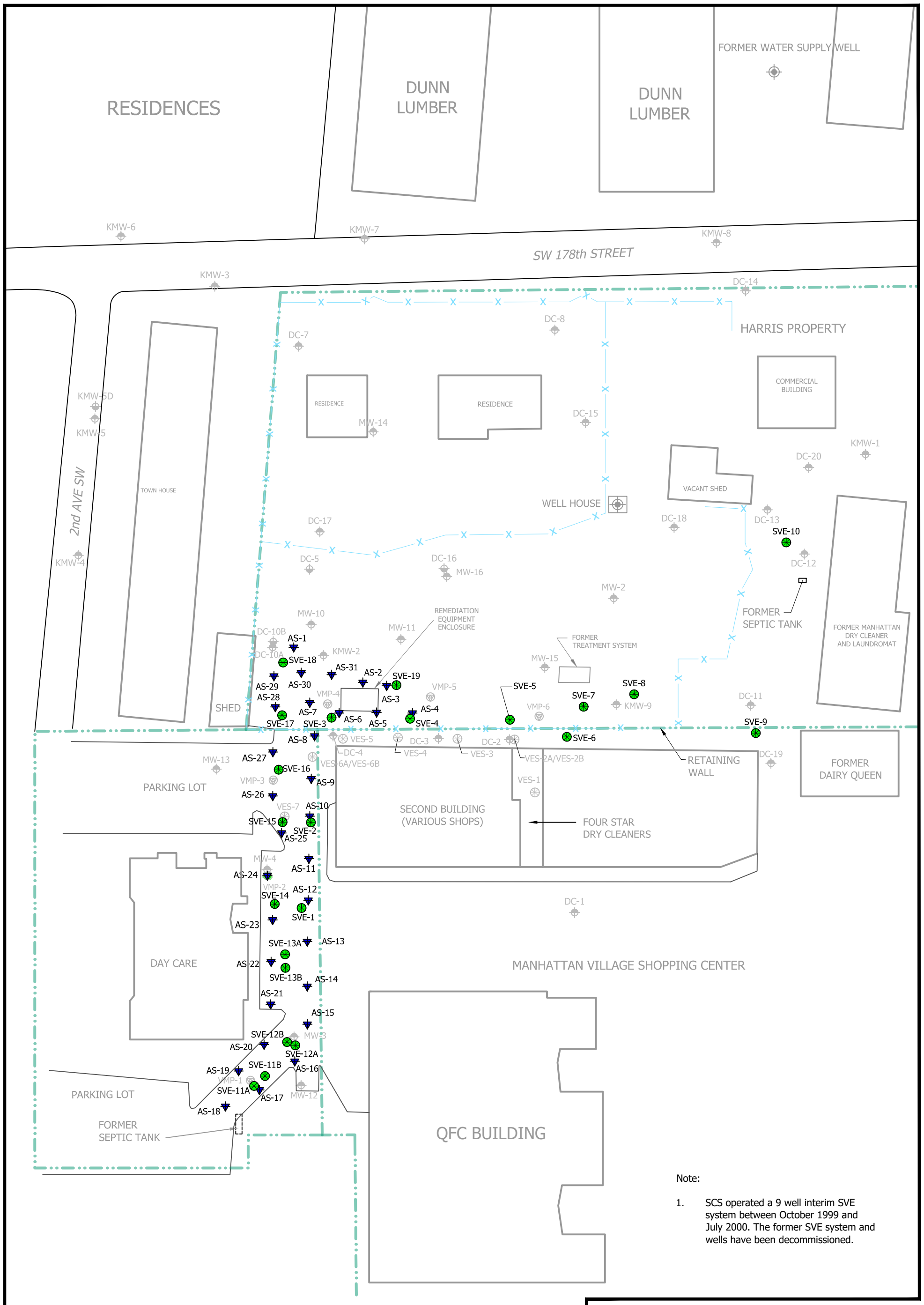
SCALE IN FEET

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Site Plan
Manhattan Village/Harris Properties
17817, 17825, and 17835 1st Avenue South
Normandy Park, Washington

FIGURE 2

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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.

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

FIGURE
3

1358.001.02.016	135800102016_2019_Q3Q4_3	MVD	5/20
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

EXPLANATION

- Approximate Property Boundary
- DC-6 Decommissioned or Missing Monitoring Well
- DC-15 Shallow Monitoring Well
- DC-16 Deep Monitoring Well
- SVE-1 Soil Vapor Extraction Well
- AS-1 Air Sparge Well
- TW-1 Pilot Test Well (Kane 2006, ERM 2011)
- KB-3 Boring Location by Others (See Identification List)
- SB-24 Soil Boring (PES, 2018)
- SVS-11 Soil Gas Probe (PES, 2019)

Boring Identification List

Consultant	Boring IDs	Year
SCS	B1 - B4 / S1 - S13 / BH-1 - BH-26 / T-1 - T-4	1998-2000
ADAPT	HA-1	1999
Farallon	SVS-1 - SVS-10 / GP-1 - GP-12 / TP1 - TP5	2005 - 2008
Kane	KB-1 - KB-5 / KGP-1 - KGP-3 / ST6	2003 - 2007
ERM	B-5 - B-18 / SB-1 - SB-9	2008 - 2012
PES	SB-10 - SB-30 / SVS-11 - SVS-17	2018 - 2019

- W Water
- SS Sanitary Sewer
- E Electrical Line
- SD Storm Drain
- G Gas
- C Communication
- T Telephone

Notes:

1. Borings drilled from 1998 through 2012 were not surveyed. Locations are estimated from prior consultants' site maps.
2. Investigation borings B-5, B-7, B-9, B-11, B-12, and B-13 were completed as vapor monitoring probes VMP-1 through VMP-6.
3. The temporary SVE system installed in 1999 included nine wells which operated for approximately one year, and were subsequently decommissioned. Six SVE wells were installed in investigation borings B-1 (VES-1), BH-1 (VES6A/6B), BH-15 (VES-5), BH-16 (VES-4), and BH-17 (VES-3). The other three wells (VES-2A/2B and VES-7) were installed in separate locations.
4. The former septic tank on Harris Property was removed in April 2006. Four sidewall and two bottom samples were collected. Bottom sample ST6 represents the only detection in the 6 samples
5. SCS borings B-1, B-2, and B-3 were completed as 1-inch diameter vapor monitoring probes in 1998. Well construction details are not available.
6. Soil gas sampling probes SVS-10 through SVS-16 are installed beneath the building slabs and requires specialized tools for access to the flush grade monuments. SVS-17 is installed in the asphalt behind Four Star Cleaners and includes a standard 6-inch diameter flush grade monument.

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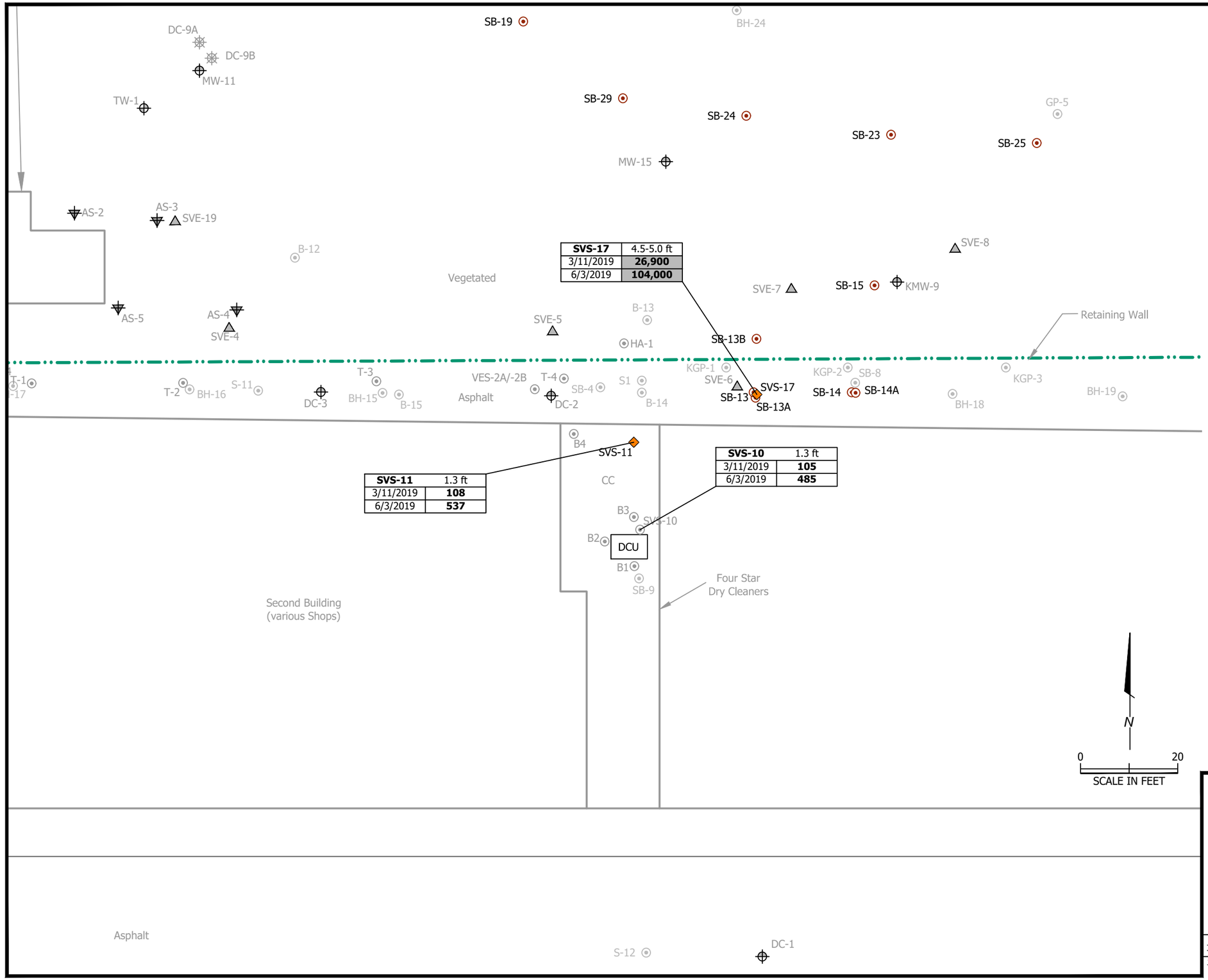
SCALE IN FEET

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

FIGURE 4

1358.001.02.016	135800101011_2019Q1_4	MVD	5/20
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



SVS-17	4.5-5.0 ft
3/11/2019	**26,900**
6/3/2019	**104,000**

SVS-11	1.3 ft
3/11/2019	**108**
6/3/2019	**537**

SVS-10	1.3 ft
3/11/2019	**105**
6/3/2019	**485**

EXPLANATION

- Approximate Property Boundary
- DC-6 Decommissioned or Missing Monitoring Well
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- DC-16 Deep Monitoring Well
- SVE-1 Soil Vapor Extraction Well
- AS-1 Air Sparge Well
- TW-1 Pilot Test Well (Kane 2006, ERM 2011)
- KB-3 Boring Location by Others (See Identification List)
- SB-24 Soil Boring (PES, 2018)
- SVS-10 Soil Gas Probe (PES, 2019)

Boring Identification List

Consultant	Boring IDs	Year
SCS	B1 - B4 / S1 - S13 / BH-1 - BH-26 / T-1 - T-4	1998-2000
ADAPT	HA-1	1999
Farallon	SVS-1 - SVS-10 / GP-1 - GP-12 / TP1 - TP5	2003 - 2008
Kane	KB-1 - KB-5 / KGP-1 - KGP-3 / ST6	2005 - 2007
ERM	B-5 - B-18 / SB-1 - SB-9	2008 - 2012
PES	SB-10 - SB-30 / SVS-11 - SVS-17	2018 - 2019

CC = Concrete
DCU = Dry Cleaning Unit
SL = Modified MTCA Method B Screening Level (1,067 µg/m^3)
PCE = Tetrachloroethene

Detections are shown in bold
U = Not Detected
PCE detections above the SL are shaded
1.3 ft = Depth of sample in feet below ground surface

The original version of this figure includes color-designated features. A black and white copy of the figure may not accurately represent the information originally presented.

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PCE in Soil Gas on Manhattan Village Property - March and June 2019
Manhattan Village/Harris Properties
17817, and 17825, and 17835 1st Avenue South
Normandy Park, Washington

FIGURE 5

1358.001.02.016	135800102016_2019_Q3Q4_5	MVD	5/20
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



SVS-14	1.3 ft
3/11/2019	**9.93**
6/3/2019	**168**

SVS-12	1.3 ft
3/11/2019	**NA**
6/3/2019	**367**

SVS-13	1.2 ft
3/11/2019	**611**
6/3/2019	**1,500**

SVS-15	1.3 ft
3/11/2019	**50.5**
6/3/2019	**115**

SVS-16	PCE
3/11/2019	**369**
6/3/2019	**NA**

EXPLANATION

- Approximate Property Boundary
- DC-6 Decommissioned or Missing Monitoring Well
- DC-15 Shallow Monitoring Well
- DC-16 Deep Monitoring Well
- SVE-1 Soil Vapor Extraction Well
- AS-1 Air Sparge Well
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Boring Identification List

Consultant	Boring IDs	Year
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Kane	KB-1 - KB-5 / KGP-1 - KGP-3 / ST6	2005 - 2007
ERM	B-5 - B-18 / SB-1 - SB-9	2008 - 2012
PES	SB-10 - SB-30 / SVS-11 - SVS-17	2018 - 2019

CC = Concrete
CTR = Counter
R = Refridgerator
SL = Modified MTCA Method B Screening Level (1,067 µg/m^3)
PCE = Tetrachloroethene
NA = Not Analyzed

Detections are shown in bold
U = Not Detected
PCE detections above the SL are shaded
1.3 ft = Depth of sample in feet below ground surface

Notes:
1. The sample from SVS-12 in March 2019 was not analyzed due to leakage in the laboratory supplied sample collection equipment.
2. A sample was not collected from SVS-16 in June 2019 due to floor wax which had blocked the sample port.

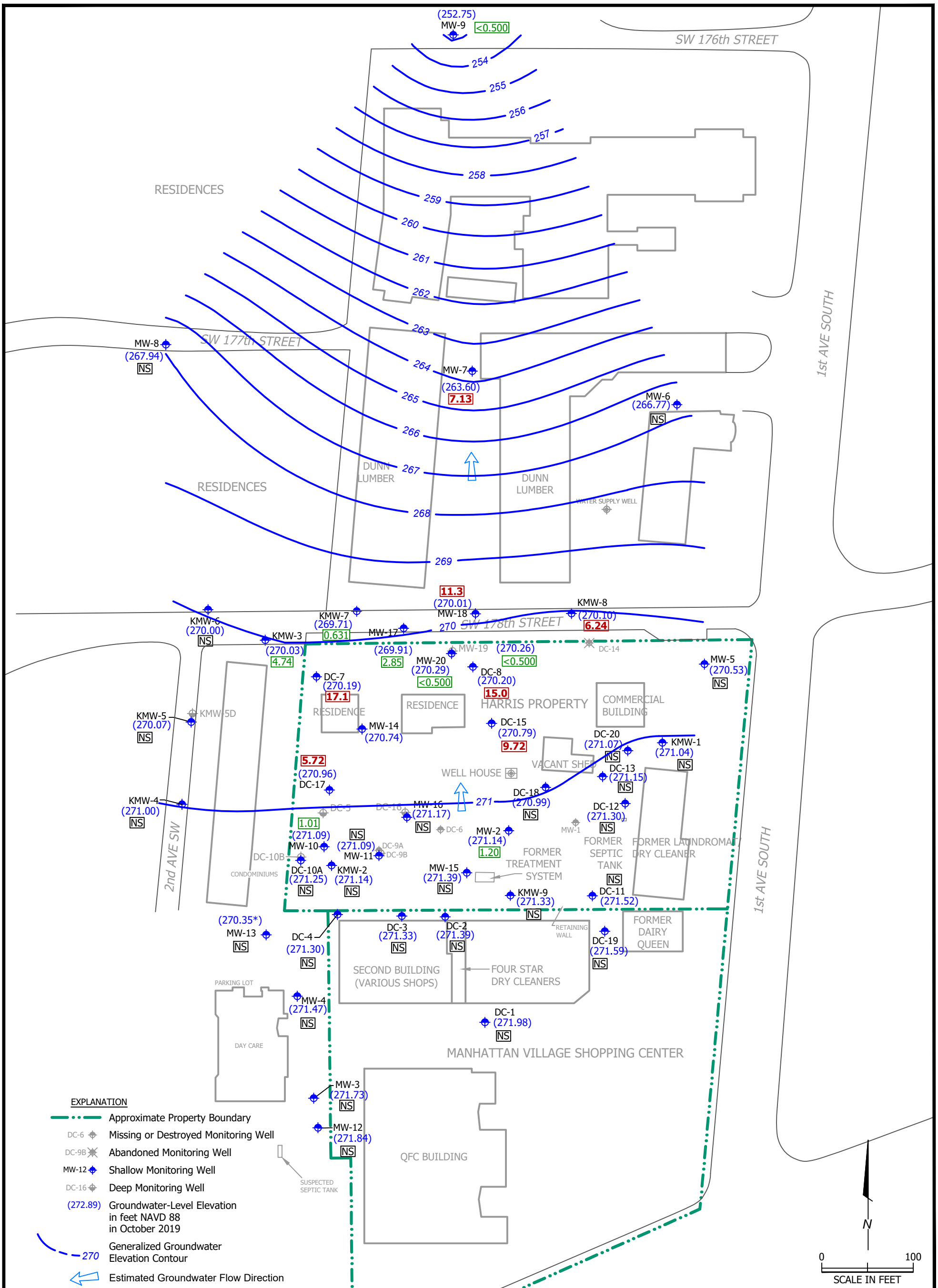
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PCE in Soil Gas on Harris Property
March and June 2019
Manhattan Village/Harris Properties
17817, and 17825, and 17835 1st Avenue South
Normandy Park, Washington

FIGURE
6

1358.001.2.016	135800102016_2019_Q3Q4_6	MVD	5/20
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



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Groundwater Elevations and PCE Concentrations – October 2019
Manhattan Village/Harris Properties
17817, 17825, and 17835 1st Avenue South
Normandy Park, Washington

FIGURE 7

1358.001.02.016	135800102016_2019_Q3Q4_7	MVD	5/20
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

TABLES

- Table 1 – SVE System Operation and Maintenance Data
- Table 2 – Tetrachloroethene in Soil
- Table 3 – Soil Gas Results – March 11 and June 3, 2019
- Table 4 – Groundwater Elevations
- Table 5 – Groundwater Sampling Field Parameters
- Table 6 – Tetrachloroethene Concentrations in Groundwater

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	59	-	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	-	-	-	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	750	Respond to DAT Alarm, reset, system operatiing
1/1/17	-	-	-	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	System down on power outage alarm
1/3/17	13:35	-	2	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Responded to alarm, system off - frozen equipment
1/9/17	12:15	72	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	-	-	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	System check after restart
1/18/17	11:00	81	-	4,976	51	14,751	1,936	75	32	6	1 to 19	2.3	845	0.5	359	0.027	102.4	0	5	O&M and TO-15 sample, condensate disposal
1/29/17	-	-	-	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Reset alarm, system running
2/1/17	6:45	95	-	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	-	1	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Power outage. Restarted system.
2/14/17	11:00	107	-	6,558	51	19,370	2,573	75	32	2	1 to 19	2.3	845	1.1	248	0.019	103.0	85	350	O&M, stack TO-15 sample, clean level switches
2/16/17	15:30	-	-	6,685	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	140	365	System check
3/2/17	-	-	-	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Respond to DAT Alarm, reset, system operatiing
3/10/17	9:00	131	-	8,006	51	23,567	3,146	75	35	26	1 to 19	2.3	845	0.2	275	0.021	103.5	100	565	O&M, stack TO-15 sample,shutdown for GW sampling
3/17/17	-	-	7	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Restarted system after GW sampling
4/8/17	9:40	152	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	-	-	10,022	51	29,101	3,942	75	32	25	1 to 19	2.4	865	0.3	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	166	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	202	-	12,283	51	35,228	4,845	85	32	32	All except 13A & 14	2.3	835	0.3	137	0.010	105.3	80	680	Closed SVE13A & SVE14, Closed AS10 to AS26
6/16/17	11:00	-	-	-	-	-	-	-	-	-	All except 13A & 14	-	-	-	-	-	-	-	-	Power bump/surge, low flow alarm. Restarted system
6/20/17	8:00	223	-	13,352	51	38,915	5,359	85	34	32	All except 13A & 14	2.3	835	0.4	246	0.018	105.6	68	686	O&M, changed blower and compressor oil, check belts
7/15/17	10:00	248	-	14,596	51	43,192	5,959	94	35	30	All except 13A & 14	2.4	845	0.3	745	0.057	106.6	50	686	O&M , stack TO-15 sample, shut down for GW sampling
7/20/17	14:00	248	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	277	-	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	312	-	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	337	-	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	339	1	-	51	-	8,127	-	-	-	All except 13A & 14	-	-	-	-	-	-	-	-	Inspect/test system, leave down for GW sampling
10/27/17	10:00	-	8	-	-	-	-	-	-	-	All except 13A & 14	-	-	-	-	-	-	-	-	Restarted system after GW sampling
11/14/17	9:00	-	1	-	-	-	-	-	-	-	All except 13A & 14	-	-	-	-	-	-	-	-	Power bump/surge, blower low flow alarm, restarted
11/16/17	7:00	357	-	20,098	51	62,657	8,576	75	40	32	All except 13A & 14	2.2	825	0.4	230	0.017	111.7	80	775	O&M, stack TO-15 sample
12/7/17	14:00	378	-	21,269	51	66,675	9,084	-	-	-	All except 13A & 14	-	-	-	-	-	-	-	-	DAT tank high level alarm, system running upon arrival
12/27/17	12:30	-	-	-	-	-	-	-	-	-	All except 13A & 14	-	-	-	-	-	-	-	-	Measure water levels and DO only
12/28/17	7:00	399	-	22,800	51	70,712	9,585	75	35	30	1 to 19	2.2	810	0.2	160	0.012	112.3	90	1100	O&M, stack & SVE well TO-15 samples, disposal

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)	
1/4/18	8:30	-	-	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	O&M, changed blower and compressor oil, check belts
1/5/18	6:45	407	-	22,836	53	72,115	9,773	75	35	27	1 to 19	2.2	810	-	-	-	-	80	80	SVE-10 ROI test, repair transfer pump seal
1/17/18	8:00	419	-	23,641	53	74,327	10,057	-	-	-	1 to 19	-	-	-	-	-	-	80	150	Replace bearings on compressor, belts on both units
1/23/18	10:30	425	-	24,040	53	75,464	10,205	75	35	30	1 to 19	2.3	850	0.2	200	0.015	112.6	80	210	O&M, stack TO-15 sample,shutdown for GW sampling
1/29/18	12:20	425	6	-	-	-	10,205	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Restarted system after GW sampling
2/20/18	-	-	3	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Power outage on 2/18, equipment frozen, restarted
2/21/18	6:45	445	-	25,223	53	79,279	10,685	70	36	29	1 to 19	2.4	860	0.2	200	0.015	112.9	80	340	O&M, stack TO-15 sample
3/10/18	-	-	1	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Power outage on 3/9, blower low flow alarm, restarted
3/27/18	10:15	478	-	27,159	53	85,473	11,479	76	38	30	1 to 19	2.1	810	0.5	130	0.009	113.3	95	340	O&M, stack TO-15 sample
4/16/18	-	-	-	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Shut down system for GW sampling
4/20/18	-	-	4	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Restarted system after GW sampling
4/25/18	10:00	502	1	28,566	53	89,903	12,055	80	35	32	1 to 19	2.0	790	0.3	-	-	-	90	340	O&M, stack sample not analyzed - summa faulty.
5/3/18	-	-	-	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Heat exchanger failure. Shut off air sparging.
5/16/18	-	-	-	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Replace heat exchanger motor and transfer pump
5/21/18	8:00	528	1	29,555	53	94,640	12,675	80	35	35	1 to 19	2.1	825	0.3	220	0.016	114.0	82	340	O&M, stack TO-15 sample, raise motor speeds
6/6/18	9:15	-	-	30,403	53	-	-	80	35	26	1 to 19	2.3	845	-	-	-	-	78	340	Respond to heat exchanger alarm, restart
6/7/18	13:35	-	-	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Repond to heat exchanger alarm, rewire, restart
6/18/18	13:35	556	-	31,063	53	99,732	13,344	100	30	26	1 to 19	2.5	865	0.4	240	0.019	114.5	82	340	O&M, stack TO-15 sample, blower & comp service
7/16/18	8:00	584	-	32,742	53	104,750	14,013	100	36	21	1 to 19	2.5	845	0.2	240	0.018	115.0	82	340	O&M, stack TO-15 sample, shutdown for GW sampling
7/23/18	8:00	584	7	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Restarted system after GW sampling
8/17/18	6:30	609	-	34,231	53	109,213	14,611	80	36	20	1 to 19	2.5	860	0.2	400	0.031	115.6	55	340	O&M, stack TO-15 sample
9/12/18	8:00	-	0.5	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Power outage on 9/11, blower low flow alarm, restarted
9/27/18	8:30	649	-	36,633	53	116,536	15,587	80	36	26	1 to 19	2.5	879	0.8	210	0.017	116.5	55	340	O&M, stack and SVE well TO-15 samples
10/13/18	14:00	666	-	-	-	-	15,973	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Shut down system for GW sampling
10/23/18	17:00	666	8	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Restarted system after GW sampling
10/31/18	8:30	676	-	38,132	53	121,512	16,225	65	40	25	1 to 19	2.5	892	0.4	250	0.020	117.0	50	350	O&M, stack TO-15 sample
11/9/18	8:00	-	-	38,678	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	440	Reset transfer pump level warning alarm.
11/21/18	6:30	697	-	39,416	53	125,554	16,727	80	42	25	1 to 19	2.4	861	0.4	200	0.015	117.4	90	510	O&M, stack TO-15 sample
11/27/18	7:00	700	3	-	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	-	Restarted system after alarm on 11/24
11/28/18	11:30	700	1	39,584	-	-	-	-	-	-	1 to 19	-	-	-	-	-	-	-	640	Restarted system after power outage on 11/27
12/6/18	15:00	707	1	40,040	53	127,534	16,970				1 to 19	-	-	-	-	-	-	-	-	System down 12/5 - high knockout level. Restart.
12/13/18	16:00	714	-	40,456	-	128,865	17,132	-	-	-	1 to 19	-	-	-	-	-	117.7	-	845	Power out alarm. Leave down for rebound evaluation.
6/6/19	14:15	714	-	-	40	128,881	17,135	105	40	35	See Note 7	1.0	542	-	-	-	-	142	850	Service blower and compressor. Restart SVE system.
6/7/19	13:20	-	-	40,644	36	-	-	80	41	35	See Note 7	1.2	609	-	-	-	-	148	855	O&M
7/8/19	12:00	746	-	41,049	36	132,369	17,900	100	60	52	See Note 7	1.1	572	0.1	440	0.023	118.3	140	0	O&M, stack TO-15 sample, condensate disposal
8/8/19	13:15	777	-	41,545	36	136,635	18,644	90	41	39	See Note 7	1.1	577	-	-	-	-	10	130	O&M
9/27/19	10:05	785	41	41,718	36	137,619	18,851	80	44	39	See Note 7	1.1	583	-	-	-	-	10	140	O&M, system was off - restarted. Power outage on 8/17. No alarm sent - autodialer battery backup failed.
10/28/19	11:16	816	-	42,127	36	141,045	19,595	70	35	29	See Note 7	1.1	588	0.1	310	0.016	119.7	15	145	O&M, stack TO-15 sample
10/29/19	15:43	818	-	42,141	36	141,158	19,622	72	36	30	See Note 7	1.1	588	0.1	-	-	-	15	145	O&M
11/1/19	14:45	820	-	42,173	36	141,435	19,684	70	38	28	See Note 7	1.1	588	-	-	-	-	145	145	Hi level alarm, service level switch, restart
11/27/19	9:02	846	-	42,496	36	144,106	20,304	68	36	30	See Note 7	1.1	588	-	-	-	-	90	475	Mid-month O&M
12/2/19	-	-	-	-	-	-	-	-	-	-	See Note 7	-	-	-	-	-	-	90	575	DAT high high alarm, serviced, restart
12/13/19	13:45	862	-	42,692	36	145,755	20,680	65	39	30	See Note 7	1.1	-	-	-	-	-	90	680	KO high & KO high high alarm. Serviced.
12/20/19	9:00	868	-	42,776	36	146,472	20,843	70	37	30	See Note 7	1.1	588	-	-	-	-	90	790	O&M. Soil and Water drums removed from site.
12/27/19	9:45	876	-	42,863	36	147,220	21,012	67	35	30	See Note 7	1.1	588	-	-	-	120.8	90	910	KO high and low level switches stuck - service.

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/m$^{3)}$ * 28.3168 (L/cf) / 1,000 (L/m^3) / 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.
7. Operating SVE wells include SVE-2, SVE-3, SVE-5, SVE-6, SVE-7, SVE-8, SVE-10, SVE-11A, SVE-12A, SVE-15, SVE-16, and SVE-18.

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/m^3 = micrograms per cubic meter
lb/day = pounds per day
Temp. = Temperature

DP = Differential Pressure
EJ = estimated value

Table 2

Tetrachloroethene in Soil
Monitoring Well Installations
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Boring ID	Depth (ft bgs)	Date	PCE (mg/kg)
		MTCA Method A Cleanup Level	0.050
MW-17	25	3/1/2019	0.0244 U
MW-17	30	3/1/2019	0.0267 U
MW-17	35	3/1/2019	**0.0543**
MW-18	10	2/28/2019	0.0314 U
MW-18	30	2/28/2019	**0.0288**
MW-18	35	2/28/2019	**0.0358**
MW-19	30.5	10/17/2019	0.0271 U
MW-19	35	10/17/2019	**0.0717**
MW-19	38	10/17/2019	**0.107**
MW-19	44	10/17/2019	0.0268 U
MW-20	30	10/17/2019	0.028 U
MW-20	35	10/17/2019	**0.0299**

NOTES:

1. Depths measured from ground surface.
2. Tetrachloroethene (PCE) concentrations in milligrams per kilogram (mg/kg). Other VOCs, if detected above the laboratory practical quantitation limit (PQL), are listed in Table D4.
3. Soil samples analyzed using USEPA Method 8260C (February, March) and 8260D (October).
4. U = concentration not detected at or above the laboratory PQL.
5. Detected concentrations are shown in **bold.**
6. Concentrations exceeding the PCE MTCA Method A cleanup level of 0.050 mg/kg are **bold and shaded**.

Table 3

Soil Gas Results - March 11 and June 3, 2019
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Parameter	CAS Number	Commercial Remediation Screening Level	Subslab Soil Gas Sample ID												Soil Gas Sample ID	
			SVS-10		SVS-11		SVS-12	SVS-13		SVS-14		SVS-15		SVS-16	SVS-17	
			3/11/2019	6/3/2019	3/11/2019	6/3/2019	6/3/2019	3/11/2019	6/3/2019	3/11/2019	6/3/2019	3/11/2019	6/3/2019	3/11/2019	3/11/2019	6/3/2019
		Screen Depth (ft)	1.3		1.3		1.3	1.2		1.3		1.3		1.3	4.5 to 5	
cis-1,2-Dichloroethene	156-59-2	-	1.59 U	1.59 U	1.59 U	**15.0**	1.59 U	1.59 U	1.59 U	1.59 U	1.59 U	1.59 U	1.59 U	1.59 U	**1,230**	**8,600**
trans-1,2-Dichloroethene	156-60-5	-	1.59 U	1.59 U	1.59 U	1.59 U	1.59 U	1.59 U	1.59 U	1.59 U	1.59 U	1.59 U	1.59 U	1.59 U	**43.4**	**519**
Tetrachloroethene	127-18-4	1,067	**105**	**485**	**108**	**537**	**367**	**611**	**1,500**	**9.93**	**168**	**50.5**	**115**	**369**	**26,900**	**104,000**
Trichloroethene	79-01-6	36.7	**2.52**	2.14 U	2.14 U	**5.64**	2.14 U	2.14 U	2.14 U	2.14 U	2.14 U	2.14 U	2.14 U	2.14 U	**319**	**3,290**
Vinyl Chloride	75-01-4	31.7	1.02 U	1.02 U	1.02 U	1.02 U	1.02 U	1.02 U	1.02 U	1.02 U	1.02 U	1.02 U	1.02 U	1.02 U	**44.7**	**21.4**

NOTES:

1. All results in µg/m^3 (micrograms per cubic meter).
2. U = not detected at or above the method reporting limit shown.
3. - = not applicable
4. Commercial remediation screening levels (SLs) for tetrachloroethene, trichloroethene, and vinyl chloride have been calculated using Equation 750-2 (Washington Administrative Code 173-340-750). Per Ecology's *Frequently Asked* Questions (FAQs) Regarding *Vapor Intrusion (VI) and Ecology's Guidance Implementation Memorandum No. 21 (November 1, 2018)* , an exposure frequency (EF) factor of 0.3 was used (instead of 1.0) to reflect a commercial exposure of 52 weeks at 50 hours per week. Ecology has not assigned vapor intrusion SLs to cis- and trans-1,2-dichloroethene.
5. Detected concentrations are shown in **bold.**
6. Concentrations exceeding the commercial remediation screening level are **bold and shaded**.
7. Only tetrachloroethene and breakdown daughter products are shown. See lab reports for other detected VOCs unrelated to tetrachloroethene including acetone, carbon disulfide, chloroform, chloromethane, 1,2-dichlorobenzene, 1,1-dichloroethene, 1,4-dioxane, ethanol, ethylbenzene, trichlorfluoromethane, dichlororfluoroethane, hexane, methylene chloride, 2-butanone, isopropyl alcohol, 1-propene, styrene, tetrahydrofuran, toluene, 1,1,1-trichloroethane, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, m,p-xylene, and o-xylene.
8. SVS-10 and SVS-11 were collected beneath the slab in Four Star Cleaners on MVSC Property.
9. SVS-12, SVS-13, SVS-14, SVS-15, and SVS-16 were collected beneath the slab in Archies Restaurant on Harris Property. The sample from SVS-12 was not analyzed in March 2019 due to leakage in the sampling train. SVS-16 was not sampled in June 2019 due to floor wax in sampling probe tip.
10. SVS-17 was collected beneath the aspalt paved alley behind Four Star Cleaners on MVSC Property.

Table 4

Groundwater Elevations
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)
March 2019 Event						
MW-17	3/6/2019	AG	303.00	27.64-37.64	32.33	270.67
MW-18	3/6/2019	AG	305.26	29.80-39.80	34.55	270.71
May 2019 Event						
MW-10	5/21/2019	Flush	306.71	31.52-41.52	34.62	272.09
MW-11	5/21/2019	Flush	307.62	31.56-41.56	35.55	272.07
DC-17	5/21/2019	Flush	305.16	29.81-39.81	33.21	271.95
October 2019 Event						
MW-2	10/24/2019	Flush	308.34	32.22-42.22	37.20	271.14
MW-3	10/24/2019	Flush	311.41	35.67-45.67	39.68	271.73
MW-4	10/24/2019	Flush	310.47	33.45-43.45	39.00	271.47
MW-5	10/24/2019	Flush	310.38	35.6-45.6	39.85	270.53
MW-6	10/25/2019	Flush	304.14	34.46-44.46	37.37	266.77
MW-7	10/25/2019	Flush	302.64	34.47-44.47	39.04	263.60
MW-8	10/25/2019	Flush	280.68	12.71-22.71	12.74	267.94
MW-9	10/25/2019	Flush	284.97	31.6-41.6	32.22	252.75
MW-10	10/24/2019	Flush	306.71	31.52-41.52	35.62	271.09
MW-11	10/24/2019	Flush	307.62	31.56-41.56	36.53	271.09
MW-12	10/24/2019	Flush	312.80	35.7-45.7	40.96	271.84
MW-13	10/24/2019	Flush	308.75	34.58-44.58	38.40	270.35
MW-14	10/24/2019	Flush	303.82	27.6-37.6	33.08	270.74
MW-15	10/24/2019	AG	312.44	37.14-47.14	41.05	271.39
MW-16	10/24/2019	AG	310.37	29.45-44.65	39.20	271.17
MW-17	10/24/2019	Flush	303.01	27.61-37.61	33.10	269.91
MW-18	10/24/2019	Flush	305.26	29.86-39.86	35.25	270.01
MW-19	10/24/2019	Flush	305.35	43.35-53.35	35.09	270.26
MW-20	10/24/2019	Flush	305.51	29.41-44.41	35.22	270.29
DC-1	10/24/2019	Flush	312.82	39.5-44.5	40.84	271.98
DC-2	10/24/2019	Flush	312.92	41.22-46.22	41.53	271.39
DC-3	10/24/2019	Flush	313.11	42.32-47.32	41.78	271.33
DC-4	10/24/2019	Flush	312.35	43.36-48.36	41.05	271.30
DC-7	10/24/2019	Flush	302.61	34.35-39.35	32.42	270.19
DC-8	10/29/2019	Flush	306.23	36.64-41.64	36.03	270.20
DC-10A	10/24/2019	Flush	307.73	32.01-37.01	36.48	271.25
DC-11	10/24/2019	Flush	311.25	31.6-41.6	39.73	271.52
DC-12	10/25/2019	Flush	311.25	31.7-41.7	39.95	271.30
DC-13	10/24/2019	Flush	310.20	31.7-41.7	39.05	271.15
DC-15	10/24/2019	Flush	307.89	30.7-40.7	37.10	270.79
DC-17	10/24/2019	Flush	305.16	29.81-39.81	34.20	270.96
DC-18	10/24/2019	Flush	309.51	31.58-41.58	38.52	270.99
DC-19	10/29/2019	Flush	313.62	36.8-46.8	42.03	271.59

Groundwater Elevations
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)
DC-20	10/25/2019	Flush	310.92	33.8-43.8	39.85	271.07
KMW-1	10/24/2019	Flush	311.59	36.8-51.8	40.55	271.04
KMW-2	10/24/2019	Flush	307.04	29.91-39.91	35.90	271.14
KMW-3	10/25/2019	Flush	296.99	24.47-34.47	26.96	270.03
KMW-4	10/25/2019	Flush	299.57	23.79-33.79	28.57	271.00
KMW-5	10/25/2019	Flush	297.22	23.66-33.66	27.15	270.07
KMW-6	10/28/2019	Flush	294.80	25.78-40.78	24.80	270.00
KMW-7	10/29/2019	Flush	301.42	28.77-43.77	31.71	269.71
KMW-8	10/28/2019	Flush	308.16	28.70-43.70	38.06	270.10
KMW-9	10/24/2019	Flush	310.33	33.5-43.5	39.00	271.33
December 2019 Event						
MW-19	12/4/2019	Flush	305.35	43.35-53.35	35.36	269.99
MW-20	12/4/2019	Flush	305.51	29.41-44.41	35.49	270.02

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, March 2019, and October 2019.
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.
8. Water level monitoring October 2019: Most on-property wells were monitored on October 24. Wells which were not initially accessible on October 24 were monitored on October 25, 28, and 29.
9. MW-7, DC-8, KMW-7, and KMW-8: Recorded October depth to water on day of sampling.
10. DC-19: Initial water level was not consistent with historical data and remeasured on October 29.

Groundwater Field Sampling Parameters
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)
March 2019 Event							
MW-17	3/6/2019	32.33	6.45	238	10.9	8.2	268
MW-18	3/6/2019	34.55	6.17	191	10.7	6.7	229
May 2019 Event							
MW-10	5/21/2019	34.62	5.78	135	13.1	9.0	289
MW-11	5/21/2019	35.55	6.05	207	13.2	9.2	297
DC-17	5/21/2019	33.21	5.70	143	12.7	9.1	319
October 2019 Event							
MW-2	10/25/2019	37.25	5.91	244	12.1	11.4	-3
MW-7	10/25/2019	39.10	5.98	195	12.2	9.8	14
MW-9	10/25/2019	32.22	5.70	175	12.0	9.8	6
MW-10	10/25/2019	35.60	6.58	198	12.1	11.5	-29
MW-17	10/28/2019	33.10	5.96	386	11.8	9.5	9
MW-18	10/28/2019	35.28	5.57	361	12.0	9.7	48
MW-19	10/29/2019	35.19	5.81	407	11.5	9.1	179
MW-20	10/29/2019	35.35	5.82	390	11.0	8.4	31
DC-7	10/30/2019	32.56	5.76	379	11.4	12.5	231
DC-8	10/29/2019	36.03	5.42	310	10.6	10.0	154
DC-15	10/29/2019	37.21	5.58	330	10.0	9.4	62
DC-17	10/30/2019	34.42	5.84	369	9.8	11.9	236
KMW-3	10/25/2019	26.97	5.97	193	12.1	11.4	28
KMW-7	10/29/2019	31.71	5.94	385	10.5	9.7	73
KMW-8	10/28/2019	38.06	5.44	192	12.2	9.3	50
December 2019 Event							
MW-19	12/4/2019	35.36	7.30	227	12.0	4.4	311
MW-20	12/4/2019	35.49	7.06	210	12.4	4.3	358

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 6

Tetrachloroethene Concentrations in Groundwater
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**	
March 2019 Event						
MW-17	3/6/2019	27.64-37.64	32.33	35	**6.82**	
MW-18	3/6/2019	29.80-39.80	34.55	36.5	**11.4**	
May 2019 Event						
MW-10	5/21/2019	31.52-41.52	34.62	38	**0.630**	
MW-11	5/21/2019	31.56-41.56	35.55	38	**3.92**	
DC-17	5/21/2019	29.81-39.81	33.21	35.5	**8.62**	
October 2019 Event						
MW-2	10/25/2019	32.22-42.22	37.25	40.0	**1.20**	
MW-7	10/25/2019	34.47-44.47	39.10	42.0	**7.13**	
MW-9	10/25/2019	31.6-41.6	32.22	33.0	0.500	U
MW-10	10/25/2019	31.52-41.52	35.60	37.0	**1.01**	
MW-17	10/28/2019	27.61-37.61	33.10	35.0	**2.85**	
MW-18	10/28/2019	29.86-39.86	35.28	38.0	**11.3**	
MW-19	10/29/2019	43.35-53.35	35.19	49.0	0.500	U
MW-20	10/29/2019	29.41-44.41	35.35	38.0	0.500	U
DC-7	10/30/2019	34.35-39.35	32.56	35.5	**17.1**	
DC-8	10/29/2019	36.64-41.64	36.03	38.0	**15.0**	
DC-15	10/29/2019	30.7-40.7	37.21	39.0	**9.72**	
DC-17	10/30/2019	29.81-39.81	34.42	36.0	**5.72**	
KMW-3	10/25/2019	24.47-34.47	26.97	29.0	**4.74**	
KMW-7	10/29/2019	28.77-43.77	31.71	35.5	**0.631**	
KMW-8	10/28/2019	28.70-43.70	38.06	40.0	**6.24**	
December 2019 Event						
MW-19	12/4/2019	43.35-53.35	35.36	49.0	0.500	U
MW-20	12/4/2019	29.41-44.41	35.49	38.0	0.500	U

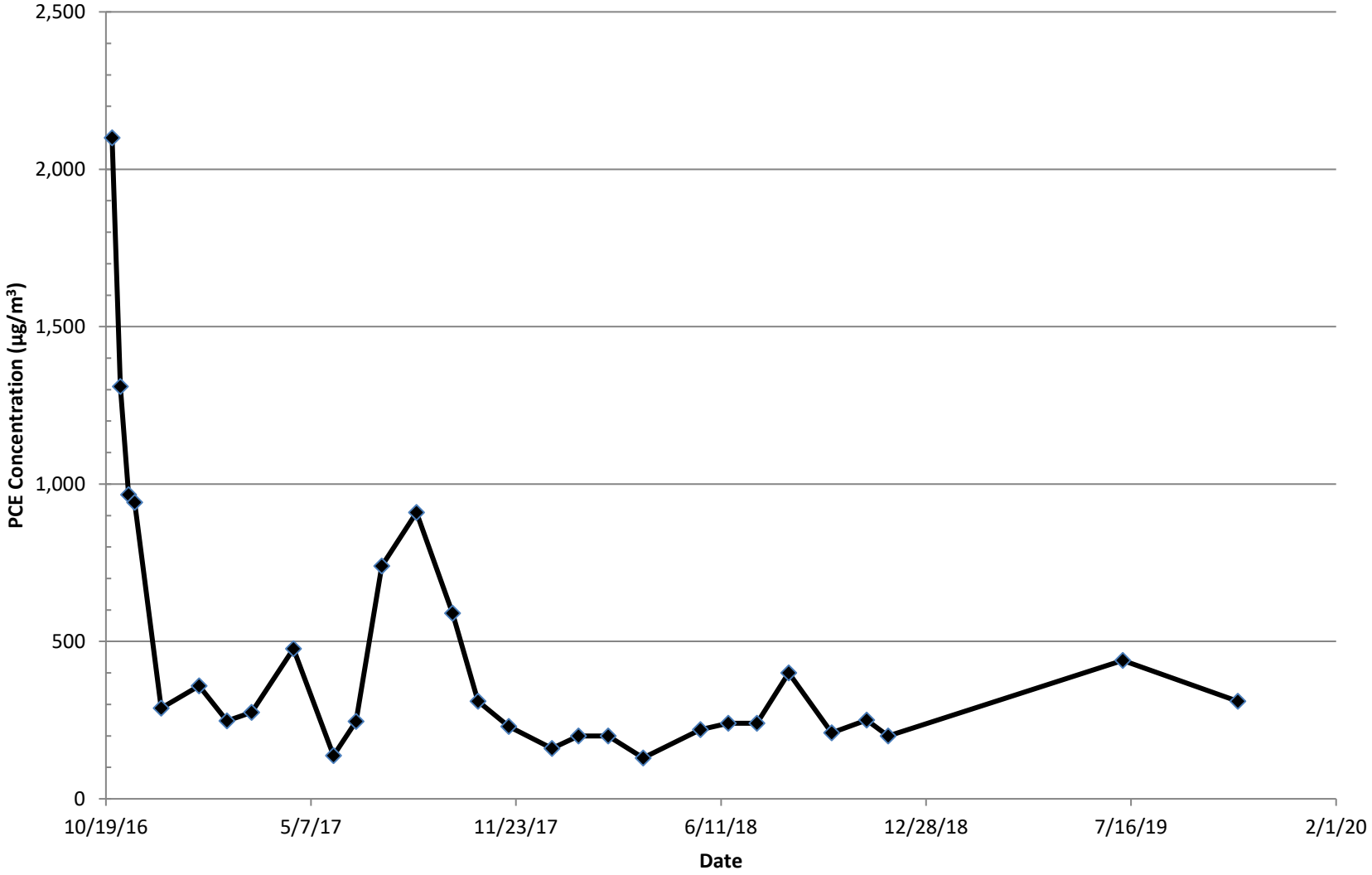
NOTES:

1. Tetrachloroethene (PCE) concentrations in migrograms per liter (µg/l). Other VOCs, if detected above the laboratory practical quantitation limit (PQL), are listed in Table D3.
2. Groundwater samples analyzed using USEPA Method 8260C.
3. U = concentration not detected at or above the laboratory 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.

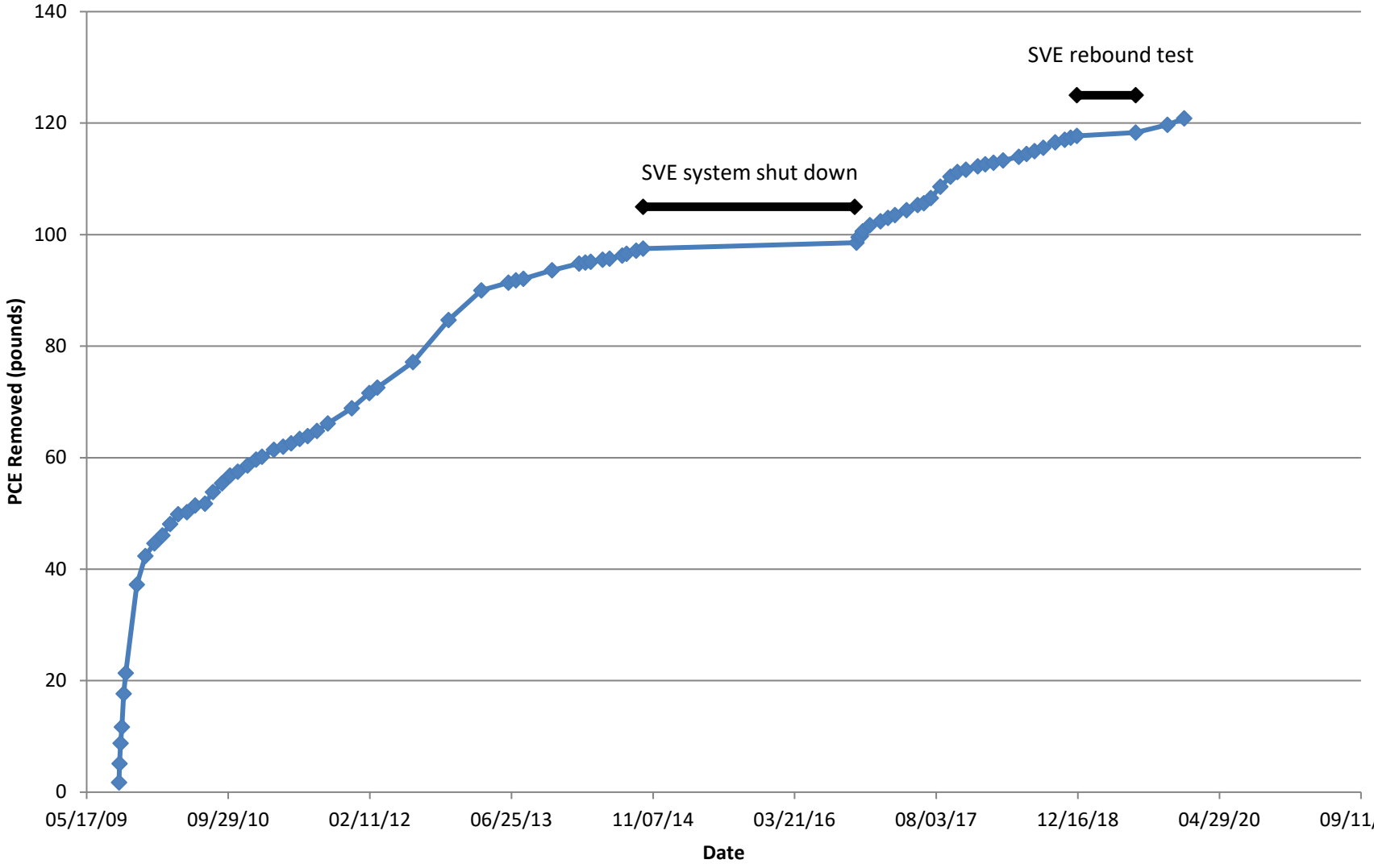
ATTACHMENT A
O&M CHARTS AND SUMMARY TABLES

- Chart A1 – SVE Discharge PCE Concentrations
- Chart A2 – Cumulative PCE Removed
- Table A3 – Historical AVE Leg Analytical Results

Attachment A1
SVE Discharge PCE Concentrations
Manhattan Village/Harris Properties



Attachment A2
Cumulative PCE Removed
Manhattan Village/Harris Properties



S135800102L_2830

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

SVE Well	Screen Depth (ft bgs)	PCE Concentration						
		06/04/10	01/26/11	12/09/11	11/05/13	12/12/16	12/28/17	09/27/18
SVE-1	10-35	3,900	1,300	1,600	1,010	499	120	160
SVE-2	10-35	740	1,600	1,300	977	374	210	240
SVE-3	10-30	7,100	2,900	2,500	1,920	338	50	750
SVE-4	10-30	330	870	910	412	332	59	130
SVE-5	10-30	5,100	2,500	1,200	499	716	170	270
SVE-6	5-10	17,000	4,400	2,900	827	1,490	150	950
SVE-7	10-30	3,300	1,700	1,400	723	1,130	350	400
SVE-8	10-30	590	800	6	448	703	320	210
SVE-9	10-30	880	740	750	325	379	170	170
SVE-10	10-30	1,300	1,100	1,300	709	398	290	270
SVE-11A	5-19.98	--	--	--	--	136	68	100
SVE-11B	20-35	--	--	--	--	149	24	68
SVE-12A	5-19.98	--	--	--	--	217	310	110
SVE-12B	20-35	--	--	--	--	295	54	160
SVE-13A	5-19.98	--	--	--	--	145	36	94
SVE-13B	20-35	--	--	--	--	241	180	96
SVE-14	19.63-34.63	--	--	--	--	144	120	110
SVE-15	20.61-34.96	--	--	--	--	373	190	170
SVE-16	20.49-34.79	--	--	--	--	587	310	330
SVE-17	19.91-29.91	--	--	--	--	65.1	5.9	3.3
SVE-18	19.79-29.79	--	--	--	--	380	59	110
SVE-19	19.99-29.99	--	--	--	--	147	39	71

Notes:

1. Concentrations in micrograms per cubic meter ($\mu g/m^3$)

ATTACHMENT B
LABORATORY REPORTS AND DATA VALIDATION MEMORANDA

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

May 30, 2019

PES Environmental, Inc.- WA

Sample Delivery Group:	L1101499
Samples Received:	05/22/2019
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

Brian Ford
Project Manager

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 Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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MW-101-052119 L1101499-01 GW

Collected by: Ben Hecht | Collected date/time: 05/21/19 11:00 | Received date/time: 05/22/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1286542	1	05/25/19 05:02	05/25/19 05:02	DWR	Mt. Juliet, TN

MW-11-052119 L1101499-02 GW

Collected by: Ben Hecht | Collected date/time: 05/21/19 12:10 | Received date/time: 05/22/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1286542	1	05/25/19 05:22	05/25/19 05:22	DWR	Mt. Juliet, TN

MW-10-052119 L1101499-03 GW

Collected by: Ben Hecht | Collected date/time: 05/21/19 13:45 | Received date/time: 05/22/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1286542	1	05/25/19 05:42	05/25/19 05:42	DWR	Mt. Juliet, TN

DC-17-052119 L1101499-04 GW

Collected by: Ben Hecht | Collected date/time: 05/21/19 15:10 | Received date/time: 05/22/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1286542	1	05/25/19 06:02	05/25/19 06:02	DWR	Mt. Juliet, TN

TRIP BLANK L1101499-05 GW

Collected by: Ben Hecht | Collected date/time: 05/21/19 00:00 | Received date/time: 05/22/19 08:45

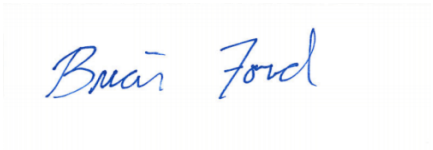
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1286542	1	05/25/19 00:20	05/25/19 00:20	DWR	Mt. Juliet, TN

EQ-052119 L1101499-06 GW

Collected by: Ben Hecht | Collected date/time: 05/21/19 16:00 | Received date/time: 05/22/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1286542	1	05/25/19 01:00	05/25/19 01:00	DWR	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, 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
Project Manager

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	05/25/2019 05:02	WG1286542
Acrylonitrile	ND		5.00	1	05/25/2019 05:02	WG1286542
Benzene	ND		0.500	1	05/25/2019 05:02	WG1286542
Bromobenzene	ND		0.500	1	05/25/2019 05:02	WG1286542
Bromodichloromethane	ND		0.500	1	05/25/2019 05:02	WG1286542
Bromochloromethane	ND		0.500	1	05/25/2019 05:02	WG1286542
Bromoform	ND		0.500	1	05/25/2019 05:02	WG1286542
Bromomethane	ND		2.50	1	05/25/2019 05:02	WG1286542
n-Butylbenzene	ND		0.500	1	05/25/2019 05:02	WG1286542
sec-Butylbenzene	ND		0.500	1	05/25/2019 05:02	WG1286542
tert-Butylbenzene	ND		0.500	1	05/25/2019 05:02	WG1286542
Carbon disulfide	ND		0.500	1	05/25/2019 05:02	WG1286542
Carbon tetrachloride	ND		0.500	1	05/25/2019 05:02	WG1286542
Chlorobenzene	ND		0.500	1	05/25/2019 05:02	WG1286542
Chlorodibromomethane	ND		0.500	1	05/25/2019 05:02	WG1286542
Chloroethane	ND		2.50	1	05/25/2019 05:02	WG1286542
Chloroform	ND		0.500	1	05/25/2019 05:02	WG1286542
Chloromethane	ND		1.25	1	05/25/2019 05:02	WG1286542
2-Chlorotoluene	ND		0.500	1	05/25/2019 05:02	WG1286542
4-Chlorotoluene	ND		0.500	1	05/25/2019 05:02	WG1286542
1,2-Dibromo-3-Chloropropane	ND		2.50	1	05/25/2019 05:02	WG1286542
1,2-Dibromoethane	ND		0.500	1	05/25/2019 05:02	WG1286542
Dibromomethane	ND		0.500	1	05/25/2019 05:02	WG1286542
1,2-Dichlorobenzene	ND		0.500	1	05/25/2019 05:02	WG1286542
1,3-Dichlorobenzene	ND		0.500	1	05/25/2019 05:02	WG1286542
1,4-Dichlorobenzene	ND		0.500	1	05/25/2019 05:02	WG1286542
Dichlorodifluoromethane	ND		2.50	1	05/25/2019 05:02	WG1286542
1,1-Dichloroethane	ND		0.500	1	05/25/2019 05:02	WG1286542
1,2-Dichloroethane	ND		0.500	1	05/25/2019 05:02	WG1286542
1,1-Dichloroethene	ND		0.500	1	05/25/2019 05:02	WG1286542
cis-1,2-Dichloroethene	ND		0.500	1	05/25/2019 05:02	WG1286542
trans-1,2-Dichloroethene	ND		0.500	1	05/25/2019 05:02	WG1286542
1,2-Dichloropropane	ND		0.500	1	05/25/2019 05:02	WG1286542
1,1-Dichloropropene	ND		0.500	1	05/25/2019 05:02	WG1286542
1,3-Dichloropropane	ND		1.00	1	05/25/2019 05:02	WG1286542
cis-1,3-Dichloropropene	ND		0.500	1	05/25/2019 05:02	WG1286542
trans-1,3-Dichloropropene	ND		0.500	1	05/25/2019 05:02	WG1286542
trans-1,4-Dichloro-2-butene	ND		5.00	1	05/25/2019 05:02	WG1286542
2,2-Dichloropropane	ND		0.500	1	05/25/2019 05:02	WG1286542
Di-isopropyl ether	ND		0.500	1	05/25/2019 05:02	WG1286542
Ethylbenzene	ND		0.500	1	05/25/2019 05:02	WG1286542
Hexachloro-1,3-butadiene	ND		1.00	1	05/25/2019 05:02	WG1286542
2-Hexanone	ND		5.00	1	05/25/2019 05:02	WG1286542
n-Hexane	ND		5.00	1	05/25/2019 05:02	WG1286542
Iodomethane	ND		10.0	1	05/25/2019 05:02	WG1286542
Isopropylbenzene	ND		0.500	1	05/25/2019 05:02	WG1286542
p-Isopropyltoluene	ND		0.500	1	05/25/2019 05:02	WG1286542
2-Butanone (MEK)	ND		5.00	1	05/25/2019 05:02	WG1286542
Methylene Chloride	ND		2.50	1	05/25/2019 05:02	WG1286542
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	05/25/2019 05:02	WG1286542
Methyl tert-butyl ether	ND		0.500	1	05/25/2019 05:02	WG1286542
Naphthalene	ND		2.50	1	05/25/2019 05:02	WG1286542
n-Propylbenzene	ND		0.500	1	05/25/2019 05:02	WG1286542
Styrene	ND		0.500	1	05/25/2019 05:02	WG1286542
1,1,1,2-Tetrachloroethane	ND		0.500	1	05/25/2019 05:02	WG1286542
1,1,2,2-Tetrachloroethane	ND		0.500	1	05/25/2019 05:02	WG1286542

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	05/25/2019 05:02	WG1286542
Tetrachloroethene	8.70		0.500	1	05/25/2019 05:02	WG1286542
Toluene	ND		0.500	1	05/25/2019 05:02	WG1286542
1,2,3-Trichlorobenzene	ND		0.500	1	05/25/2019 05:02	WG1286542
1,2,4-Trichlorobenzene	ND		0.500	1	05/25/2019 05:02	WG1286542
1,1,1-Trichloroethane	ND		0.500	1	05/25/2019 05:02	WG1286542
1,1,2-Trichloroethane	ND		0.500	1	05/25/2019 05:02	WG1286542
Trichloroethene	ND		0.500	1	05/25/2019 05:02	WG1286542
Trichlorofluoromethane	ND		2.50	1	05/25/2019 05:02	WG1286542
1,2,3-Trichloropropane	ND		2.50	1	05/25/2019 05:02	WG1286542
1,2,4-Trimethylbenzene	ND		0.500	1	05/25/2019 05:02	WG1286542
1,2,3-Trimethylbenzene	ND		0.500	1	05/25/2019 05:02	WG1286542
1,3,5-Trimethylbenzene	ND		0.500	1	05/25/2019 05:02	WG1286542
Vinyl acetate	ND	J4	5.00	1	05/25/2019 05:02	WG1286542
Vinyl chloride	ND		0.500	1	05/25/2019 05:02	WG1286542
Xylenes, Total	ND		1.50	1	05/25/2019 05:02	WG1286542
(S) Toluene-d8	*99.4*		*80.0-120*		*05/25/2019 05:02*	WG1286542
(S) 4-Bromofluorobenzene	*99.9*		*77.0-126*		*05/25/2019 05:02*	WG1286542
(S) 1,2-Dichloroethane-d4	*122*		*70.0-130*		*05/25/2019 05:02*	WG1286542

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	05/25/2019 05:22	WG1286542
Acrylonitrile	ND		5.00	1	05/25/2019 05:22	WG1286542
Benzene	ND		0.500	1	05/25/2019 05:22	WG1286542
Bromobenzene	ND		0.500	1	05/25/2019 05:22	WG1286542
Bromodichloromethane	ND		0.500	1	05/25/2019 05:22	WG1286542
Bromochloromethane	ND		0.500	1	05/25/2019 05:22	WG1286542
Bromoform	ND		0.500	1	05/25/2019 05:22	WG1286542
Bromomethane	ND		2.50	1	05/25/2019 05:22	WG1286542
n-Butylbenzene	ND		0.500	1	05/25/2019 05:22	WG1286542
sec-Butylbenzene	ND		0.500	1	05/25/2019 05:22	WG1286542
tert-Butylbenzene	ND		0.500	1	05/25/2019 05:22	WG1286542
Carbon disulfide	ND		0.500	1	05/25/2019 05:22	WG1286542
Carbon tetrachloride	ND		0.500	1	05/25/2019 05:22	WG1286542
Chlorobenzene	ND		0.500	1	05/25/2019 05:22	WG1286542
Chlorodibromomethane	ND		0.500	1	05/25/2019 05:22	WG1286542
Chloroethane	ND		2.50	1	05/25/2019 05:22	WG1286542
Chloroform	ND		0.500	1	05/25/2019 05:22	WG1286542
Chloromethane	ND		1.25	1	05/25/2019 05:22	WG1286542
2-Chlorotoluene	ND		0.500	1	05/25/2019 05:22	WG1286542
4-Chlorotoluene	ND		0.500	1	05/25/2019 05:22	WG1286542
1,2-Dibromo-3-Chloropropane	ND		2.50	1	05/25/2019 05:22	WG1286542
1,2-Dibromoethane	ND		0.500	1	05/25/2019 05:22	WG1286542
Dibromomethane	ND		0.500	1	05/25/2019 05:22	WG1286542
1,2-Dichlorobenzene	ND		0.500	1	05/25/2019 05:22	WG1286542
1,3-Dichlorobenzene	ND		0.500	1	05/25/2019 05:22	WG1286542
1,4-Dichlorobenzene	ND		0.500	1	05/25/2019 05:22	WG1286542
Dichlorodifluoromethane	ND		2.50	1	05/25/2019 05:22	WG1286542
1,1-Dichloroethane	ND		0.500	1	05/25/2019 05:22	WG1286542
1,2-Dichloroethane	ND		0.500	1	05/25/2019 05:22	WG1286542
1,1-Dichloroethene	ND		0.500	1	05/25/2019 05:22	WG1286542
cis-1,2-Dichloroethene	ND		0.500	1	05/25/2019 05:22	WG1286542
trans-1,2-Dichloroethene	ND		0.500	1	05/25/2019 05:22	WG1286542
1,2-Dichloropropane	ND		0.500	1	05/25/2019 05:22	WG1286542
1,1-Dichloropropene	ND		0.500	1	05/25/2019 05:22	WG1286542
1,3-Dichloropropane	ND		1.00	1	05/25/2019 05:22	WG1286542
cis-1,3-Dichloropropene	ND		0.500	1	05/25/2019 05:22	WG1286542
trans-1,3-Dichloropropene	ND		0.500	1	05/25/2019 05:22	WG1286542
trans-1,4-Dichloro-2-butene	ND		5.00	1	05/25/2019 05:22	WG1286542
2,2-Dichloropropane	ND		0.500	1	05/25/2019 05:22	WG1286542
Di-isopropyl ether	ND		0.500	1	05/25/2019 05:22	WG1286542
Ethylbenzene	ND		0.500	1	05/25/2019 05:22	WG1286542
Hexachloro-1,3-butadiene	ND		1.00	1	05/25/2019 05:22	WG1286542
2-Hexanone	ND		5.00	1	05/25/2019 05:22	WG1286542
n-Hexane	ND		5.00	1	05/25/2019 05:22	WG1286542
Iodomethane	ND		10.0	1	05/25/2019 05:22	WG1286542
Isopropylbenzene	ND		0.500	1	05/25/2019 05:22	WG1286542
p-Isopropyltoluene	ND		0.500	1	05/25/2019 05:22	WG1286542
2-Butanone (MEK)	ND		5.00	1	05/25/2019 05:22	WG1286542
Methylene Chloride	ND		2.50	1	05/25/2019 05:22	WG1286542
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	05/25/2019 05:22	WG1286542
Methyl tert-butyl ether	ND		0.500	1	05/25/2019 05:22	WG1286542
Naphthalene	ND		2.50	1	05/25/2019 05:22	WG1286542
n-Propylbenzene	ND		0.500	1	05/25/2019 05:22	WG1286542
Styrene	ND		0.500	1	05/25/2019 05:22	WG1286542
1,1,1,2-Tetrachloroethane	ND		0.500	1	05/25/2019 05:22	WG1286542
1,1,2,2-Tetrachloroethane	ND		0.500	1	05/25/2019 05:22	WG1286542

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	05/25/2019 05:22	WG1286542
Tetrachloroethene	3.92		0.500	1	05/25/2019 05:22	WG1286542
Toluene	ND		0.500	1	05/25/2019 05:22	WG1286542
1,2,3-Trichlorobenzene	ND		0.500	1	05/25/2019 05:22	WG1286542
1,2,4-Trichlorobenzene	ND		0.500	1	05/25/2019 05:22	WG1286542
1,1,1-Trichloroethane	ND		0.500	1	05/25/2019 05:22	WG1286542
1,1,2-Trichloroethane	ND		0.500	1	05/25/2019 05:22	WG1286542
Trichloroethene	ND		0.500	1	05/25/2019 05:22	WG1286542
Trichlorofluoromethane	ND		2.50	1	05/25/2019 05:22	WG1286542
1,2,3-Trichloropropane	ND		2.50	1	05/25/2019 05:22	WG1286542
1,2,4-Trimethylbenzene	ND		0.500	1	05/25/2019 05:22	WG1286542
1,2,3-Trimethylbenzene	ND		0.500	1	05/25/2019 05:22	WG1286542
1,3,5-Trimethylbenzene	ND		0.500	1	05/25/2019 05:22	WG1286542
Vinyl acetate	ND	J4	5.00	1	05/25/2019 05:22	WG1286542
Vinyl chloride	ND		0.500	1	05/25/2019 05:22	WG1286542
Xylenes, Total	ND		1.50	1	05/25/2019 05:22	WG1286542
(S) Toluene-d8	*102*		*80.0-120*		*05/25/2019 05:22*	WG1286542
(S) 4-Bromofluorobenzene	*100*		*77.0-126*		*05/25/2019 05:22*	WG1286542
(S) 1,2-Dichloroethane-d4	*124*		*70.0-130*		*05/25/2019 05:22*	WG1286542

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	05/25/2019 05:42	WG1286542
Acrylonitrile	ND		5.00	1	05/25/2019 05:42	WG1286542
Benzene	ND		0.500	1	05/25/2019 05:42	WG1286542
Bromobenzene	ND		0.500	1	05/25/2019 05:42	WG1286542
Bromodichloromethane	ND		0.500	1	05/25/2019 05:42	WG1286542
Bromochloromethane	ND		0.500	1	05/25/2019 05:42	WG1286542
Bromoform	ND		0.500	1	05/25/2019 05:42	WG1286542
Bromomethane	ND		2.50	1	05/25/2019 05:42	WG1286542
n-Butylbenzene	ND		0.500	1	05/25/2019 05:42	WG1286542
sec-Butylbenzene	ND		0.500	1	05/25/2019 05:42	WG1286542
tert-Butylbenzene	ND		0.500	1	05/25/2019 05:42	WG1286542
Carbon disulfide	ND		0.500	1	05/25/2019 05:42	WG1286542
Carbon tetrachloride	ND		0.500	1	05/25/2019 05:42	WG1286542
Chlorobenzene	ND		0.500	1	05/25/2019 05:42	WG1286542
Chlorodibromomethane	ND		0.500	1	05/25/2019 05:42	WG1286542
Chloroethane	ND		2.50	1	05/25/2019 05:42	WG1286542
Chloroform	ND		0.500	1	05/25/2019 05:42	WG1286542
Chloromethane	ND		1.25	1	05/25/2019 05:42	WG1286542
2-Chlorotoluene	ND		0.500	1	05/25/2019 05:42	WG1286542
4-Chlorotoluene	ND		0.500	1	05/25/2019 05:42	WG1286542
1,2-Dibromo-3-Chloropropane	ND		2.50	1	05/25/2019 05:42	WG1286542
1,2-Dibromoethane	ND		0.500	1	05/25/2019 05:42	WG1286542
Dibromomethane	ND		0.500	1	05/25/2019 05:42	WG1286542
1,2-Dichlorobenzene	ND		0.500	1	05/25/2019 05:42	WG1286542
1,3-Dichlorobenzene	ND		0.500	1	05/25/2019 05:42	WG1286542
1,4-Dichlorobenzene	ND		0.500	1	05/25/2019 05:42	WG1286542
Dichlorodifluoromethane	ND		2.50	1	05/25/2019 05:42	WG1286542
1,1-Dichloroethane	ND		0.500	1	05/25/2019 05:42	WG1286542
1,2-Dichloroethane	ND		0.500	1	05/25/2019 05:42	WG1286542
1,1-Dichloroethene	ND		0.500	1	05/25/2019 05:42	WG1286542
cis-1,2-Dichloroethene	ND		0.500	1	05/25/2019 05:42	WG1286542
trans-1,2-Dichloroethene	ND		0.500	1	05/25/2019 05:42	WG1286542
1,2-Dichloropropane	ND		0.500	1	05/25/2019 05:42	WG1286542
1,1-Dichloropropene	ND		0.500	1	05/25/2019 05:42	WG1286542
1,3-Dichloropropane	ND		1.00	1	05/25/2019 05:42	WG1286542
cis-1,3-Dichloropropene	ND		0.500	1	05/25/2019 05:42	WG1286542
trans-1,3-Dichloropropene	ND		0.500	1	05/25/2019 05:42	WG1286542
trans-1,4-Dichloro-2-butene	ND		5.00	1	05/25/2019 05:42	WG1286542
2,2-Dichloropropane	ND		0.500	1	05/25/2019 05:42	WG1286542
Di-isopropyl ether	ND		0.500	1	05/25/2019 05:42	WG1286542
Ethylbenzene	ND		0.500	1	05/25/2019 05:42	WG1286542
Hexachloro-1,3-butadiene	ND		1.00	1	05/25/2019 05:42	WG1286542
2-Hexanone	ND		5.00	1	05/25/2019 05:42	WG1286542
n-Hexane	ND		5.00	1	05/25/2019 05:42	WG1286542
Iodomethane	ND		10.0	1	05/25/2019 05:42	WG1286542
Isopropylbenzene	ND		0.500	1	05/25/2019 05:42	WG1286542
p-Isopropyltoluene	ND		0.500	1	05/25/2019 05:42	WG1286542
2-Butanone (MEK)	ND		5.00	1	05/25/2019 05:42	WG1286542
Methylene Chloride	ND		2.50	1	05/25/2019 05:42	WG1286542
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	05/25/2019 05:42	WG1286542
Methyl tert-butyl ether	ND		0.500	1	05/25/2019 05:42	WG1286542
Naphthalene	ND		2.50	1	05/25/2019 05:42	WG1286542
n-Propylbenzene	ND		0.500	1	05/25/2019 05:42	WG1286542
Styrene	ND		0.500	1	05/25/2019 05:42	WG1286542
1,1,1,2-Tetrachloroethane	ND		0.500	1	05/25/2019 05:42	WG1286542
1,1,2,2-Tetrachloroethane	ND		0.500	1	05/25/2019 05:42	WG1286542

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	05/25/2019 05:42	WG1286542
Tetrachloroethene	0.630		0.500	1	05/25/2019 05:42	WG1286542
Toluene	ND		0.500	1	05/25/2019 05:42	WG1286542
1,2,3-Trichlorobenzene	ND		0.500	1	05/25/2019 05:42	WG1286542
1,2,4-Trichlorobenzene	ND		0.500	1	05/25/2019 05:42	WG1286542
1,1,1-Trichloroethane	ND		0.500	1	05/25/2019 05:42	WG1286542
1,1,2-Trichloroethane	ND		0.500	1	05/25/2019 05:42	WG1286542
Trichloroethene	ND		0.500	1	05/25/2019 05:42	WG1286542
Trichlorofluoromethane	ND		2.50	1	05/25/2019 05:42	WG1286542
1,2,3-Trichloropropane	ND		2.50	1	05/25/2019 05:42	WG1286542
1,2,4-Trimethylbenzene	ND		0.500	1	05/25/2019 05:42	WG1286542
1,2,3-Trimethylbenzene	ND		0.500	1	05/25/2019 05:42	WG1286542
1,3,5-Trimethylbenzene	ND		0.500	1	05/25/2019 05:42	WG1286542
Vinyl acetate	ND	J4	5.00	1	05/25/2019 05:42	WG1286542
Vinyl chloride	ND		0.500	1	05/25/2019 05:42	WG1286542
Xylenes, Total	ND		1.50	1	05/25/2019 05:42	WG1286542
(S) Toluene-d8	*97.9*		*80.0-120*		*05/25/2019 05:42*	WG1286542
(S) 4-Bromofluorobenzene	*96.2*		*77.0-126*		*05/25/2019 05:42*	WG1286542
(S) 1,2-Dichloroethane-d4	*122*		*70.0-130*		*05/25/2019 05:42*	WG1286542

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	05/25/2019 06:02	WG1286542
Acrylonitrile	ND		5.00	1	05/25/2019 06:02	WG1286542
Benzene	ND		0.500	1	05/25/2019 06:02	WG1286542
Bromobenzene	ND		0.500	1	05/25/2019 06:02	WG1286542
Bromodichloromethane	ND		0.500	1	05/25/2019 06:02	WG1286542
Bromochloromethane	ND		0.500	1	05/25/2019 06:02	WG1286542
Bromoform	ND		0.500	1	05/25/2019 06:02	WG1286542
Bromomethane	ND		2.50	1	05/25/2019 06:02	WG1286542
n-Butylbenzene	ND		0.500	1	05/25/2019 06:02	WG1286542
sec-Butylbenzene	ND		0.500	1	05/25/2019 06:02	WG1286542
tert-Butylbenzene	ND		0.500	1	05/25/2019 06:02	WG1286542
Carbon disulfide	ND		0.500	1	05/25/2019 06:02	WG1286542
Carbon tetrachloride	ND		0.500	1	05/25/2019 06:02	WG1286542
Chlorobenzene	ND		0.500	1	05/25/2019 06:02	WG1286542
Chlorodibromomethane	ND		0.500	1	05/25/2019 06:02	WG1286542
Chloroethane	ND		2.50	1	05/25/2019 06:02	WG1286542
Chloroform	ND		0.500	1	05/25/2019 06:02	WG1286542
Chloromethane	ND		1.25	1	05/25/2019 06:02	WG1286542
2-Chlorotoluene	ND		0.500	1	05/25/2019 06:02	WG1286542
4-Chlorotoluene	ND		0.500	1	05/25/2019 06:02	WG1286542
1,2-Dibromo-3-Chloropropane	ND		2.50	1	05/25/2019 06:02	WG1286542
1,2-Dibromoethane	ND		0.500	1	05/25/2019 06:02	WG1286542
Dibromomethane	ND		0.500	1	05/25/2019 06:02	WG1286542
1,2-Dichlorobenzene	ND		0.500	1	05/25/2019 06:02	WG1286542
1,3-Dichlorobenzene	ND		0.500	1	05/25/2019 06:02	WG1286542
1,4-Dichlorobenzene	ND		0.500	1	05/25/2019 06:02	WG1286542
Dichlorodifluoromethane	ND		2.50	1	05/25/2019 06:02	WG1286542
1,1-Dichloroethane	ND		0.500	1	05/25/2019 06:02	WG1286542
1,2-Dichloroethane	ND		0.500	1	05/25/2019 06:02	WG1286542
1,1-Dichloroethene	ND		0.500	1	05/25/2019 06:02	WG1286542
cis-1,2-Dichloroethene	ND		0.500	1	05/25/2019 06:02	WG1286542
trans-1,2-Dichloroethene	ND		0.500	1	05/25/2019 06:02	WG1286542
1,2-Dichloropropane	ND		0.500	1	05/25/2019 06:02	WG1286542
1,1-Dichloropropene	ND		0.500	1	05/25/2019 06:02	WG1286542
1,3-Dichloropropane	ND		1.00	1	05/25/2019 06:02	WG1286542
cis-1,3-Dichloropropene	ND		0.500	1	05/25/2019 06:02	WG1286542
trans-1,3-Dichloropropene	ND		0.500	1	05/25/2019 06:02	WG1286542
trans-1,4-Dichloro-2-butene	ND		5.00	1	05/25/2019 06:02	WG1286542
2,2-Dichloropropane	ND		0.500	1	05/25/2019 06:02	WG1286542
Di-isopropyl ether	ND		0.500	1	05/25/2019 06:02	WG1286542
Ethylbenzene	ND		0.500	1	05/25/2019 06:02	WG1286542
Hexachloro-1,3-butadiene	ND		1.00	1	05/25/2019 06:02	WG1286542
2-Hexanone	ND		5.00	1	05/25/2019 06:02	WG1286542
n-Hexane	ND		5.00	1	05/25/2019 06:02	WG1286542
Iodomethane	ND		10.0	1	05/25/2019 06:02	WG1286542
Isopropylbenzene	ND		0.500	1	05/25/2019 06:02	WG1286542
p-Isopropyltoluene	ND		0.500	1	05/25/2019 06:02	WG1286542
2-Butanone (MEK)	ND		5.00	1	05/25/2019 06:02	WG1286542
Methylene Chloride	ND		2.50	1	05/25/2019 06:02	WG1286542
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	05/25/2019 06:02	WG1286542
Methyl tert-butyl ether	ND		0.500	1	05/25/2019 06:02	WG1286542
Naphthalene	ND		2.50	1	05/25/2019 06:02	WG1286542
n-Propylbenzene	ND		0.500	1	05/25/2019 06:02	WG1286542
Styrene	ND		0.500	1	05/25/2019 06:02	WG1286542
1,1,1,2-Tetrachloroethane	ND		0.500	1	05/25/2019 06:02	WG1286542
1,1,2,2-Tetrachloroethane	ND		0.500	1	05/25/2019 06:02	WG1286542

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	05/25/2019 06:02	WG1286542
Tetrachloroethene	8.62		0.500	1	05/25/2019 06:02	WG1286542
Toluene	ND		0.500	1	05/25/2019 06:02	WG1286542
1,2,3-Trichlorobenzene	ND		0.500	1	05/25/2019 06:02	WG1286542
1,2,4-Trichlorobenzene	ND		0.500	1	05/25/2019 06:02	WG1286542
1,1,1-Trichloroethane	ND		0.500	1	05/25/2019 06:02	WG1286542
1,1,2-Trichloroethane	ND		0.500	1	05/25/2019 06:02	WG1286542
Trichloroethene	ND		0.500	1	05/25/2019 06:02	WG1286542
Trichlorofluoromethane	ND		2.50	1	05/25/2019 06:02	WG1286542
1,2,3-Trichloropropane	ND		2.50	1	05/25/2019 06:02	WG1286542
1,2,4-Trimethylbenzene	ND		0.500	1	05/25/2019 06:02	WG1286542
1,2,3-Trimethylbenzene	ND		0.500	1	05/25/2019 06:02	WG1286542
1,3,5-Trimethylbenzene	ND		0.500	1	05/25/2019 06:02	WG1286542
Vinyl acetate	ND	J4	5.00	1	05/25/2019 06:02	WG1286542
Vinyl chloride	ND		0.500	1	05/25/2019 06:02	WG1286542
Xylenes, Total	ND		1.50	1	05/25/2019 06:02	WG1286542
(S) Toluene-d8	*99.9*		*80.0-120*		*05/25/2019 06:02*	WG1286542
(S) 4-Bromofluorobenzene	*99.3*		*77.0-126*		*05/25/2019 06:02*	WG1286542
(S) 1,2-Dichloroethane-d4	*125*		*70.0-130*		*05/25/2019 06:02*	WG1286542

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	05/25/2019 00:20	WG1286542
Acrylonitrile	ND		5.00	1	05/25/2019 00:20	WG1286542
Benzene	ND		0.500	1	05/25/2019 00:20	WG1286542
Bromobenzene	ND		0.500	1	05/25/2019 00:20	WG1286542
Bromodichloromethane	ND		0.500	1	05/25/2019 00:20	WG1286542
Bromochloromethane	ND		0.500	1	05/25/2019 00:20	WG1286542
Bromoform	ND		0.500	1	05/25/2019 00:20	WG1286542
Bromomethane	ND		2.50	1	05/25/2019 00:20	WG1286542
n-Butylbenzene	ND		0.500	1	05/25/2019 00:20	WG1286542
sec-Butylbenzene	ND		0.500	1	05/25/2019 00:20	WG1286542
tert-Butylbenzene	ND		0.500	1	05/25/2019 00:20	WG1286542
Carbon disulfide	ND		0.500	1	05/25/2019 00:20	WG1286542
Carbon tetrachloride	ND		0.500	1	05/25/2019 00:20	WG1286542
Chlorobenzene	ND		0.500	1	05/25/2019 00:20	WG1286542
Chlorodibromomethane	ND		0.500	1	05/25/2019 00:20	WG1286542
Chloroethane	ND		2.50	1	05/25/2019 00:20	WG1286542
Chloroform	ND		0.500	1	05/25/2019 00:20	WG1286542
Chloromethane	ND		1.25	1	05/25/2019 00:20	WG1286542
2-Chlorotoluene	ND		0.500	1	05/25/2019 00:20	WG1286542
4-Chlorotoluene	ND		0.500	1	05/25/2019 00:20	WG1286542
1,2-Dibromo-3-Chloropropane	ND		2.50	1	05/25/2019 00:20	WG1286542
1,2-Dibromoethane	ND		0.500	1	05/25/2019 00:20	WG1286542
Dibromomethane	ND		0.500	1	05/25/2019 00:20	WG1286542
1,2-Dichlorobenzene	ND		0.500	1	05/25/2019 00:20	WG1286542
1,3-Dichlorobenzene	ND		0.500	1	05/25/2019 00:20	WG1286542
1,4-Dichlorobenzene	ND		0.500	1	05/25/2019 00:20	WG1286542
Dichlorodifluoromethane	ND		2.50	1	05/25/2019 00:20	WG1286542
1,1-Dichloroethane	ND		0.500	1	05/25/2019 00:20	WG1286542
1,2-Dichloroethane	ND		0.500	1	05/25/2019 00:20	WG1286542
1,1-Dichloroethene	ND		0.500	1	05/25/2019 00:20	WG1286542
cis-1,2-Dichloroethene	ND		0.500	1	05/25/2019 00:20	WG1286542
trans-1,2-Dichloroethene	ND		0.500	1	05/25/2019 00:20	WG1286542
1,2-Dichloropropane	ND		0.500	1	05/25/2019 00:20	WG1286542
1,1-Dichloropropene	ND		0.500	1	05/25/2019 00:20	WG1286542
1,3-Dichloropropane	ND		1.00	1	05/25/2019 00:20	WG1286542
cis-1,3-Dichloropropene	ND		0.500	1	05/25/2019 00:20	WG1286542
trans-1,3-Dichloropropene	ND		0.500	1	05/25/2019 00:20	WG1286542
trans-1,4-Dichloro-2-butene	ND		5.00	1	05/25/2019 00:20	WG1286542
2,2-Dichloropropane	ND		0.500	1	05/25/2019 00:20	WG1286542
Di-isopropyl ether	ND		0.500	1	05/25/2019 00:20	WG1286542
Ethylbenzene	ND		0.500	1	05/25/2019 00:20	WG1286542
Hexachloro-1,3-butadiene	ND		1.00	1	05/25/2019 00:20	WG1286542
2-Hexanone	ND		5.00	1	05/25/2019 00:20	WG1286542
n-Hexane	ND		5.00	1	05/25/2019 00:20	WG1286542
Iodomethane	ND		10.0	1	05/25/2019 00:20	WG1286542
Isopropylbenzene	ND		0.500	1	05/25/2019 00:20	WG1286542
p-Isopropyltoluene	ND		0.500	1	05/25/2019 00:20	WG1286542
2-Butanone (MEK)	ND		5.00	1	05/25/2019 00:20	WG1286542
Methylene Chloride	ND		2.50	1	05/25/2019 00:20	WG1286542
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	05/25/2019 00:20	WG1286542
Methyl tert-butyl ether	ND		0.500	1	05/25/2019 00:20	WG1286542
Naphthalene	ND		2.50	1	05/25/2019 00:20	WG1286542
n-Propylbenzene	ND		0.500	1	05/25/2019 00:20	WG1286542
Styrene	ND		0.500	1	05/25/2019 00:20	WG1286542
1,1,1,2-Tetrachloroethane	ND		0.500	1	05/25/2019 00:20	WG1286542
1,1,2,2-Tetrachloroethane	ND		0.500	1	05/25/2019 00:20	WG1286542

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	05/25/2019 00:20	WG1286542
Tetrachloroethene	ND		0.500	1	05/25/2019 00:20	WG1286542
Toluene	ND		0.500	1	05/25/2019 00:20	WG1286542
1,2,3-Trichlorobenzene	ND		0.500	1	05/25/2019 00:20	WG1286542
1,2,4-Trichlorobenzene	ND		0.500	1	05/25/2019 00:20	WG1286542
1,1,1-Trichloroethane	ND		0.500	1	05/25/2019 00:20	WG1286542
1,1,2-Trichloroethane	ND		0.500	1	05/25/2019 00:20	WG1286542
Trichloroethene	ND		0.500	1	05/25/2019 00:20	WG1286542
Trichlorofluoromethane	ND		2.50	1	05/25/2019 00:20	WG1286542
1,2,3-Trichloropropane	ND		2.50	1	05/25/2019 00:20	WG1286542
1,2,4-Trimethylbenzene	ND		0.500	1	05/25/2019 00:20	WG1286542
1,2,3-Trimethylbenzene	ND		0.500	1	05/25/2019 00:20	WG1286542
1,3,5-Trimethylbenzene	ND		0.500	1	05/25/2019 00:20	WG1286542
Vinyl acetate	ND	J4	5.00	1	05/25/2019 00:20	WG1286542
Vinyl chloride	ND		0.500	1	05/25/2019 00:20	WG1286542
Xylenes, Total	ND		1.50	1	05/25/2019 00:20	WG1286542
(S) Toluene-d8	*102*		*80.0-120*		*05/25/2019 00:20*	WG1286542
(S) 4-Bromofluorobenzene	*99.1*		*77.0-126*		*05/25/2019 00:20*	WG1286542
(S) 1,2-Dichloroethane-d4	*105*		*70.0-130*		*05/25/2019 00:20*	WG1286542

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	05/25/2019 01:00	WG1286542
Acrylonitrile	ND		5.00	1	05/25/2019 01:00	WG1286542
Benzene	ND		0.500	1	05/25/2019 01:00	WG1286542
Bromobenzene	ND		0.500	1	05/25/2019 01:00	WG1286542
Bromodichloromethane	ND		0.500	1	05/25/2019 01:00	WG1286542
Bromochloromethane	ND		0.500	1	05/25/2019 01:00	WG1286542
Bromoform	ND		0.500	1	05/25/2019 01:00	WG1286542
Bromomethane	ND		2.50	1	05/25/2019 01:00	WG1286542
n-Butylbenzene	ND		0.500	1	05/25/2019 01:00	WG1286542
sec-Butylbenzene	ND		0.500	1	05/25/2019 01:00	WG1286542
tert-Butylbenzene	ND		0.500	1	05/25/2019 01:00	WG1286542
Carbon disulfide	ND		0.500	1	05/25/2019 01:00	WG1286542
Carbon tetrachloride	ND		0.500	1	05/25/2019 01:00	WG1286542
Chlorobenzene	ND		0.500	1	05/25/2019 01:00	WG1286542
Chlorodibromomethane	ND		0.500	1	05/25/2019 01:00	WG1286542
Chloroethane	ND		2.50	1	05/25/2019 01:00	WG1286542
Chloroform	ND		0.500	1	05/25/2019 01:00	WG1286542
Chloromethane	ND		1.25	1	05/25/2019 01:00	WG1286542
2-Chlorotoluene	ND		0.500	1	05/25/2019 01:00	WG1286542
4-Chlorotoluene	ND		0.500	1	05/25/2019 01:00	WG1286542
1,2-Dibromo-3-Chloropropane	ND		2.50	1	05/25/2019 01:00	WG1286542
1,2-Dibromoethane	ND		0.500	1	05/25/2019 01:00	WG1286542
Dibromomethane	ND		0.500	1	05/25/2019 01:00	WG1286542
1,2-Dichlorobenzene	ND		0.500	1	05/25/2019 01:00	WG1286542
1,3-Dichlorobenzene	ND		0.500	1	05/25/2019 01:00	WG1286542
1,4-Dichlorobenzene	ND		0.500	1	05/25/2019 01:00	WG1286542
Dichlorodifluoromethane	ND		2.50	1	05/25/2019 01:00	WG1286542
1,1-Dichloroethane	ND		0.500	1	05/25/2019 01:00	WG1286542
1,2-Dichloroethane	ND		0.500	1	05/25/2019 01:00	WG1286542
1,1-Dichloroethene	ND		0.500	1	05/25/2019 01:00	WG1286542
cis-1,2-Dichloroethene	ND		0.500	1	05/25/2019 01:00	WG1286542
trans-1,2-Dichloroethene	ND		0.500	1	05/25/2019 01:00	WG1286542
1,2-Dichloropropane	ND		0.500	1	05/25/2019 01:00	WG1286542
1,1-Dichloropropene	ND		0.500	1	05/25/2019 01:00	WG1286542
1,3-Dichloropropane	ND		1.00	1	05/25/2019 01:00	WG1286542
cis-1,3-Dichloropropene	ND		0.500	1	05/25/2019 01:00	WG1286542
trans-1,3-Dichloropropene	ND		0.500	1	05/25/2019 01:00	WG1286542
trans-1,4-Dichloro-2-butene	ND		5.00	1	05/25/2019 01:00	WG1286542
2,2-Dichloropropane	ND		0.500	1	05/25/2019 01:00	WG1286542
Di-isopropyl ether	ND		0.500	1	05/25/2019 01:00	WG1286542
Ethylbenzene	ND		0.500	1	05/25/2019 01:00	WG1286542
Hexachloro-1,3-butadiene	ND		1.00	1	05/25/2019 01:00	WG1286542
2-Hexanone	ND		5.00	1	05/25/2019 01:00	WG1286542
n-Hexane	ND		5.00	1	05/25/2019 01:00	WG1286542
Iodomethane	ND		10.0	1	05/25/2019 01:00	WG1286542
Isopropylbenzene	ND		0.500	1	05/25/2019 01:00	WG1286542
p-Isopropyltoluene	ND		0.500	1	05/25/2019 01:00	WG1286542
2-Butanone (MEK)	ND		5.00	1	05/25/2019 01:00	WG1286542
Methylene Chloride	ND		2.50	1	05/25/2019 01:00	WG1286542
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	05/25/2019 01:00	WG1286542
Methyl tert-butyl ether	ND		0.500	1	05/25/2019 01:00	WG1286542
Naphthalene	ND		2.50	1	05/25/2019 01:00	WG1286542
n-Propylbenzene	ND		0.500	1	05/25/2019 01:00	WG1286542
Styrene	ND		0.500	1	05/25/2019 01:00	WG1286542
1,1,1,2-Tetrachloroethane	ND		0.500	1	05/25/2019 01:00	WG1286542
1,1,2,2-Tetrachloroethane	ND		0.500	1	05/25/2019 01:00	WG1286542

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	05/25/2019 01:00	WG1286542
Tetrachloroethene	ND		0.500	1	05/25/2019 01:00	WG1286542
Toluene	ND		0.500	1	05/25/2019 01:00	WG1286542
1,2,3-Trichlorobenzene	ND		0.500	1	05/25/2019 01:00	WG1286542
1,2,4-Trichlorobenzene	ND		0.500	1	05/25/2019 01:00	WG1286542
1,1,1-Trichloroethane	ND		0.500	1	05/25/2019 01:00	WG1286542
1,1,2-Trichloroethane	ND		0.500	1	05/25/2019 01:00	WG1286542
Trichloroethene	ND		0.500	1	05/25/2019 01:00	WG1286542
Trichlorofluoromethane	ND		2.50	1	05/25/2019 01:00	WG1286542
1,2,3-Trichloropropane	ND		2.50	1	05/25/2019 01:00	WG1286542
1,2,4-Trimethylbenzene	ND		0.500	1	05/25/2019 01:00	WG1286542
1,2,3-Trimethylbenzene	ND		0.500	1	05/25/2019 01:00	WG1286542
1,3,5-Trimethylbenzene	ND		0.500	1	05/25/2019 01:00	WG1286542
Vinyl acetate	ND	J4	5.00	1	05/25/2019 01:00	WG1286542
Vinyl chloride	ND		0.500	1	05/25/2019 01:00	WG1286542
Xylenes, Total	ND		1.50	1	05/25/2019 01:00	WG1286542
(S) Toluene-d8	*102*		*80.0-120*		*05/25/2019 01:00*	WG1286542
(S) 4-Bromofluorobenzene	*97.5*		*77.0-126*		*05/25/2019 01:00*	WG1286542
(S) 1,2-Dichloroethane-d4	*114*		*70.0-130*		*05/25/2019 01:00*	WG1286542

Method Blank (MB)

(MB) R3415418-2 05/24/19 23:19

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
Carbon disulfide	U		0.101	0.500
n-Butylbenzene	U		0.143	0.500
sec-Butylbenzene	U		0.134	0.500
tert-Butylbenzene	U		0.183	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-1,4-Dichloro-2-butene	U		0.257	5.00
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
2-Hexanone	U		0.757	5.00
cis-1,3-Dichloropropene	U		0.0976	0.500
n-Hexane	U		0.305	5.00
trans-1,3-Dichloropropene	U		0.222	0.500

Method Blank (MB)

(MB) R3415418-2 05/24/19 23:19

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
2,2-Dichloropropane	U		0.0929	0.500
Iodomethane	U		0.377	10.0
Di-isopropyl ether	U		0.0924	0.500
Ethylbenzene	U		0.158	0.500
Hexachloro-1,3-butadiene	0.676	J	0.157	1.00
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	0.188	J	0.174	2.50
Vinyl acetate	U		0.645	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
1,1,2,2-Tetrachloroethane	U		0.130	0.500
Tetrachloroethene	U		0.199	0.500
Toluene	U		0.412	0.500
1,1,2-Trichlorotrifluoroethane	U		0.164	0.500
1,2,3-Trichlorobenzene	0.279	J	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
1,2,3-Trimethylbenzene	U		0.0739	0.500
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
Xylenes, Total	U		0.316	1.50
(S) Toluene-d8	*103*			*80.0-120*
(S) 4-Bromofluorobenzene	*100*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*104*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3415418-1 05/24/19 22:39

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromochloromethane	25.0	28.5	114	76.0-122	
Carbon disulfide	25.0	24.8	99.0	61.0-128	
trans-1,4-Dichloro-2-butene	25.0	25.2	101	33.0-144	
2-Hexanone	125	121	96.8	67.0-149	
n-Hexane	25.0	31.7	127	57.0-133	
Iodomethane	125	137	110	33.0-147	
Acetone	125	147	118	19.0-160	
Acrylonitrile	125	141	113	55.0-149	
Benzene	25.0	24.4	97.7	70.0-123	
Bromobenzene	25.0	23.8	95.2	73.0-121	
Bromodichloromethane	25.0	26.8	107	75.0-120	
Bromoform	25.0	23.1	92.4	68.0-132	
Bromomethane	25.0	26.0	104	10.0-160	
n-Butylbenzene	25.0	24.8	99.0	73.0-125	
sec-Butylbenzene	25.0	25.4	101	75.0-125	
tert-Butylbenzene	25.0	25.2	101	76.0-124	
Carbon tetrachloride	25.0	28.8	115	68.0-126	
Chlorobenzene	25.0	24.9	99.6	80.0-121	
Chlorodibromomethane	25.0	25.2	101	77.0-125	
Chloroethane	25.0	24.5	98.2	47.0-150	
Chloroform	25.0	25.6	102	73.0-120	
Chloromethane	25.0	25.7	103	41.0-142	
2-Chlorotoluene	25.0	24.8	99.1	76.0-123	
Vinyl acetate	125	207	166	11.0-160	J4
4-Chlorotoluene	25.0	25.1	101	75.0-122	
1,2-Dibromo-3-Chloropropane	25.0	24.2	96.7	58.0-134	
1,2-Dibromoethane	25.0	24.0	95.8	80.0-122	
Dibromomethane	25.0	27.8	111	80.0-120	
1,2-Dichlorobenzene	25.0	24.8	99.1	79.0-121	
1,3-Dichlorobenzene	25.0	25.0	99.9	79.0-120	
1,4-Dichlorobenzene	25.0	25.2	101	79.0-120	
Dichlorodifluoromethane	25.0	34.9	140	51.0-149	
1,1-Dichloroethane	25.0	26.5	106	70.0-126	
1,2-Dichloroethane	25.0	27.1	108	70.0-128	
1,1-Dichloroethene	25.0	25.7	103	71.0-124	
cis-1,2-Dichloroethene	25.0	25.1	100	73.0-120	
trans-1,2-Dichloroethene	25.0	26.2	105	73.0-120	
1,2-Dichloropropane	25.0	26.6	107	77.0-125	
1,1-Dichloropropene	25.0	29.2	117	74.0-126	
1,3-Dichloropropane	25.0	25.7	103	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) R3415418-1 05/24/19 22:39

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
cis-1,3-Dichloropropene	25.0	27.8	111	80.0-123	
trans-1,3-Dichloropropene	25.0	24.2	97.0	78.0-124	
2,2-Dichloropropane	25.0	25.1	101	58.0-130	
Di-isopropyl ether	25.0	24.6	98.3	58.0-138	
Ethylbenzene	25.0	26.0	104	79.0-123	
Hexachloro-1,3-butadiene	25.0	30.4	122	54.0-138	
Isopropylbenzene	25.0	23.9	95.6	76.0-127	
p-Isopropyltoluene	25.0	24.8	99.0	76.0-125	
2-Butanone (MEK)	125	147	118	44.0-160	
Methylene Chloride	25.0	23.4	93.7	67.0-120	
4-Methyl-2-pentanone (MIBK)	125	120	95.6	68.0-142	
Methyl tert-butyl ether	25.0	24.5	97.8	68.0-125	
Naphthalene	25.0	25.0	99.9	54.0-135	
n-Propylbenzene	25.0	24.8	99.3	77.0-124	
Styrene	25.0	23.8	95.3	73.0-130	
1,1,1,2-Tetrachloroethane	25.0	22.8	91.3	75.0-125	
1,1,2,2-Tetrachloroethane	25.0	24.5	97.9	65.0-130	
Tetrachloroethene	25.0	28.1	113	72.0-132	
Toluene	25.0	23.0	91.9	79.0-120	
1,1,2-Trichlorotrifluoroethane	25.0	31.1	125	69.0-132	
1,2,3-Trichlorobenzene	25.0	24.1	96.5	50.0-138	
1,2,4-Trichlorobenzene	25.0	24.9	99.6	57.0-137	
1,1,1-Trichloroethane	25.0	27.2	109	73.0-124	
1,1,2-Trichloroethane	25.0	25.0	100	80.0-120	
Trichloroethene	25.0	29.4	117	78.0-124	
Trichlorofluoromethane	25.0	30.9	124	59.0-147	
1,2,3-Trichloropropane	25.0	25.4	102	73.0-130	
1,2,3-Trimethylbenzene	25.0	23.9	95.4	77.0-120	
1,2,4-Trimethylbenzene	25.0	24.9	99.7	76.0-121	
1,3,5-Trimethylbenzene	25.0	24.8	99.1	76.0-122	
Vinyl chloride	25.0	27.8	111	67.0-131	
Xylenes, Total	75.0	74.0	98.7	79.0-123	
(S) Toluene-d8			*96.5*	*80.0-120*	
(S) 4-Bromofluorobenzene			*97.2*	*77.0-126*	
(S) 1,2-Dichloroethane-d4			*109*	*70.0-130*	

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, the sample preparation volume or weight values differ from the standard, 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.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
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.
J4	The associated batch QC was outside the established quality control range for accuracy.

Pace National 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.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

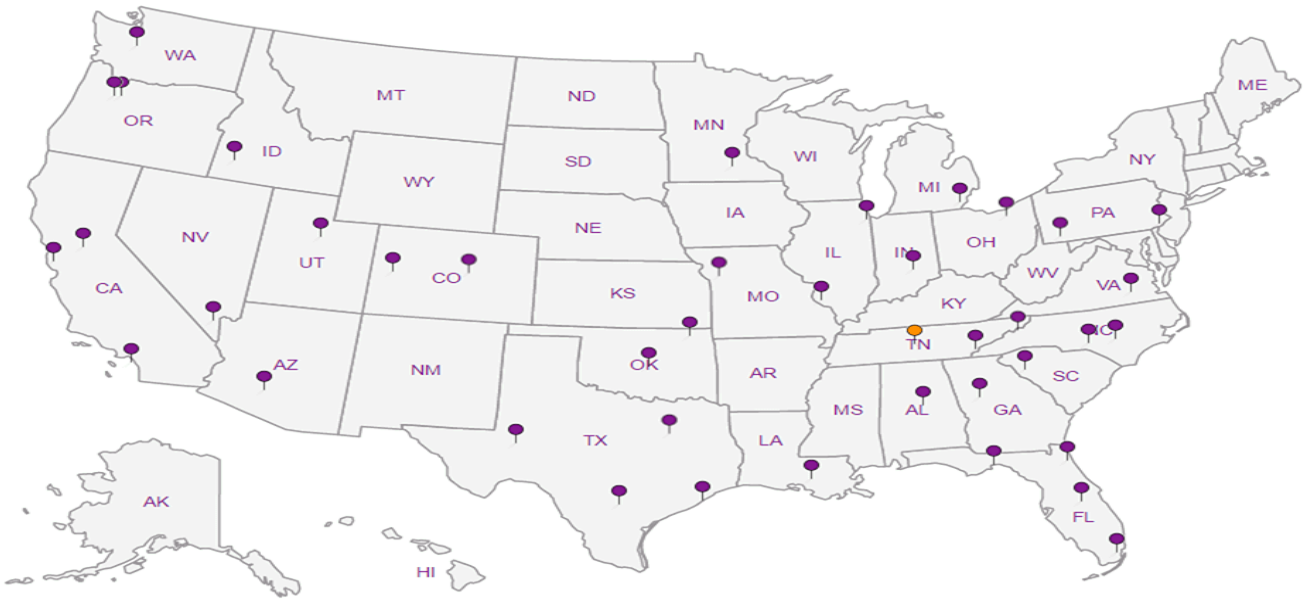
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National 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. Pace National 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; mdahl@pesenv.com; cdeboer@pesenv.com

Project Description: MVSC

City/State Collected: Burien, WA

Phone: 206-529-3980
Fax: 206-529-3985

Client Project # 1358.001.01.003

Lab Project # PESENVSWA-MVSC

Collected by (print): Ben Hecht

Site/Facility ID # MVSC

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

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: STAT

Analysis / Container / Preservative

Pres Chk

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	VOCs 8260LLC 40mlAmb-HCl 8260B
MW-101-052119	Grab	GW	35	5/21/19	11:00	3	X
MW-11-052119		GW	38		12:10	3	X
MW-10-052119		GW	38		13:45	3	X
DC-17-052119		GW	35.5		15:10	3	X
TRIP BLANK	-	GW	-		-	1	X
EQ-052119	Grab	GW	-		16:00	3	X
		GW					
		GW					
		GW					

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1161499
J041

Acctnum: PESENVSWA
Template: T150355
Prelogin: P709092
TSR: 110 - Brian Ford
PB:
Shipped Via:

Remarks	Sample # (lab only)
	-01
	02
	03
	04
	05
	06

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS ✓ FedEx __ Courier __ _____

Tracking # 4794 8833 6768

Sample Receipt Checklist
COC Seal Present/Intact: ✓NP __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
RAD SCREEN: <0.5 mR/hr

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
	5/21/19	17:00		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 4.3&F °C 0.9-.1=0.8 Bottles Received: 14
				If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 5/22/19 Time: 0845
				Hold:
				Condition: NCF / OK

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 04, 2019

PES Environmental, Inc.- WA

Sample Delivery Group:	L1154255
Samples Received:	10/26/2019
Project Number:	1358.001.02.013
Description:	MVSC
Site:	MVSC
Report To:	Karsten Springstead 1215 Fourth Ave., Suite 1350 Seattle, WA 98161

Entire Report Reviewed By:

Brian Ford
Project Manager

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 Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



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MW-9-102519 L1154255-01 GW

Collected by: Hannah Cohen | Collected date/time: 10/25/19 09:55 | Received date/time: 10/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1373989	1	11/02/19 14:31	11/02/19 14:31	DWR	Mt. Juliet, TN

MW-10-102519 L1154255-02 GW

Collected by: Hannah Cohen | Collected date/time: 10/25/19 11:20 | Received date/time: 10/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1373989	1	11/02/19 14:51	11/02/19 14:51	DWR	Mt. Juliet, TN

MW-2-102519 L1154255-03 GW

Collected by: Hannah Cohen | Collected date/time: 10/25/19 12:30 | Received date/time: 10/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1373989	1	11/02/19 15:11	11/02/19 15:11	DWR	Mt. Juliet, TN

KMW-3-102519 L1154255-04 GW

Collected by: Hannah Cohen | Collected date/time: 10/25/19 13:42 | Received date/time: 10/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1373989	1	11/02/19 15:31	11/02/19 15:31	DWR	Mt. Juliet, TN

MW-7-102519 L1154255-05 GW

Collected by: Hannah Cohen | Collected date/time: 10/25/19 15:00 | Received date/time: 10/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1373989	1	11/02/19 15:51	11/02/19 15:51	DWR	Mt. Juliet, TN

EQ-102519 L1154255-06 GW

Collected by: Hannah Cohen | Collected date/time: 10/25/19 15:20 | Received date/time: 10/26/19 08:30

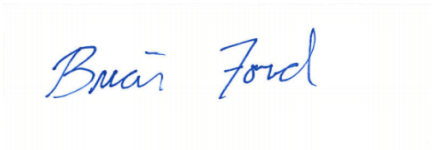
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1373989	1	11/02/19 16:11	11/02/19 16:11	DWR	Mt. Juliet, TN

TRIP-102519 L1154255-07 GW

Collected by: Hannah Cohen | Collected date/time: 10/25/19 16:09 | Received date/time: 10/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1373989	1	11/02/19 13:11	11/02/19 13:11	DWR	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, 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
Project Manager

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	11/02/2019 14:31	WG1373989
Acrylonitrile	ND		5.00	1	11/02/2019 14:31	WG1373989
Benzene	ND		0.500	1	11/02/2019 14:31	WG1373989
Bromobenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
Bromodichloromethane	ND		0.500	1	11/02/2019 14:31	WG1373989
Bromochloromethane	ND		0.500	1	11/02/2019 14:31	WG1373989
Bromoform	ND	J0	0.500	1	11/02/2019 14:31	WG1373989
Bromomethane	ND		2.50	1	11/02/2019 14:31	WG1373989
n-Butylbenzene	ND	J0	0.500	1	11/02/2019 14:31	WG1373989
sec-Butylbenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
tert-Butylbenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
Carbon disulfide	ND		0.500	1	11/02/2019 14:31	WG1373989
Carbon tetrachloride	ND		0.500	1	11/02/2019 14:31	WG1373989
Chlorobenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
Chlorodibromomethane	ND		0.500	1	11/02/2019 14:31	WG1373989
Chloroethane	ND		2.50	1	11/02/2019 14:31	WG1373989
Chloroform	ND		0.500	1	11/02/2019 14:31	WG1373989
Chloromethane	ND		1.25	1	11/02/2019 14:31	WG1373989
2-Chlorotoluene	ND	J4	0.500	1	11/02/2019 14:31	WG1373989
4-Chlorotoluene	ND	J4	0.500	1	11/02/2019 14:31	WG1373989
1,2-Dibromo-3-Chloropropane	ND	J0	2.50	1	11/02/2019 14:31	WG1373989
1,2-Dibromoethane	ND		0.500	1	11/02/2019 14:31	WG1373989
Dibromomethane	ND		0.500	1	11/02/2019 14:31	WG1373989
1,2-Dichlorobenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
1,3-Dichlorobenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
1,4-Dichlorobenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
Dichlorodifluoromethane	ND	J0	2.50	1	11/02/2019 14:31	WG1373989
1,1-Dichloroethane	ND		0.500	1	11/02/2019 14:31	WG1373989
1,2-Dichloroethane	ND		0.500	1	11/02/2019 14:31	WG1373989
1,1-Dichloroethene	ND		0.500	1	11/02/2019 14:31	WG1373989
cis-1,2-Dichloroethene	ND		0.500	1	11/02/2019 14:31	WG1373989
trans-1,2-Dichloroethene	ND		0.500	1	11/02/2019 14:31	WG1373989
1,2-Dichloropropane	ND		0.500	1	11/02/2019 14:31	WG1373989
1,1-Dichloropropene	ND		0.500	1	11/02/2019 14:31	WG1373989
1,3-Dichloropropane	ND		1.00	1	11/02/2019 14:31	WG1373989
cis-1,3-Dichloropropene	ND		0.500	1	11/02/2019 14:31	WG1373989
trans-1,3-Dichloropropene	ND		0.500	1	11/02/2019 14:31	WG1373989
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/02/2019 14:31	WG1373989
2,2-Dichloropropane	ND		0.500	1	11/02/2019 14:31	WG1373989
Di-isopropyl ether	ND		0.500	1	11/02/2019 14:31	WG1373989
Ethylbenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
Hexachloro-1,3-butadiene	ND	J0	1.00	1	11/02/2019 14:31	WG1373989
2-Hexanone	ND		5.00	1	11/02/2019 14:31	WG1373989
n-Hexane	ND		5.00	1	11/02/2019 14:31	WG1373989
Iodomethane	ND		10.0	1	11/02/2019 14:31	WG1373989
Isopropylbenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
p-Isopropyltoluene	ND		0.500	1	11/02/2019 14:31	WG1373989
2-Butanone (MEK)	ND		5.00	1	11/02/2019 14:31	WG1373989
Methylene Chloride	ND		2.50	1	11/02/2019 14:31	WG1373989
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/02/2019 14:31	WG1373989
Methyl tert-butyl ether	ND		0.500	1	11/02/2019 14:31	WG1373989
Naphthalene	ND	J0 J3	2.50	1	11/02/2019 14:31	WG1373989
n-Propylbenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
Styrene	ND		0.500	1	11/02/2019 14:31	WG1373989
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/02/2019 14:31	WG1373989
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/02/2019 14:31	WG1373989

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	11/02/2019 14:31	WG1373989
Tetrachloroethene	ND		0.500	1	11/02/2019 14:31	WG1373989
Toluene	ND		0.500	1	11/02/2019 14:31	WG1373989
1,2,3-Trichlorobenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
1,2,4-Trichlorobenzene	ND	J0	0.500	1	11/02/2019 14:31	WG1373989
1,1,1-Trichloroethane	ND		0.500	1	11/02/2019 14:31	WG1373989
1,1,2-Trichloroethane	ND		0.500	1	11/02/2019 14:31	WG1373989
Trichloroethene	ND		0.500	1	11/02/2019 14:31	WG1373989
Trichlorofluoromethane	ND		2.50	1	11/02/2019 14:31	WG1373989
1,2,3-Trichloropropane	ND		2.50	1	11/02/2019 14:31	WG1373989
1,2,4-Trimethylbenzene	ND	J4	0.500	1	11/02/2019 14:31	WG1373989
1,2,3-Trimethylbenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
1,3,5-Trimethylbenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
Vinyl acetate	ND	J0	5.00	1	11/02/2019 14:31	WG1373989
Vinyl chloride	ND		0.500	1	11/02/2019 14:31	WG1373989
Xylenes, Total	ND		1.50	1	11/02/2019 14:31	WG1373989
(S) Toluene-d8	*93.0*		*80.0-120*		*11/02/2019 14:31*	WG1373989
(S) 4-Bromofluorobenzene	*101*		*77.0-126*		*11/02/2019 14:31*	WG1373989
(S) 1,2-Dichloroethane-d4	*108*		*70.0-130*		*11/02/2019 14:31*	WG1373989

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	11/02/2019 14:51	WG1373989
Acrylonitrile	ND		5.00	1	11/02/2019 14:51	WG1373989
Benzene	ND		0.500	1	11/02/2019 14:51	WG1373989
Bromobenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
Bromodichloromethane	ND		0.500	1	11/02/2019 14:51	WG1373989
Bromochloromethane	ND		0.500	1	11/02/2019 14:51	WG1373989
Bromoform	ND	J0	0.500	1	11/02/2019 14:51	WG1373989
Bromomethane	ND		2.50	1	11/02/2019 14:51	WG1373989
n-Butylbenzene	ND	J0	0.500	1	11/02/2019 14:51	WG1373989
sec-Butylbenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
tert-Butylbenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
Carbon disulfide	ND		0.500	1	11/02/2019 14:51	WG1373989
Carbon tetrachloride	ND		0.500	1	11/02/2019 14:51	WG1373989
Chlorobenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
Chlorodibromomethane	ND		0.500	1	11/02/2019 14:51	WG1373989
Chloroethane	ND		2.50	1	11/02/2019 14:51	WG1373989
Chloroform	ND		0.500	1	11/02/2019 14:51	WG1373989
Chloromethane	ND		1.25	1	11/02/2019 14:51	WG1373989
2-Chlorotoluene	ND	J4	0.500	1	11/02/2019 14:51	WG1373989
4-Chlorotoluene	ND	J4	0.500	1	11/02/2019 14:51	WG1373989
1,2-Dibromo-3-Chloropropane	ND	J0	2.50	1	11/02/2019 14:51	WG1373989
1,2-Dibromoethane	ND		0.500	1	11/02/2019 14:51	WG1373989
Dibromomethane	ND		0.500	1	11/02/2019 14:51	WG1373989
1,2-Dichlorobenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
1,3-Dichlorobenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
1,4-Dichlorobenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
Dichlorodifluoromethane	ND	J0	2.50	1	11/02/2019 14:51	WG1373989
1,1-Dichloroethane	ND		0.500	1	11/02/2019 14:51	WG1373989
1,2-Dichloroethane	ND		0.500	1	11/02/2019 14:51	WG1373989
1,1-Dichloroethene	ND		0.500	1	11/02/2019 14:51	WG1373989
cis-1,2-Dichloroethene	ND		0.500	1	11/02/2019 14:51	WG1373989
trans-1,2-Dichloroethene	ND		0.500	1	11/02/2019 14:51	WG1373989
1,2-Dichloropropane	ND		0.500	1	11/02/2019 14:51	WG1373989
1,1-Dichloropropene	ND		0.500	1	11/02/2019 14:51	WG1373989
1,3-Dichloropropane	ND		1.00	1	11/02/2019 14:51	WG1373989
cis-1,3-Dichloropropene	ND		0.500	1	11/02/2019 14:51	WG1373989
trans-1,3-Dichloropropene	ND		0.500	1	11/02/2019 14:51	WG1373989
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/02/2019 14:51	WG1373989
2,2-Dichloropropane	ND		0.500	1	11/02/2019 14:51	WG1373989
Di-isopropyl ether	ND		0.500	1	11/02/2019 14:51	WG1373989
Ethylbenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
Hexachloro-1,3-butadiene	ND	J0	1.00	1	11/02/2019 14:51	WG1373989
2-Hexanone	ND		5.00	1	11/02/2019 14:51	WG1373989
n-Hexane	ND		5.00	1	11/02/2019 14:51	WG1373989
Iodomethane	ND		10.0	1	11/02/2019 14:51	WG1373989
Isopropylbenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
p-Isopropyltoluene	ND		0.500	1	11/02/2019 14:51	WG1373989
2-Butanone (MEK)	ND		5.00	1	11/02/2019 14:51	WG1373989
Methylene Chloride	ND		2.50	1	11/02/2019 14:51	WG1373989
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/02/2019 14:51	WG1373989
Methyl tert-butyl ether	ND		0.500	1	11/02/2019 14:51	WG1373989
Naphthalene	ND	J0 J3	2.50	1	11/02/2019 14:51	WG1373989
n-Propylbenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
Styrene	ND		0.500	1	11/02/2019 14:51	WG1373989
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/02/2019 14:51	WG1373989
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/02/2019 14:51	WG1373989

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	11/02/2019 14:51	WG1373989
Tetrachloroethene	1.01		0.500	1	11/02/2019 14:51	WG1373989
Toluene	ND		0.500	1	11/02/2019 14:51	WG1373989
1,2,3-Trichlorobenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
1,2,4-Trichlorobenzene	ND	J0	0.500	1	11/02/2019 14:51	WG1373989
1,1,1-Trichloroethane	ND		0.500	1	11/02/2019 14:51	WG1373989
1,1,2-Trichloroethane	ND		0.500	1	11/02/2019 14:51	WG1373989
Trichloroethene	ND		0.500	1	11/02/2019 14:51	WG1373989
Trichlorofluoromethane	ND		2.50	1	11/02/2019 14:51	WG1373989
1,2,3-Trichloropropane	ND		2.50	1	11/02/2019 14:51	WG1373989
1,2,4-Trimethylbenzene	ND	J4	0.500	1	11/02/2019 14:51	WG1373989
1,2,3-Trimethylbenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
1,3,5-Trimethylbenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
Vinyl acetate	ND	J0	5.00	1	11/02/2019 14:51	WG1373989
Vinyl chloride	ND		0.500	1	11/02/2019 14:51	WG1373989
Xylenes, Total	ND		1.50	1	11/02/2019 14:51	WG1373989
(S) Toluene-d8	*92.9*		*80.0-120*		*11/02/2019 14:51*	WG1373989
(S) 4-Bromofluorobenzene	*100*		*77.0-126*		*11/02/2019 14:51*	WG1373989
(S) 1,2-Dichloroethane-d4	*104*		*70.0-130*		*11/02/2019 14:51*	WG1373989

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	11/02/2019 15:11	WG1373989
Acrylonitrile	ND		5.00	1	11/02/2019 15:11	WG1373989
Benzene	ND		0.500	1	11/02/2019 15:11	WG1373989
Bromobenzene	ND		0.500	1	11/02/2019 15:11	WG1373989
Bromodichloromethane	ND		0.500	1	11/02/2019 15:11	WG1373989
Bromochloromethane	ND		0.500	1	11/02/2019 15:11	WG1373989
Bromoform	ND	J0	0.500	1	11/02/2019 15:11	WG1373989
Bromomethane	ND		2.50	1	11/02/2019 15:11	WG1373989
n-Butylbenzene	ND	J0	0.500	1	11/02/2019 15:11	WG1373989
sec-Butylbenzene	ND		0.500	1	11/02/2019 15:11	WG1373989
tert-Butylbenzene	ND		0.500	1	11/02/2019 15:11	WG1373989
Carbon disulfide	ND		0.500	1	11/02/2019 15:11	WG1373989
Carbon tetrachloride	ND		0.500	1	11/02/2019 15:11	WG1373989
Chlorobenzene	ND		0.500	1	11/02/2019 15:11	WG1373989
Chlorodibromomethane	ND		0.500	1	11/02/2019 15:11	WG1373989
Chloroethane	ND		2.50	1	11/02/2019 15:11	WG1373989
Chloroform	1.53		0.500	1	11/02/2019 15:11	WG1373989
Chloromethane	ND		1.25	1	11/02/2019 15:11	WG1373989
2-Chlorotoluene	ND	J4	0.500	1	11/02/2019 15:11	WG1373989
4-Chlorotoluene	ND	J4	0.500	1	11/02/2019 15:11	WG1373989
1,2-Dibromo-3-Chloropropane	ND	J0	2.50	1	11/02/2019 15:11	WG1373989
1,2-Dibromoethane	ND		0.500	1	11/02/2019 15:11	WG1373989
Dibromomethane	ND		0.500	1	11/02/2019 15:11	WG1373989
1,2-Dichlorobenzene	ND		0.500	1	11/02/2019 15:11	WG1373989
1,3-Dichlorobenzene	ND		0.500	1	11/02/2019 15:11	WG1373989
1,4-Dichlorobenzene	ND		0.500	1	11/02/2019 15:11	WG1373989
Dichlorodifluoromethane	ND	J0	2.50	1	11/02/2019 15:11	WG1373989
1,1-Dichloroethane	ND		0.500	1	11/02/2019 15:11	WG1373989
1,2-Dichloroethane	ND		0.500	1	11/02/2019 15:11	WG1373989
1,1-Dichloroethene	ND		0.500	1	11/02/2019 15:11	WG1373989
cis-1,2-Dichloroethene	ND		0.500	1	11/02/2019 15:11	WG1373989
trans-1,2-Dichloroethene	ND		0.500	1	11/02/2019 15:11	WG1373989
1,2-Dichloropropane	ND		0.500	1	11/02/2019 15:11	WG1373989
1,1-Dichloropropene	ND		0.500	1	11/02/2019 15:11	WG1373989
1,3-Dichloropropane	ND		1.00	1	11/02/2019 15:11	WG1373989
cis-1,3-Dichloropropene	ND		0.500	1	11/02/2019 15:11	WG1373989
trans-1,3-Dichloropropene	ND		0.500	1	11/02/2019 15:11	WG1373989
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/02/2019 15:11	WG1373989
2,2-Dichloropropane	ND		0.500	1	11/02/2019 15:11	WG1373989
Di-isopropyl ether	ND		0.500	1	11/02/2019 15:11	WG1373989
Ethylbenzene	ND		0.500	1	11/02/2019 15:11	WG1373989
Hexachloro-1,3-butadiene	ND	J0	1.00	1	11/02/2019 15:11	WG1373989
2-Hexanone	ND		5.00	1	11/02/2019 15:11	WG1373989
n-Hexane	ND		5.00	1	11/02/2019 15:11	WG1373989
Iodomethane	ND		10.0	1	11/02/2019 15:11	WG1373989
Isopropylbenzene	ND		0.500	1	11/02/2019 15:11	WG1373989
p-Isopropyltoluene	ND		0.500	1	11/02/2019 15:11	WG1373989
2-Butanone (MEK)	ND		5.00	1	11/02/2019 15:11	WG1373989
Methylene Chloride	ND		2.50	1	11/02/2019 15:11	WG1373989
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/02/2019 15:11	WG1373989
Methyl tert-butyl ether	ND		0.500	1	11/02/2019 15:11	WG1373989
Naphthalene	ND	J0 J3	2.50	1	11/02/2019 15:11	WG1373989
n-Propylbenzene	ND		0.500	1	11/02/2019 15:11	WG1373989
Styrene	ND		0.500	1	11/02/2019 15:11	WG1373989
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/02/2019 15:11	WG1373989
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/02/2019 15:11	WG1373989

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	11/02/2019 15:11	WG1373989
Tetrachloroethene	1.20		0.500	1	11/02/2019 15:11	WG1373989
Toluene	ND		0.500	1	11/02/2019 15:11	WG1373989
1,2,3-Trichlorobenzene	ND		0.500	1	11/02/2019 15:11	WG1373989
1,2,4-Trichlorobenzene	ND	J0	0.500	1	11/02/2019 15:11	WG1373989
1,1,1-Trichloroethane	ND		0.500	1	11/02/2019 15:11	WG1373989
1,1,2-Trichloroethane	ND		0.500	1	11/02/2019 15:11	WG1373989
Trichloroethene	ND		0.500	1	11/02/2019 15:11	WG1373989
Trichlorofluoromethane	ND		2.50	1	11/02/2019 15:11	WG1373989
1,2,3-Trichloropropane	ND		2.50	1	11/02/2019 15:11	WG1373989
1,2,4-Trimethylbenzene	ND	J4	0.500	1	11/02/2019 15:11	WG1373989
1,2,3-Trimethylbenzene	ND		0.500	1	11/02/2019 15:11	WG1373989
1,3,5-Trimethylbenzene	ND		0.500	1	11/02/2019 15:11	WG1373989
Vinyl acetate	ND	J0	5.00	1	11/02/2019 15:11	WG1373989
Vinyl chloride	ND		0.500	1	11/02/2019 15:11	WG1373989
Xylenes, Total	ND		1.50	1	11/02/2019 15:11	WG1373989
(S) Toluene-d8	*95.0*		*80.0-120*		*11/02/2019 15:11*	WG1373989
(S) 4-Bromofluorobenzene	*102*		*77.0-126*		*11/02/2019 15:11*	WG1373989
(S) 1,2-Dichloroethane-d4	*104*		*70.0-130*		*11/02/2019 15:11*	WG1373989

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	11/02/2019 15:31	WG1373989
Acrylonitrile	ND		5.00	1	11/02/2019 15:31	WG1373989
Benzene	ND		0.500	1	11/02/2019 15:31	WG1373989
Bromobenzene	ND		0.500	1	11/02/2019 15:31	WG1373989
Bromodichloromethane	ND		0.500	1	11/02/2019 15:31	WG1373989
Bromochloromethane	ND		0.500	1	11/02/2019 15:31	WG1373989
Bromoform	ND	J0	0.500	1	11/02/2019 15:31	WG1373989
Bromomethane	ND		2.50	1	11/02/2019 15:31	WG1373989
n-Butylbenzene	ND	J0	0.500	1	11/02/2019 15:31	WG1373989
sec-Butylbenzene	ND		0.500	1	11/02/2019 15:31	WG1373989
tert-Butylbenzene	ND		0.500	1	11/02/2019 15:31	WG1373989
Carbon disulfide	ND		0.500	1	11/02/2019 15:31	WG1373989
Carbon tetrachloride	ND		0.500	1	11/02/2019 15:31	WG1373989
Chlorobenzene	ND		0.500	1	11/02/2019 15:31	WG1373989
Chlorodibromomethane	ND		0.500	1	11/02/2019 15:31	WG1373989
Chloroethane	ND		2.50	1	11/02/2019 15:31	WG1373989
Chloroform	ND		0.500	1	11/02/2019 15:31	WG1373989
Chloromethane	ND		1.25	1	11/02/2019 15:31	WG1373989
2-Chlorotoluene	ND	J4	0.500	1	11/02/2019 15:31	WG1373989
4-Chlorotoluene	ND	J4	0.500	1	11/02/2019 15:31	WG1373989
1,2-Dibromo-3-Chloropropane	ND	J0	2.50	1	11/02/2019 15:31	WG1373989
1,2-Dibromoethane	ND		0.500	1	11/02/2019 15:31	WG1373989
Dibromomethane	ND		0.500	1	11/02/2019 15:31	WG1373989
1,2-Dichlorobenzene	ND		0.500	1	11/02/2019 15:31	WG1373989
1,3-Dichlorobenzene	ND		0.500	1	11/02/2019 15:31	WG1373989
1,4-Dichlorobenzene	ND		0.500	1	11/02/2019 15:31	WG1373989
Dichlorodifluoromethane	ND	J0	2.50	1	11/02/2019 15:31	WG1373989
1,1-Dichloroethane	ND		0.500	1	11/02/2019 15:31	WG1373989
1,2-Dichloroethane	ND		0.500	1	11/02/2019 15:31	WG1373989
1,1-Dichloroethene	ND		0.500	1	11/02/2019 15:31	WG1373989
cis-1,2-Dichloroethene	ND		0.500	1	11/02/2019 15:31	WG1373989
trans-1,2-Dichloroethene	ND		0.500	1	11/02/2019 15:31	WG1373989
1,2-Dichloropropane	ND		0.500	1	11/02/2019 15:31	WG1373989
1,1-Dichloropropene	ND		0.500	1	11/02/2019 15:31	WG1373989
1,3-Dichloropropane	ND		1.00	1	11/02/2019 15:31	WG1373989
cis-1,3-Dichloropropene	ND		0.500	1	11/02/2019 15:31	WG1373989
trans-1,3-Dichloropropene	ND		0.500	1	11/02/2019 15:31	WG1373989
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/02/2019 15:31	WG1373989
2,2-Dichloropropane	ND		0.500	1	11/02/2019 15:31	WG1373989
Di-isopropyl ether	ND		0.500	1	11/02/2019 15:31	WG1373989
Ethylbenzene	ND		0.500	1	11/02/2019 15:31	WG1373989
Hexachloro-1,3-butadiene	ND	J0	1.00	1	11/02/2019 15:31	WG1373989
2-Hexanone	ND		5.00	1	11/02/2019 15:31	WG1373989
n-Hexane	ND		5.00	1	11/02/2019 15:31	WG1373989
Iodomethane	ND		10.0	1	11/02/2019 15:31	WG1373989
Isopropylbenzene	ND		0.500	1	11/02/2019 15:31	WG1373989
p-Isopropyltoluene	ND		0.500	1	11/02/2019 15:31	WG1373989
2-Butanone (MEK)	ND		5.00	1	11/02/2019 15:31	WG1373989
Methylene Chloride	ND		2.50	1	11/02/2019 15:31	WG1373989
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/02/2019 15:31	WG1373989
Methyl tert-butyl ether	ND		0.500	1	11/02/2019 15:31	WG1373989
Naphthalene	ND	J0 J3	2.50	1	11/02/2019 15:31	WG1373989
n-Propylbenzene	ND		0.500	1	11/02/2019 15:31	WG1373989
Styrene	ND		0.500	1	11/02/2019 15:31	WG1373989
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/02/2019 15:31	WG1373989
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/02/2019 15:31	WG1373989

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	11/02/2019 15:31	WG1373989
Tetrachloroethene	4.74		0.500	1	11/02/2019 15:31	WG1373989
Toluene	ND		0.500	1	11/02/2019 15:31	WG1373989
1,2,3-Trichlorobenzene	ND		0.500	1	11/02/2019 15:31	WG1373989
1,2,4-Trichlorobenzene	ND	J0	0.500	1	11/02/2019 15:31	WG1373989
1,1,1-Trichloroethane	ND		0.500	1	11/02/2019 15:31	WG1373989
1,1,2-Trichloroethane	ND		0.500	1	11/02/2019 15:31	WG1373989
Trichloroethene	ND		0.500	1	11/02/2019 15:31	WG1373989
Trichlorofluoromethane	ND		2.50	1	11/02/2019 15:31	WG1373989
1,2,3-Trichloropropane	ND		2.50	1	11/02/2019 15:31	WG1373989
1,2,4-Trimethylbenzene	ND	J4	0.500	1	11/02/2019 15:31	WG1373989
1,2,3-Trimethylbenzene	ND		0.500	1	11/02/2019 15:31	WG1373989
1,3,5-Trimethylbenzene	ND		0.500	1	11/02/2019 15:31	WG1373989
Vinyl acetate	ND		5.00	1	11/02/2019 15:31	WG1373989
Vinyl chloride	ND	J0	0.500	1	11/02/2019 15:31	WG1373989
Xylenes, Total	ND		1.50	1	11/02/2019 15:31	WG1373989
(S) Toluene-d8	*95.1*		*80.0-120*		*11/02/2019 15:31*	WG1373989
(S) 4-Bromofluorobenzene	*101*		*77.0-126*		*11/02/2019 15:31*	WG1373989
(S) 1,2-Dichloroethane-d4	*108*		*70.0-130*		*11/02/2019 15:31*	WG1373989

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	11/02/2019 15:51	WG1373989
Acrylonitrile	ND		5.00	1	11/02/2019 15:51	WG1373989
Benzene	ND		0.500	1	11/02/2019 15:51	WG1373989
Bromobenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
Bromodichloromethane	ND		0.500	1	11/02/2019 15:51	WG1373989
Bromochloromethane	ND		0.500	1	11/02/2019 15:51	WG1373989
Bromoform	ND	J0	0.500	1	11/02/2019 15:51	WG1373989
Bromomethane	ND		2.50	1	11/02/2019 15:51	WG1373989
n-Butylbenzene	ND	J0	0.500	1	11/02/2019 15:51	WG1373989
sec-Butylbenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
tert-Butylbenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
Carbon disulfide	ND		0.500	1	11/02/2019 15:51	WG1373989
Carbon tetrachloride	ND		0.500	1	11/02/2019 15:51	WG1373989
Chlorobenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
Chlorodibromomethane	ND		0.500	1	11/02/2019 15:51	WG1373989
Chloroethane	ND		2.50	1	11/02/2019 15:51	WG1373989
Chloroform	ND		0.500	1	11/02/2019 15:51	WG1373989
Chloromethane	ND		1.25	1	11/02/2019 15:51	WG1373989
2-Chlorotoluene	ND	J4	0.500	1	11/02/2019 15:51	WG1373989
4-Chlorotoluene	ND	J4	0.500	1	11/02/2019 15:51	WG1373989
1,2-Dibromo-3-Chloropropane	ND	J0	2.50	1	11/02/2019 15:51	WG1373989
1,2-Dibromoethane	ND		0.500	1	11/02/2019 15:51	WG1373989
Dibromomethane	ND		0.500	1	11/02/2019 15:51	WG1373989
1,2-Dichlorobenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
1,3-Dichlorobenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
1,4-Dichlorobenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
Dichlorodifluoromethane	ND	J0	2.50	1	11/02/2019 15:51	WG1373989
1,1-Dichloroethane	ND		0.500	1	11/02/2019 15:51	WG1373989
1,2-Dichloroethane	ND		0.500	1	11/02/2019 15:51	WG1373989
1,1-Dichloroethene	ND		0.500	1	11/02/2019 15:51	WG1373989
cis-1,2-Dichloroethene	ND		0.500	1	11/02/2019 15:51	WG1373989
trans-1,2-Dichloroethene	ND		0.500	1	11/02/2019 15:51	WG1373989
1,2-Dichloropropane	ND		0.500	1	11/02/2019 15:51	WG1373989
1,1-Dichloropropene	ND		0.500	1	11/02/2019 15:51	WG1373989
1,3-Dichloropropane	ND		1.00	1	11/02/2019 15:51	WG1373989
cis-1,3-Dichloropropene	ND		0.500	1	11/02/2019 15:51	WG1373989
trans-1,3-Dichloropropene	ND		0.500	1	11/02/2019 15:51	WG1373989
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/02/2019 15:51	WG1373989
2,2-Dichloropropane	ND		0.500	1	11/02/2019 15:51	WG1373989
Di-isopropyl ether	ND		0.500	1	11/02/2019 15:51	WG1373989
Ethylbenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
Hexachloro-1,3-butadiene	ND	J0	1.00	1	11/02/2019 15:51	WG1373989
2-Hexanone	ND		5.00	1	11/02/2019 15:51	WG1373989
n-Hexane	ND		5.00	1	11/02/2019 15:51	WG1373989
Iodomethane	ND		10.0	1	11/02/2019 15:51	WG1373989
Isopropylbenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
p-Isopropyltoluene	ND		0.500	1	11/02/2019 15:51	WG1373989
2-Butanone (MEK)	ND		5.00	1	11/02/2019 15:51	WG1373989
Methylene Chloride	ND		2.50	1	11/02/2019 15:51	WG1373989
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/02/2019 15:51	WG1373989
Methyl tert-butyl ether	ND		0.500	1	11/02/2019 15:51	WG1373989
Naphthalene	ND	J0 J3	2.50	1	11/02/2019 15:51	WG1373989
n-Propylbenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
Styrene	ND		0.500	1	11/02/2019 15:51	WG1373989
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/02/2019 15:51	WG1373989
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/02/2019 15:51	WG1373989

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	11/02/2019 15:51	WG1373989
Tetrachloroethene	7.13		0.500	1	11/02/2019 15:51	WG1373989
Toluene	ND		0.500	1	11/02/2019 15:51	WG1373989
1,2,3-Trichlorobenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
1,2,4-Trichlorobenzene	ND	J0	0.500	1	11/02/2019 15:51	WG1373989
1,1,1-Trichloroethane	ND		0.500	1	11/02/2019 15:51	WG1373989
1,1,2-Trichloroethane	ND		0.500	1	11/02/2019 15:51	WG1373989
Trichloroethene	ND		0.500	1	11/02/2019 15:51	WG1373989
Trichlorofluoromethane	ND		2.50	1	11/02/2019 15:51	WG1373989
1,2,3-Trichloropropane	ND		2.50	1	11/02/2019 15:51	WG1373989
1,2,4-Trimethylbenzene	ND	J4	0.500	1	11/02/2019 15:51	WG1373989
1,2,3-Trimethylbenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
1,3,5-Trimethylbenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
Vinyl acetate	ND	J0	5.00	1	11/02/2019 15:51	WG1373989
Vinyl chloride	ND		0.500	1	11/02/2019 15:51	WG1373989
Xylenes, Total	ND		1.50	1	11/02/2019 15:51	WG1373989
(S) Toluene-d8	*95.4*		*80.0-120*		*11/02/2019 15:51*	WG1373989
(S) 4-Bromofluorobenzene	*99.4*		*77.0-126*		*11/02/2019 15:51*	WG1373989
(S) 1,2-Dichloroethane-d4	*105*		*70.0-130*		*11/02/2019 15:51*	WG1373989

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	11/02/2019 16:11	WG1373989
Acrylonitrile	ND		5.00	1	11/02/2019 16:11	WG1373989
Benzene	ND		0.500	1	11/02/2019 16:11	WG1373989
Bromobenzene	ND		0.500	1	11/02/2019 16:11	WG1373989
Bromodichloromethane	ND		0.500	1	11/02/2019 16:11	WG1373989
Bromochloromethane	ND		0.500	1	11/02/2019 16:11	WG1373989
Bromoform	ND	J0	0.500	1	11/02/2019 16:11	WG1373989
Bromomethane	ND		2.50	1	11/02/2019 16:11	WG1373989
n-Butylbenzene	ND	J0	0.500	1	11/02/2019 16:11	WG1373989
sec-Butylbenzene	ND		0.500	1	11/02/2019 16:11	WG1373989
tert-Butylbenzene	ND		0.500	1	11/02/2019 16:11	WG1373989
Carbon disulfide	ND		0.500	1	11/02/2019 16:11	WG1373989
Carbon tetrachloride	ND		0.500	1	11/02/2019 16:11	WG1373989
Chlorobenzene	ND		0.500	1	11/02/2019 16:11	WG1373989
Chlorodibromomethane	ND		0.500	1	11/02/2019 16:11	WG1373989
Chloroethane	ND		2.50	1	11/02/2019 16:11	WG1373989
Chloroform	ND		0.500	1	11/02/2019 16:11	WG1373989
Chloromethane	ND		1.25	1	11/02/2019 16:11	WG1373989
2-Chlorotoluene	ND	J4	0.500	1	11/02/2019 16:11	WG1373989
4-Chlorotoluene	ND	J4	0.500	1	11/02/2019 16:11	WG1373989
1,2-Dibromo-3-Chloropropane	ND	J0	2.50	1	11/02/2019 16:11	WG1373989
1,2-Dibromoethane	ND		0.500	1	11/02/2019 16:11	WG1373989
Dibromomethane	ND		0.500	1	11/02/2019 16:11	WG1373989
1,2-Dichlorobenzene	ND		0.500	1	11/02/2019 16:11	WG1373989
1,3-Dichlorobenzene	ND		0.500	1	11/02/2019 16:11	WG1373989
1,4-Dichlorobenzene	ND		0.500	1	11/02/2019 16:11	WG1373989
Dichlorodifluoromethane	ND	J0	2.50	1	11/02/2019 16:11	WG1373989
1,1-Dichloroethane	ND		0.500	1	11/02/2019 16:11	WG1373989
1,2-Dichloroethane	ND		0.500	1	11/02/2019 16:11	WG1373989
1,1-Dichloroethene	ND		0.500	1	11/02/2019 16:11	WG1373989
cis-1,2-Dichloroethene	ND		0.500	1	11/02/2019 16:11	WG1373989
trans-1,2-Dichloroethene	ND		0.500	1	11/02/2019 16:11	WG1373989
1,2-Dichloropropane	ND		0.500	1	11/02/2019 16:11	WG1373989
1,1-Dichloropropene	ND		0.500	1	11/02/2019 16:11	WG1373989
1,3-Dichloropropane	ND		1.00	1	11/02/2019 16:11	WG1373989
cis-1,3-Dichloropropene	ND		0.500	1	11/02/2019 16:11	WG1373989
trans-1,3-Dichloropropene	ND		0.500	1	11/02/2019 16:11	WG1373989
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/02/2019 16:11	WG1373989
2,2-Dichloropropane	ND		0.500	1	11/02/2019 16:11	WG1373989
Di-isopropyl ether	ND		0.500	1	11/02/2019 16:11	WG1373989
Ethylbenzene	ND		0.500	1	11/02/2019 16:11	WG1373989
Hexachloro-1,3-butadiene	ND	J0	1.00	1	11/02/2019 16:11	WG1373989
2-Hexanone	ND		5.00	1	11/02/2019 16:11	WG1373989
n-Hexane	ND		5.00	1	11/02/2019 16:11	WG1373989
Iodomethane	ND		10.0	1	11/02/2019 16:11	WG1373989
Isopropylbenzene	ND		0.500	1	11/02/2019 16:11	WG1373989
p-Isopropyltoluene	ND		0.500	1	11/02/2019 16:11	WG1373989
2-Butanone (MEK)	ND		5.00	1	11/02/2019 16:11	WG1373989
Methylene Chloride	ND		2.50	1	11/02/2019 16:11	WG1373989
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/02/2019 16:11	WG1373989
Methyl tert-butyl ether	ND		0.500	1	11/02/2019 16:11	WG1373989
Naphthalene	ND	J0 J3	2.50	1	11/02/2019 16:11	WG1373989
n-Propylbenzene	ND		0.500	1	11/02/2019 16:11	WG1373989
Styrene	ND		0.500	1	11/02/2019 16:11	WG1373989
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/02/2019 16:11	WG1373989
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/02/2019 16:11	WG1373989

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	11/02/2019 16:11	WG1373989
Tetrachloroethene	ND		0.500	1	11/02/2019 16:11	WG1373989
Toluene	ND		0.500	1	11/02/2019 16:11	WG1373989
1,2,3-Trichlorobenzene	ND		0.500	1	11/02/2019 16:11	WG1373989
1,2,4-Trichlorobenzene	ND	J0	0.500	1	11/02/2019 16:11	WG1373989
1,1,1-Trichloroethane	ND		0.500	1	11/02/2019 16:11	WG1373989
1,1,2-Trichloroethane	ND		0.500	1	11/02/2019 16:11	WG1373989
Trichloroethene	ND		0.500	1	11/02/2019 16:11	WG1373989
Trichlorofluoromethane	ND		2.50	1	11/02/2019 16:11	WG1373989
1,2,3-Trichloropropane	ND		2.50	1	11/02/2019 16:11	WG1373989
1,2,4-Trimethylbenzene	ND	J4	0.500	1	11/02/2019 16:11	WG1373989
1,2,3-Trimethylbenzene	ND		0.500	1	11/02/2019 16:11	WG1373989
1,3,5-Trimethylbenzene	ND		0.500	1	11/02/2019 16:11	WG1373989
Vinyl acetate	ND	J0	5.00	1	11/02/2019 16:11	WG1373989
Vinyl chloride	ND		0.500	1	11/02/2019 16:11	WG1373989
Xylenes, Total	ND		1.50	1	11/02/2019 16:11	WG1373989
(S) Toluene-d8	*94.8*		*80.0-120*		*11/02/2019 16:11*	WG1373989
(S) 4-Bromofluorobenzene	*102*		*77.0-126*		*11/02/2019 16:11*	WG1373989
(S) 1,2-Dichloroethane-d4	*112*		*70.0-130*		*11/02/2019 16:11*	WG1373989

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	11/02/2019 13:11	WG1373989
Acrylonitrile	ND		5.00	1	11/02/2019 13:11	WG1373989
Benzene	ND		0.500	1	11/02/2019 13:11	WG1373989
Bromobenzene	ND		0.500	1	11/02/2019 13:11	WG1373989
Bromodichloromethane	ND		0.500	1	11/02/2019 13:11	WG1373989
Bromochloromethane	ND		0.500	1	11/02/2019 13:11	WG1373989
Bromoform	ND	J0	0.500	1	11/02/2019 13:11	WG1373989
Bromomethane	ND		2.50	1	11/02/2019 13:11	WG1373989
n-Butylbenzene	ND	J0	0.500	1	11/02/2019 13:11	WG1373989
sec-Butylbenzene	ND		0.500	1	11/02/2019 13:11	WG1373989
tert-Butylbenzene	ND		0.500	1	11/02/2019 13:11	WG1373989
Carbon disulfide	ND		0.500	1	11/02/2019 13:11	WG1373989
Carbon tetrachloride	ND		0.500	1	11/02/2019 13:11	WG1373989
Chlorobenzene	ND		0.500	1	11/02/2019 13:11	WG1373989
Chlorodibromomethane	ND		0.500	1	11/02/2019 13:11	WG1373989
Chloroethane	ND		2.50	1	11/02/2019 13:11	WG1373989
Chloroform	ND		0.500	1	11/02/2019 13:11	WG1373989
Chloromethane	ND		1.25	1	11/02/2019 13:11	WG1373989
2-Chlorotoluene	ND	J4	0.500	1	11/02/2019 13:11	WG1373989
4-Chlorotoluene	ND	J4	0.500	1	11/02/2019 13:11	WG1373989
1,2-Dibromo-3-Chloropropane	ND	J0	2.50	1	11/02/2019 13:11	WG1373989
1,2-Dibromoethane	ND		0.500	1	11/02/2019 13:11	WG1373989
Dibromomethane	ND		0.500	1	11/02/2019 13:11	WG1373989
1,2-Dichlorobenzene	ND		0.500	1	11/02/2019 13:11	WG1373989
1,3-Dichlorobenzene	ND		0.500	1	11/02/2019 13:11	WG1373989
1,4-Dichlorobenzene	ND		0.500	1	11/02/2019 13:11	WG1373989
Dichlorodifluoromethane	ND	J0	2.50	1	11/02/2019 13:11	WG1373989
1,1-Dichloroethane	ND		0.500	1	11/02/2019 13:11	WG1373989
1,2-Dichloroethane	ND		0.500	1	11/02/2019 13:11	WG1373989
1,1-Dichloroethene	ND		0.500	1	11/02/2019 13:11	WG1373989
cis-1,2-Dichloroethene	ND		0.500	1	11/02/2019 13:11	WG1373989
trans-1,2-Dichloroethene	ND		0.500	1	11/02/2019 13:11	WG1373989
1,2-Dichloropropane	ND		0.500	1	11/02/2019 13:11	WG1373989
1,1-Dichloropropene	ND		0.500	1	11/02/2019 13:11	WG1373989
1,3-Dichloropropane	ND		1.00	1	11/02/2019 13:11	WG1373989
cis-1,3-Dichloropropene	ND		0.500	1	11/02/2019 13:11	WG1373989
trans-1,3-Dichloropropene	ND		0.500	1	11/02/2019 13:11	WG1373989
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/02/2019 13:11	WG1373989
2,2-Dichloropropane	ND		0.500	1	11/02/2019 13:11	WG1373989
Di-isopropyl ether	ND		0.500	1	11/02/2019 13:11	WG1373989
Ethylbenzene	ND		0.500	1	11/02/2019 13:11	WG1373989
Hexachloro-1,3-butadiene	ND	J0	1.00	1	11/02/2019 13:11	WG1373989
2-Hexanone	ND		5.00	1	11/02/2019 13:11	WG1373989
n-Hexane	ND		5.00	1	11/02/2019 13:11	WG1373989
Iodomethane	ND		10.0	1	11/02/2019 13:11	WG1373989
Isopropylbenzene	ND		0.500	1	11/02/2019 13:11	WG1373989
p-Isopropyltoluene	ND		0.500	1	11/02/2019 13:11	WG1373989
2-Butanone (MEK)	ND		5.00	1	11/02/2019 13:11	WG1373989
Methylene Chloride	ND		2.50	1	11/02/2019 13:11	WG1373989
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/02/2019 13:11	WG1373989
Methyl tert-butyl ether	ND		0.500	1	11/02/2019 13:11	WG1373989
Naphthalene	ND	J0 J3	2.50	1	11/02/2019 13:11	WG1373989
n-Propylbenzene	ND		0.500	1	11/02/2019 13:11	WG1373989
Styrene	ND		0.500	1	11/02/2019 13:11	WG1373989
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/02/2019 13:11	WG1373989
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/02/2019 13:11	WG1373989

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	11/02/2019 13:11	WG1373989
Tetrachloroethene	ND		0.500	1	11/02/2019 13:11	WG1373989
Toluene	ND		0.500	1	11/02/2019 13:11	WG1373989
1,2,3-Trichlorobenzene	ND		0.500	1	11/02/2019 13:11	WG1373989
1,2,4-Trichlorobenzene	ND	J0	0.500	1	11/02/2019 13:11	WG1373989
1,1,1-Trichloroethane	ND		0.500	1	11/02/2019 13:11	WG1373989
1,1,2-Trichloroethane	ND		0.500	1	11/02/2019 13:11	WG1373989
Trichloroethene	ND		0.500	1	11/02/2019 13:11	WG1373989
Trichlorofluoromethane	ND		2.50	1	11/02/2019 13:11	WG1373989
1,2,3-Trichloropropane	ND		2.50	1	11/02/2019 13:11	WG1373989
1,2,4-Trimethylbenzene	ND	J4	0.500	1	11/02/2019 13:11	WG1373989
1,2,3-Trimethylbenzene	ND		0.500	1	11/02/2019 13:11	WG1373989
1,3,5-Trimethylbenzene	ND		0.500	1	11/02/2019 13:11	WG1373989
Vinyl acetate	ND	J0	5.00	1	11/02/2019 13:11	WG1373989
Vinyl chloride	ND		0.500	1	11/02/2019 13:11	WG1373989
Xylenes, Total	ND		1.50	1	11/02/2019 13:11	WG1373989
(S) Toluene-d8	*96.3*		*80.0-120*		*11/02/2019 13:11*	WG1373989
(S) 4-Bromofluorobenzene	*103*		*77.0-126*		*11/02/2019 13:11*	WG1373989
(S) 1,2-Dichloroethane-d4	*103*		*70.0-130*		*11/02/2019 13:11*	WG1373989

Method Blank (MB)

(MB) R3467902-3 11/02/19 10:59

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
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
trans-1,4-Dichloro-2-butene	U		0.257	5.00
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
2,2-Dichloropropane	U		0.0929	0.500
Di-isopropyl ether	U		0.0924	0.500

Method Blank (MB)

(MB) R3467902-3 11/02/19 10:59

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
Tetrachloroethene	U		0.199	0.500
Toluene	U		0.412	0.500
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
1,2,3-Trichloropropane	U		0.247	2.50
1,2,3-Trimethylbenzene	U		0.0739	0.500
1,2,4-Trimethylbenzene	U		0.123	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	*97.3*			*80.0-120*
(S) 4-Bromofluorobenzene	*103*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*105*			*70.0-130*

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

(LCS) R3467902-1 11/02/19 09:59 • (LCSD) R3467902-2 11/02/19 10:19

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 %
Acetone	25.0	31.5	32.9	126	132	19.0-160			4.35	27
Acrylonitrile	25.0	29.6	29.7	118	119	55.0-149			0.337	20
Benzene	5.00	4.85	5.18	97.0	104	70.0-123			6.58	20
Bromobenzene	5.00	5.40	5.81	108	116	73.0-121			7.31	20
Bromodichloromethane	5.00	4.79	4.78	95.8	95.6	75.0-120			0.209	20
Bromochloromethane	5.00	5.01	5.00	100	100	76.0-122			0.200	20
Bromoform	5.00	3.72	3.95	74.4	79.0	68.0-132			6.00	20
Bromomethane	5.00	4.52	4.49	90.4	89.8	10.0-160			0.666	25
n-Butylbenzene	5.00	3.77	4.13	75.4	82.6	73.0-125			9.11	20
sec-Butylbenzene	5.00	5.25	5.41	105	108	75.0-125			3.00	20
tert-Butylbenzene	5.00	5.37	5.88	107	118	76.0-124			9.07	20
Carbon disulfide	5.00	4.91	5.04	98.2	101	61.0-128			2.61	20
Carbon tetrachloride	5.00	5.00	5.32	100	106	68.0-126			6.20	20
Chlorobenzene	5.00	4.96	5.27	99.2	105	80.0-121			6.06	20
Chlorodibromomethane	5.00	4.07	4.45	81.4	89.0	77.0-125			8.92	20
Chloroethane	5.00	4.93	5.18	98.6	104	47.0-150			4.95	20
Chloroform	5.00	4.85	5.11	97.0	102	73.0-120			5.22	20
Chloromethane	5.00	5.76	5.95	115	119	41.0-142			3.25	20
2-Chlorotoluene	5.00	6.27	6.56	125	131	76.0-123	J4	J4	4.52	20
4-Chlorotoluene	5.00	6.09	6.40	122	128	75.0-122		J4	4.96	20
1,2-Dibromo-3-Chloropropane	5.00	3.04	3.18	60.8	63.6	58.0-134			4.50	20
1,2-Dibromoethane	5.00	4.11	4.20	82.2	84.0	80.0-122			2.17	20
Dibromomethane	5.00	4.40	4.60	88.0	92.0	80.0-120			4.44	20
1,2-Dichlorobenzene	5.00	4.15	4.32	83.0	86.4	79.0-121			4.01	20
1,3-Dichlorobenzene	5.00	4.98	5.20	99.6	104	79.0-120			4.32	20
1,4-Dichlorobenzene	5.00	4.63	4.83	92.6	96.6	79.0-120			4.23	20
trans-1,4-Dichloro-2-butene	5.00	5.29	5.45	106	109	33.0-144			2.98	20
Dichlorodifluoromethane	5.00	3.61	3.89	72.2	77.8	51.0-149			7.47	20
1,1-Dichloroethane	5.00	5.47	5.53	109	111	70.0-126			1.09	20
1,2-Dichloroethane	5.00	4.96	5.00	99.2	100	70.0-128			0.803	20
1,1-Dichloroethene	5.00	4.91	4.99	98.2	99.8	71.0-124			1.62	20
cis-1,2-Dichloroethene	5.00	5.06	4.96	101	99.2	73.0-120			2.00	20
trans-1,2-Dichloroethene	5.00	4.84	4.95	96.8	99.0	73.0-120			2.25	20
1,2-Dichloropropane	5.00	5.63	5.47	113	109	77.0-125			2.88	20
1,1-Dichloropropene	5.00	4.84	5.01	96.8	100	74.0-126			3.45	20
1,3-Dichloropropane	5.00	4.10	4.16	82.0	83.2	80.0-120			1.45	20
cis-1,3-Dichloropropene	5.00	4.81	4.93	96.2	98.6	80.0-123			2.46	20
trans-1,3-Dichloropropene	5.00	4.19	4.19	83.8	83.8	78.0-124			0.000	20
2,2-Dichloropropane	5.00	4.86	5.06	97.2	101	58.0-130			4.03	20
Di-isopropyl ether	5.00	5.87	6.24	117	125	58.0-138			6.11	20

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

(LCS) R3467902-1 11/02/19 09:59 • (LCSD) R3467902-2 11/02/19 10:19

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 %
Ethylbenzene	5.00	4.35	4.88	87.0	97.6	79.0-123			11.5	20
Hexachloro-1,3-butadiene	5.00	3.45	3.80	69.0	76.0	54.0-138			9.66	20
2-Hexanone	25.0	22.8	22.7	91.2	90.8	67.0-149			0.440	20
n-Hexane	5.00	5.74	5.95	115	119	57.0-133			3.59	20
Iodomethane	25.0	23.4	24.5	93.6	98.0	33.0-147			4.59	26
Isopropylbenzene	5.00	4.64	4.88	92.8	97.6	76.0-127			5.04	20
p-Isopropyltoluene	5.00	5.01	5.38	100	108	76.0-125			7.12	20
2-Butanone (MEK)	25.0	29.0	28.4	116	114	44.0-160			2.09	20
Methylene Chloride	5.00	4.14	4.30	82.8	86.0	67.0-120			3.79	20
4-Methyl-2-pentanone (MIBK)	25.0	20.9	21.2	83.6	84.8	68.0-142			1.43	20
Methyl tert-butyl ether	5.00	5.06	5.07	101	101	68.0-125			0.197	20
Naphthalene	5.00	2.98	3.67	59.6	73.4	54.0-135		J3	20.8	20
n-Propylbenzene	5.00	5.59	5.83	112	117	77.0-124			4.20	20
Styrene	5.00	4.90	4.93	98.0	98.6	73.0-130			0.610	20
1,1,1,2-Tetrachloroethane	5.00	4.41	4.34	88.2	86.8	75.0-125			1.60	20
1,1,2,2-Tetrachloroethane	5.00	4.12	4.03	82.4	80.6	65.0-130			2.21	20
Tetrachloroethene	5.00	4.24	4.44	84.8	88.8	72.0-132			4.61	20
Toluene	5.00	4.58	4.75	91.6	95.0	79.0-120			3.64	20
1,1,2-Trichlorotrifluoroethane	5.00	4.31	4.54	86.2	90.8	69.0-132			5.20	20
1,2,3-Trichlorobenzene	5.00	2.78	3.35	55.6	67.0	50.0-138			18.6	20
1,2,4-Trichlorobenzene	5.00	3.59	3.84	71.8	76.8	57.0-137			6.73	20
1,1,1-Trichloroethane	5.00	5.16	5.44	103	109	73.0-124			5.28	20
1,1,2-Trichloroethane	5.00	4.06	4.22	81.2	84.4	80.0-120			3.86	20
Trichloroethene	5.00	5.16	5.36	103	107	78.0-124			3.80	20
Trichlorofluoromethane	5.00	4.65	4.82	93.0	96.4	59.0-147			3.59	20
1,2,3-Trichloropropane	5.00	5.26	5.38	105	108	73.0-130			2.26	20
1,2,3-Trimethylbenzene	5.00	4.89	5.02	97.8	100	77.0-120			2.62	20
1,2,4-Trimethylbenzene	5.00	5.93	6.37	119	127	76.0-121		J4	7.15	20
1,3,5-Trimethylbenzene	5.00	5.80	6.11	116	122	76.0-122			5.21	20
Vinyl acetate	25.0	19.4	19.0	77.6	76.0	11.0-160			2.08	20
Vinyl chloride	5.00	4.66	4.99	93.2	99.8	67.0-131			6.84	20
Xylenes, Total	15.0	13.8	14.9	92.0	99.3	79.0-123			7.67	20
(S) Toluene-d8				*94.9*	*98.1*	*80.0-120*				
(S) 4-Bromofluorobenzene				*103*	*103*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*102*	*103*	*70.0-130*				

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.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

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, the sample preparation volume or weight values differ from the standard, 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.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
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
J0	J0: The identification of the analyte is acceptable, but the reported concentration is an estimate. The calibration met method criteria.
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.

Pace National 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.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

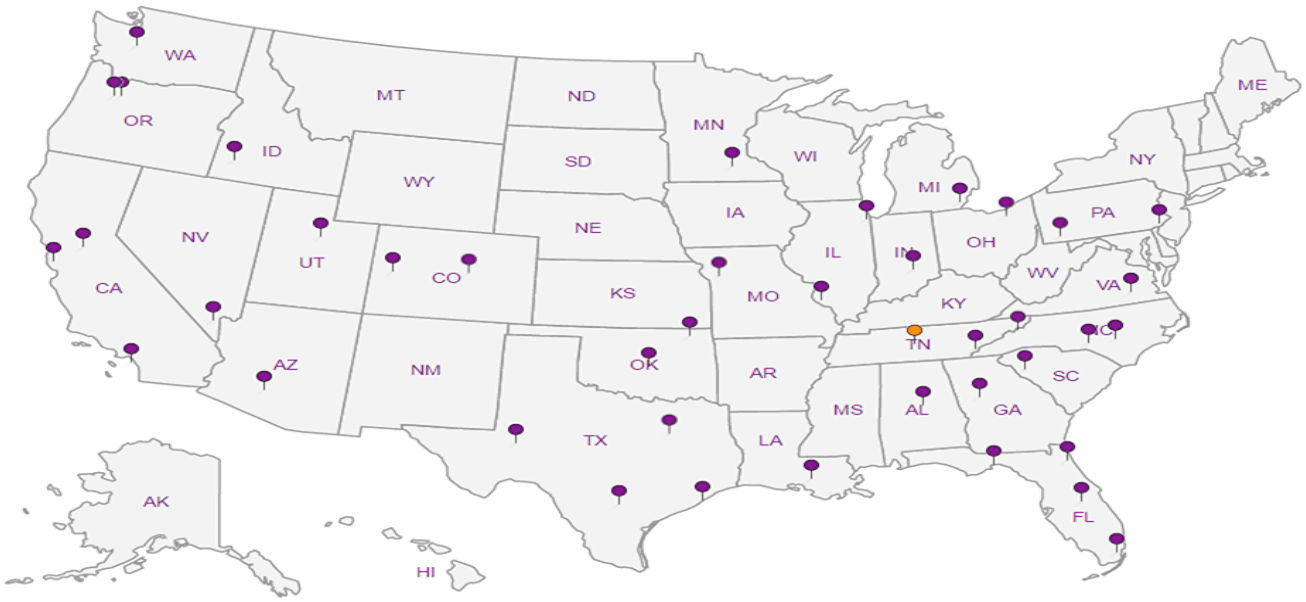
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National 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. Pace National 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; mdahl@pesenv.com; cdeboer@pesenv.com

Project Description: MVSC

City/State Collected: Normandy Park, WA

Please Circle: PT MT CT ET

Phone: 206-529-3980
Fax: 206-529-3985

Client Project # 1358.001.02.013

Lab Project # PESENVSWA-MVSC

Collected by (print): Hannah Cohen

Site/Facility ID # MVSC

P.O. #

Collected by (signature): Hannah Cohen

Immediately Packed on Ice N ___ Y ✓

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

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	VOCs (V8260LLC) 40mlAmb-HCl	Remarks	Sample # (lab only)
MW-9-102519	Grab	GW	33	10/25/19	955	3	X		-01
MW-10-102519	"	GW	37	"	1120	3	X		02
MW-2-102519	"	GW	40	"	1230	3	X		03
KMW-3-102519	"	GW	29	"	1342	3	X		04
MW-7-102519	"	GW	42	"	1500	3	X		05
EQ-102519	"	GW	-	"	1520	3	X		06
TRIP-102519	-	GW	-	"	1609	1	X		07
		GW							
		GW							
		GW							

Chain of Custody Page ___ of ___

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # L1154255

Table # 1208

Acctnum: PESENVSWA

Template: T157814

Prelogin: P736538

PM: 110 - Brian Ford

PB:

Shipped Via:

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 1145 2231 0912

Sample Receipt Checklist

COC Seal Present/Intact:	✓NP	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
RAD Screen <0.5 mR/hr:		✓Y	N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Hannah Cohen	10/25/19	1610	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCl / MeoH
TBR

Temp: °C Bottles Received: 8

1.2, 2.1, 4.1, 4.6

Date: 10-26-19 Time: 0830

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 08, 2019

PES Environmental, Inc.- WA

Sample Delivery Group:	L1155907
Samples Received:	10/31/2019
Project Number:	1358.001.02.013
Description:	MVSC
Site:	MVSC
Report To:	Karsten Springstead 1215 Fourth Ave., Suite 1350 Seattle, WA 98161

Entire Report Reviewed By:

Brian Ford

Brian Ford
Project Manager

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 Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



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KWM-8-102819 L1155907-01 GW

Collected by: Hannah Cohen | Collected date/time: 10/28/19 13:20 | Received date/time: 10/31/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1375600	1	11/06/19 04:15	11/06/19 04:15	ADM	Mt. Juliet, TN

MW-18-102819 L1155907-02 GW

Collected by: Hannah Cohen | Collected date/time: 10/28/19 14:23 | Received date/time: 10/31/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1375600	1	11/06/19 04:36	11/06/19 04:36	ADM	Mt. Juliet, TN

MW-17-102819 L1155907-03 GW

Collected by: Hannah Cohen | Collected date/time: 10/28/19 16:37 | Received date/time: 10/31/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1375600	1	11/06/19 04:56	11/06/19 04:56	ADM	Mt. Juliet, TN

MW-19-102919 L1155907-04 GW

Collected by: Hannah Cohen | Collected date/time: 10/29/19 10:15 | Received date/time: 10/31/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1375600	1	11/06/19 05:17	11/06/19 05:17	ADM	Mt. Juliet, TN

MW-20-102919 L1155907-05 GW

Collected by: Hannah Cohen | Collected date/time: 10/29/19 11:20 | Received date/time: 10/31/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1375600	1	11/06/19 05:37	11/06/19 05:37	ADM	Mt. Juliet, TN

DC-8-102919 L1155907-06 GW

Collected by: Hannah Cohen | Collected date/time: 10/29/19 12:40 | Received date/time: 10/31/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1375600	1	11/06/19 05:58	11/06/19 05:58	ADM	Mt. Juliet, TN

KMW-7-102919 L1155907-07 GW

Collected by: Hannah Cohen | Collected date/time: 10/29/19 14:05 | Received date/time: 10/31/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1375600	1	11/06/19 06:18	11/06/19 06:18	ADM	Mt. Juliet, TN

DC-15-102919 L1155907-08 GW

Collected by: Hannah Cohen | Collected date/time: 10/29/19 15:25 | Received date/time: 10/31/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1375600	1	11/06/19 06:39	11/06/19 06:39	ADM	Mt. Juliet, TN

MW-101-103019 L1155907-09 GW

Collected by: Hannah Cohen
Collected date/time: 10/30/19 09:00
Received date/time: 10/31/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1375600	1	11/06/19 06:59	11/06/19 06:59	ADM	Mt. Juliet, TN

DC-7-103019 L1155907-10 GW

Collected by: Hannah Cohen
Collected date/time: 10/30/19 10:00
Received date/time: 10/31/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1375600	1	11/06/19 07:20	11/06/19 07:20	ADM	Mt. Juliet, TN

DC-17-103019 L1155907-11 GW

Collected by: Hannah Cohen
Collected date/time: 10/30/19 11:19
Received date/time: 10/31/19 09:00

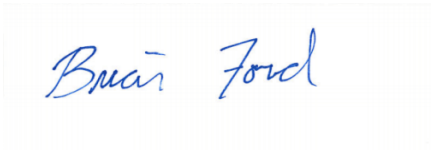
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1375600	1	11/06/19 07:41	11/06/19 07:41	ADM	Mt. Juliet, TN

TRIP-103019 L1155907-12 GW

Collected by: Hannah Cohen
Collected date/time: 10/30/19 12:00
Received date/time: 10/31/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1375600	1	11/06/19 01:11	11/06/19 01:11	ADM	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, 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
Project Manager

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J0	25.0	1	11/06/2019 04:15	WG1375600
Acrylonitrile	ND		5.00	1	11/06/2019 04:15	WG1375600
Benzene	ND		0.500	1	11/06/2019 04:15	WG1375600
Bromobenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
Bromodichloromethane	ND		0.500	1	11/06/2019 04:15	WG1375600
Bromochloromethane	ND		0.500	1	11/06/2019 04:15	WG1375600
Bromoform	ND		0.500	1	11/06/2019 04:15	WG1375600
Bromomethane	ND		2.50	1	11/06/2019 04:15	WG1375600
n-Butylbenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
sec-Butylbenzene	ND	J0	0.500	1	11/06/2019 04:15	WG1375600
tert-Butylbenzene	ND	J0 J4	0.500	1	11/06/2019 04:15	WG1375600
Carbon disulfide	ND		0.500	1	11/06/2019 04:15	WG1375600
Carbon tetrachloride	ND		0.500	1	11/06/2019 04:15	WG1375600
Chlorobenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
Chlorodibromomethane	ND		0.500	1	11/06/2019 04:15	WG1375600
Chloroethane	ND		2.50	1	11/06/2019 04:15	WG1375600
Chloroform	ND		0.500	1	11/06/2019 04:15	WG1375600
Chloromethane	ND		1.25	1	11/06/2019 04:15	WG1375600
2-Chlorotoluene	ND		0.500	1	11/06/2019 04:15	WG1375600
4-Chlorotoluene	ND		0.500	1	11/06/2019 04:15	WG1375600
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 04:15	WG1375600
1,2-Dibromoethane	ND		0.500	1	11/06/2019 04:15	WG1375600
Dibromomethane	ND		0.500	1	11/06/2019 04:15	WG1375600
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 04:15	WG1375600
1,1-Dichloroethane	ND		0.500	1	11/06/2019 04:15	WG1375600
1,2-Dichloroethane	ND		0.500	1	11/06/2019 04:15	WG1375600
1,1-Dichloroethene	ND		0.500	1	11/06/2019 04:15	WG1375600
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 04:15	WG1375600
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 04:15	WG1375600
1,2-Dichloropropane	ND		0.500	1	11/06/2019 04:15	WG1375600
1,1-Dichloropropene	ND		0.500	1	11/06/2019 04:15	WG1375600
1,3-Dichloropropane	ND		1.00	1	11/06/2019 04:15	WG1375600
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 04:15	WG1375600
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 04:15	WG1375600
trans-1,4-Dichloro-2-butene	ND	J0	5.00	1	11/06/2019 04:15	WG1375600
2,2-Dichloropropane	ND		0.500	1	11/06/2019 04:15	WG1375600
Di-isopropyl ether	ND		0.500	1	11/06/2019 04:15	WG1375600
Ethylbenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 04:15	WG1375600
2-Hexanone	ND		5.00	1	11/06/2019 04:15	WG1375600
n-Hexane	ND		5.00	1	11/06/2019 04:15	WG1375600
Iodomethane	ND		10.0	1	11/06/2019 04:15	WG1375600
Isopropylbenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
p-Isopropyltoluene	ND		0.500	1	11/06/2019 04:15	WG1375600
2-Butanone (MEK)	ND		5.00	1	11/06/2019 04:15	WG1375600
Methylene Chloride	ND		2.50	1	11/06/2019 04:15	WG1375600
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 04:15	WG1375600
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 04:15	WG1375600
Naphthalene	ND		2.50	1	11/06/2019 04:15	WG1375600
n-Propylbenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
Styrene	ND		0.500	1	11/06/2019 04:15	WG1375600
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 04:15	WG1375600
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 04:15	WG1375600

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	11/06/2019 04:15	WG1375600
Tetrachloroethene	6.24		0.500	1	11/06/2019 04:15	WG1375600
Toluene	ND		0.500	1	11/06/2019 04:15	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 04:15	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 04:15	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 04:15	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 04:15	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 04:15	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 04:15	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 04:15	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 04:15	WG1375600
(S) Toluene-d8	*91.1*		*80.0-120*		*11/06/2019 04:15*	WG1375600
(S) 4-Bromofluorobenzene	*96.7*		*77.0-126*		*11/06/2019 04:15*	WG1375600
(S) 1,2-Dichloroethane-d4	*95.0*		*70.0-130*		*11/06/2019 04:15*	WG1375600

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J0	25.0	1	11/06/2019 04:36	WG1375600
Acrylonitrile	ND		5.00	1	11/06/2019 04:36	WG1375600
Benzene	ND		0.500	1	11/06/2019 04:36	WG1375600
Bromobenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
Bromodichloromethane	ND		0.500	1	11/06/2019 04:36	WG1375600
Bromochloromethane	ND		0.500	1	11/06/2019 04:36	WG1375600
Bromoform	ND		0.500	1	11/06/2019 04:36	WG1375600
Bromomethane	ND		2.50	1	11/06/2019 04:36	WG1375600
n-Butylbenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
sec-Butylbenzene	ND	J0	0.500	1	11/06/2019 04:36	WG1375600
tert-Butylbenzene	ND	J0 J4	0.500	1	11/06/2019 04:36	WG1375600
Carbon disulfide	ND		0.500	1	11/06/2019 04:36	WG1375600
Carbon tetrachloride	ND		0.500	1	11/06/2019 04:36	WG1375600
Chlorobenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
Chlorodibromomethane	ND		0.500	1	11/06/2019 04:36	WG1375600
Chloroethane	ND		2.50	1	11/06/2019 04:36	WG1375600
Chloroform	ND		0.500	1	11/06/2019 04:36	WG1375600
Chloromethane	ND		1.25	1	11/06/2019 04:36	WG1375600
2-Chlorotoluene	ND		0.500	1	11/06/2019 04:36	WG1375600
4-Chlorotoluene	ND		0.500	1	11/06/2019 04:36	WG1375600
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 04:36	WG1375600
1,2-Dibromoethane	ND		0.500	1	11/06/2019 04:36	WG1375600
Dibromomethane	ND		0.500	1	11/06/2019 04:36	WG1375600
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 04:36	WG1375600
1,1-Dichloroethane	ND		0.500	1	11/06/2019 04:36	WG1375600
1,2-Dichloroethane	ND		0.500	1	11/06/2019 04:36	WG1375600
1,1-Dichloroethene	ND		0.500	1	11/06/2019 04:36	WG1375600
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 04:36	WG1375600
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 04:36	WG1375600
1,2-Dichloropropane	ND		0.500	1	11/06/2019 04:36	WG1375600
1,1-Dichloropropene	ND		0.500	1	11/06/2019 04:36	WG1375600
1,3-Dichloropropane	ND		1.00	1	11/06/2019 04:36	WG1375600
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 04:36	WG1375600
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 04:36	WG1375600
trans-1,4-Dichloro-2-butene	ND	J0	5.00	1	11/06/2019 04:36	WG1375600
2,2-Dichloropropane	ND		0.500	1	11/06/2019 04:36	WG1375600
Di-isopropyl ether	ND		0.500	1	11/06/2019 04:36	WG1375600
Ethylbenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 04:36	WG1375600
2-Hexanone	ND		5.00	1	11/06/2019 04:36	WG1375600
n-Hexane	ND		5.00	1	11/06/2019 04:36	WG1375600
Iodomethane	ND		10.0	1	11/06/2019 04:36	WG1375600
Isopropylbenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
p-Isopropyltoluene	ND		0.500	1	11/06/2019 04:36	WG1375600
2-Butanone (MEK)	ND		5.00	1	11/06/2019 04:36	WG1375600
Methylene Chloride	ND		2.50	1	11/06/2019 04:36	WG1375600
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 04:36	WG1375600
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 04:36	WG1375600
Naphthalene	ND		2.50	1	11/06/2019 04:36	WG1375600
n-Propylbenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
Styrene	ND		0.500	1	11/06/2019 04:36	WG1375600
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 04:36	WG1375600
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 04:36	WG1375600

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	11/06/2019 04:36	WG1375600
Tetrachloroethene	11.3		0.500	1	11/06/2019 04:36	WG1375600
Toluene	ND		0.500	1	11/06/2019 04:36	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 04:36	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 04:36	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 04:36	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 04:36	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 04:36	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 04:36	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 04:36	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 04:36	WG1375600
(S) Toluene-d8	*91.8*		*80.0-120*		*11/06/2019 04:36*	WG1375600
(S) 4-Bromofluorobenzene	*98.8*		*77.0-126*		*11/06/2019 04:36*	WG1375600
(S) 1,2-Dichloroethane-d4	*96.0*		*70.0-130*		*11/06/2019 04:36*	WG1375600

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	11/06/2019 04:56	WG1375600
Acrylonitrile	ND		5.00	1	11/06/2019 04:56	WG1375600
Benzene	ND		0.500	1	11/06/2019 04:56	WG1375600
Bromobenzene	ND		0.500	1	11/06/2019 04:56	WG1375600
Bromodichloromethane	ND		0.500	1	11/06/2019 04:56	WG1375600
Bromochloromethane	ND		0.500	1	11/06/2019 04:56	WG1375600
Bromoform	ND		0.500	1	11/06/2019 04:56	WG1375600
Bromomethane	ND		2.50	1	11/06/2019 04:56	WG1375600
n-Butylbenzene	ND		0.500	1	11/06/2019 04:56	WG1375600
sec-Butylbenzene	ND	J0	0.500	1	11/06/2019 04:56	WG1375600
tert-Butylbenzene	ND	J0 J4	0.500	1	11/06/2019 04:56	WG1375600
Carbon disulfide	ND		0.500	1	11/06/2019 04:56	WG1375600
Carbon tetrachloride	ND		0.500	1	11/06/2019 04:56	WG1375600
Chlorobenzene	ND		0.500	1	11/06/2019 04:56	WG1375600
Chlorodibromomethane	ND		0.500	1	11/06/2019 04:56	WG1375600
Chloroethane	ND		2.50	1	11/06/2019 04:56	WG1375600
Chloroform	ND		0.500	1	11/06/2019 04:56	WG1375600
Chloromethane	ND		1.25	1	11/06/2019 04:56	WG1375600
2-Chlorotoluene	ND		0.500	1	11/06/2019 04:56	WG1375600
4-Chlorotoluene	ND		0.500	1	11/06/2019 04:56	WG1375600
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 04:56	WG1375600
1,2-Dibromoethane	ND		0.500	1	11/06/2019 04:56	WG1375600
Dibromomethane	ND		0.500	1	11/06/2019 04:56	WG1375600
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 04:56	WG1375600
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 04:56	WG1375600
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 04:56	WG1375600
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 04:56	WG1375600
1,1-Dichloroethane	ND		0.500	1	11/06/2019 04:56	WG1375600
1,2-Dichloroethane	ND		0.500	1	11/06/2019 04:56	WG1375600
1,1-Dichloroethene	ND		0.500	1	11/06/2019 04:56	WG1375600
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 04:56	WG1375600
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 04:56	WG1375600
1,2-Dichloropropane	ND		0.500	1	11/06/2019 04:56	WG1375600
1,1-Dichloropropene	ND		0.500	1	11/06/2019 04:56	WG1375600
1,3-Dichloropropane	ND		1.00	1	11/06/2019 04:56	WG1375600
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 04:56	WG1375600
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 04:56	WG1375600
trans-1,4-Dichloro-2-butene	ND	J0	5.00	1	11/06/2019 04:56	WG1375600
2,2-Dichloropropane	ND		0.500	1	11/06/2019 04:56	WG1375600
Di-isopropyl ether	ND		0.500	1	11/06/2019 04:56	WG1375600
Ethylbenzene	ND		0.500	1	11/06/2019 04:56	WG1375600
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 04:56	WG1375600
2-Hexanone	ND		5.00	1	11/06/2019 04:56	WG1375600
n-Hexane	ND		5.00	1	11/06/2019 04:56	WG1375600
Iodomethane	ND		10.0	1	11/06/2019 04:56	WG1375600
Isopropylbenzene	ND		0.500	1	11/06/2019 04:56	WG1375600
p-Isopropyltoluene	ND		0.500	1	11/06/2019 04:56	WG1375600
2-Butanone (MEK)	ND		5.00	1	11/06/2019 04:56	WG1375600
Methylene Chloride	ND		2.50	1	11/06/2019 04:56	WG1375600
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 04:56	WG1375600
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 04:56	WG1375600
Naphthalene	ND		2.50	1	11/06/2019 04:56	WG1375600
n-Propylbenzene	ND		0.500	1	11/06/2019 04:56	WG1375600
Styrene	ND		0.500	1	11/06/2019 04:56	WG1375600
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 04:56	WG1375600
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 04:56	WG1375600

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	11/06/2019 04:56	WG1375600
Tetrachloroethene	2.85		0.500	1	11/06/2019 04:56	WG1375600
Toluene	ND		0.500	1	11/06/2019 04:56	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 04:56	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 04:56	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 04:56	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 04:56	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 04:56	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 04:56	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 04:56	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 04:56	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 04:56	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 04:56	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 04:56	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 04:56	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 04:56	WG1375600
(S) Toluene-d8	*94.6*		*80.0-120*		*11/06/2019 04:56*	WG1375600
(S) 4-Bromofluorobenzene	*98.3*		*77.0-126*		*11/06/2019 04:56*	WG1375600
(S) 1,2-Dichloroethane-d4	*94.6*		*70.0-130*		*11/06/2019 04:56*	WG1375600

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	11/06/2019 05:17	WG1375600
Acrylonitrile	ND		5.00	1	11/06/2019 05:17	WG1375600
Benzene	ND		0.500	1	11/06/2019 05:17	WG1375600
Bromobenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
Bromodichloromethane	ND		0.500	1	11/06/2019 05:17	WG1375600
Bromochloromethane	ND		0.500	1	11/06/2019 05:17	WG1375600
Bromoform	ND		0.500	1	11/06/2019 05:17	WG1375600
Bromomethane	ND		2.50	1	11/06/2019 05:17	WG1375600
n-Butylbenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
sec-Butylbenzene	ND	J0	0.500	1	11/06/2019 05:17	WG1375600
tert-Butylbenzene	ND	J0 J4	0.500	1	11/06/2019 05:17	WG1375600
Carbon disulfide	ND		0.500	1	11/06/2019 05:17	WG1375600
Carbon tetrachloride	ND		0.500	1	11/06/2019 05:17	WG1375600
Chlorobenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
Chlorodibromomethane	ND		0.500	1	11/06/2019 05:17	WG1375600
Chloroethane	ND		2.50	1	11/06/2019 05:17	WG1375600
Chloroform	0.560		0.500	1	11/06/2019 05:17	WG1375600
Chloromethane	ND		1.25	1	11/06/2019 05:17	WG1375600
2-Chlorotoluene	ND		0.500	1	11/06/2019 05:17	WG1375600
4-Chlorotoluene	ND		0.500	1	11/06/2019 05:17	WG1375600
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 05:17	WG1375600
1,2-Dibromoethane	ND		0.500	1	11/06/2019 05:17	WG1375600
Dibromomethane	ND		0.500	1	11/06/2019 05:17	WG1375600
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 05:17	WG1375600
1,1-Dichloroethane	ND		0.500	1	11/06/2019 05:17	WG1375600
1,2-Dichloroethane	ND		0.500	1	11/06/2019 05:17	WG1375600
1,1-Dichloroethene	ND		0.500	1	11/06/2019 05:17	WG1375600
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 05:17	WG1375600
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 05:17	WG1375600
1,2-Dichloropropane	ND		0.500	1	11/06/2019 05:17	WG1375600
1,1-Dichloropropene	ND		0.500	1	11/06/2019 05:17	WG1375600
1,3-Dichloropropane	ND		1.00	1	11/06/2019 05:17	WG1375600
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 05:17	WG1375600
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 05:17	WG1375600
trans-1,4-Dichloro-2-butene	ND	J0	5.00	1	11/06/2019 05:17	WG1375600
2,2-Dichloropropane	ND		0.500	1	11/06/2019 05:17	WG1375600
Di-isopropyl ether	ND		0.500	1	11/06/2019 05:17	WG1375600
Ethylbenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 05:17	WG1375600
2-Hexanone	ND		5.00	1	11/06/2019 05:17	WG1375600
n-Hexane	ND		5.00	1	11/06/2019 05:17	WG1375600
Iodomethane	ND		10.0	1	11/06/2019 05:17	WG1375600
Isopropylbenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
p-Isopropyltoluene	ND		0.500	1	11/06/2019 05:17	WG1375600
2-Butanone (MEK)	ND		5.00	1	11/06/2019 05:17	WG1375600
Methylene Chloride	ND		2.50	1	11/06/2019 05:17	WG1375600
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 05:17	WG1375600
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 05:17	WG1375600
Naphthalene	ND		2.50	1	11/06/2019 05:17	WG1375600
n-Propylbenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
Styrene	ND		0.500	1	11/06/2019 05:17	WG1375600
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 05:17	WG1375600
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 05:17	WG1375600

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	11/06/2019 05:17	WG1375600
Tetrachloroethene	ND		0.500	1	11/06/2019 05:17	WG1375600
Toluene	ND		0.500	1	11/06/2019 05:17	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 05:17	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 05:17	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 05:17	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 05:17	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 05:17	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 05:17	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 05:17	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 05:17	WG1375600
(S) Toluene-d8	*96.6*		*80.0-120*		*11/06/2019 05:17*	WG1375600
(S) 4-Bromofluorobenzene	*99.6*		*77.0-126*		*11/06/2019 05:17*	WG1375600
(S) 1,2-Dichloroethane-d4	*92.8*		*70.0-130*		*11/06/2019 05:17*	WG1375600

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	11/06/2019 05:37	WG1375600
Acrylonitrile	ND		5.00	1	11/06/2019 05:37	WG1375600
Benzene	ND		0.500	1	11/06/2019 05:37	WG1375600
Bromobenzene	ND		0.500	1	11/06/2019 05:37	WG1375600
Bromodichloromethane	ND		0.500	1	11/06/2019 05:37	WG1375600
Bromochloromethane	ND		0.500	1	11/06/2019 05:37	WG1375600
Bromoform	ND		0.500	1	11/06/2019 05:37	WG1375600
Bromomethane	ND		2.50	1	11/06/2019 05:37	WG1375600
n-Butylbenzene	ND		0.500	1	11/06/2019 05:37	WG1375600
sec-Butylbenzene	ND	J0	0.500	1	11/06/2019 05:37	WG1375600
tert-Butylbenzene	ND	J0 J4	0.500	1	11/06/2019 05:37	WG1375600
Carbon disulfide	ND		0.500	1	11/06/2019 05:37	WG1375600
Carbon tetrachloride	ND		0.500	1	11/06/2019 05:37	WG1375600
Chlorobenzene	ND		0.500	1	11/06/2019 05:37	WG1375600
Chlorodibromomethane	ND		0.500	1	11/06/2019 05:37	WG1375600
Chloroethane	ND		2.50	1	11/06/2019 05:37	WG1375600
Chloroform	0.547		0.500	1	11/06/2019 05:37	WG1375600
Chloromethane	ND		1.25	1	11/06/2019 05:37	WG1375600
2-Chlorotoluene	ND		0.500	1	11/06/2019 05:37	WG1375600
4-Chlorotoluene	ND		0.500	1	11/06/2019 05:37	WG1375600
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 05:37	WG1375600
1,2-Dibromoethane	ND		0.500	1	11/06/2019 05:37	WG1375600
Dibromomethane	ND		0.500	1	11/06/2019 05:37	WG1375600
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 05:37	WG1375600
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 05:37	WG1375600
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 05:37	WG1375600
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 05:37	WG1375600
1,1-Dichloroethane	ND		0.500	1	11/06/2019 05:37	WG1375600
1,2-Dichloroethane	ND		0.500	1	11/06/2019 05:37	WG1375600
1,1-Dichloroethene	ND		0.500	1	11/06/2019 05:37	WG1375600
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 05:37	WG1375600
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 05:37	WG1375600
1,2-Dichloropropane	ND		0.500	1	11/06/2019 05:37	WG1375600
1,1-Dichloropropene	ND		0.500	1	11/06/2019 05:37	WG1375600
1,3-Dichloropropane	ND		1.00	1	11/06/2019 05:37	WG1375600
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 05:37	WG1375600
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 05:37	WG1375600
trans-1,4-Dichloro-2-butene	ND	J0	5.00	1	11/06/2019 05:37	WG1375600
2,2-Dichloropropane	ND		0.500	1	11/06/2019 05:37	WG1375600
Di-isopropyl ether	ND		0.500	1	11/06/2019 05:37	WG1375600
Ethylbenzene	ND		0.500	1	11/06/2019 05:37	WG1375600
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 05:37	WG1375600
2-Hexanone	ND		5.00	1	11/06/2019 05:37	WG1375600
n-Hexane	ND		5.00	1	11/06/2019 05:37	WG1375600
Iodomethane	ND		10.0	1	11/06/2019 05:37	WG1375600
Isopropylbenzene	ND		0.500	1	11/06/2019 05:37	WG1375600
p-Isopropyltoluene	ND		0.500	1	11/06/2019 05:37	WG1375600
2-Butanone (MEK)	ND		5.00	1	11/06/2019 05:37	WG1375600
Methylene Chloride	ND		2.50	1	11/06/2019 05:37	WG1375600
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 05:37	WG1375600
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 05:37	WG1375600
Naphthalene	ND		2.50	1	11/06/2019 05:37	WG1375600
n-Propylbenzene	ND		0.500	1	11/06/2019 05:37	WG1375600
Styrene	ND		0.500	1	11/06/2019 05:37	WG1375600
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 05:37	WG1375600
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 05:37	WG1375600

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	11/06/2019 05:37	WG1375600
Tetrachloroethene	ND		0.500	1	11/06/2019 05:37	WG1375600
Toluene	ND		0.500	1	11/06/2019 05:37	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 05:37	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 05:37	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 05:37	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 05:37	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 05:37	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 05:37	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 05:37	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 05:37	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 05:37	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 05:37	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 05:37	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 05:37	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 05:37	WG1375600
(S) Toluene-d8	*92.6*		*80.0-120*		*11/06/2019 05:37*	WG1375600
(S) 4-Bromofluorobenzene	*97.6*		*77.0-126*		*11/06/2019 05:37*	WG1375600
(S) 1,2-Dichloroethane-d4	*95.6*		*70.0-130*		*11/06/2019 05:37*	WG1375600

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J0	25.0	1	11/06/2019 05:58	WG1375600
Acrylonitrile	ND		5.00	1	11/06/2019 05:58	WG1375600
Benzene	ND		0.500	1	11/06/2019 05:58	WG1375600
Bromobenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
Bromodichloromethane	ND		0.500	1	11/06/2019 05:58	WG1375600
Bromochloromethane	ND		0.500	1	11/06/2019 05:58	WG1375600
Bromoform	ND		0.500	1	11/06/2019 05:58	WG1375600
Bromomethane	ND		2.50	1	11/06/2019 05:58	WG1375600
n-Butylbenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
sec-Butylbenzene	ND	J0	0.500	1	11/06/2019 05:58	WG1375600
tert-Butylbenzene	ND	J0 J4	0.500	1	11/06/2019 05:58	WG1375600
Carbon disulfide	ND		0.500	1	11/06/2019 05:58	WG1375600
Carbon tetrachloride	ND		0.500	1	11/06/2019 05:58	WG1375600
Chlorobenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
Chlorodibromomethane	ND		0.500	1	11/06/2019 05:58	WG1375600
Chloroethane	ND		2.50	1	11/06/2019 05:58	WG1375600
Chloroform	ND		0.500	1	11/06/2019 05:58	WG1375600
Chloromethane	ND		1.25	1	11/06/2019 05:58	WG1375600
2-Chlorotoluene	ND		0.500	1	11/06/2019 05:58	WG1375600
4-Chlorotoluene	ND		0.500	1	11/06/2019 05:58	WG1375600
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 05:58	WG1375600
1,2-Dibromoethane	ND		0.500	1	11/06/2019 05:58	WG1375600
Dibromomethane	ND		0.500	1	11/06/2019 05:58	WG1375600
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 05:58	WG1375600
1,1-Dichloroethane	ND		0.500	1	11/06/2019 05:58	WG1375600
1,2-Dichloroethane	ND		0.500	1	11/06/2019 05:58	WG1375600
1,1-Dichloroethene	ND		0.500	1	11/06/2019 05:58	WG1375600
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 05:58	WG1375600
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 05:58	WG1375600
1,2-Dichloropropane	ND		0.500	1	11/06/2019 05:58	WG1375600
1,1-Dichloropropene	ND		0.500	1	11/06/2019 05:58	WG1375600
1,3-Dichloropropane	ND		1.00	1	11/06/2019 05:58	WG1375600
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 05:58	WG1375600
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 05:58	WG1375600
trans-1,4-Dichloro-2-butene	ND	J0	5.00	1	11/06/2019 05:58	WG1375600
2,2-Dichloropropane	ND		0.500	1	11/06/2019 05:58	WG1375600
Di-isopropyl ether	ND		0.500	1	11/06/2019 05:58	WG1375600
Ethylbenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 05:58	WG1375600
2-Hexanone	ND		5.00	1	11/06/2019 05:58	WG1375600
n-Hexane	ND		5.00	1	11/06/2019 05:58	WG1375600
Iodomethane	ND		10.0	1	11/06/2019 05:58	WG1375600
Isopropylbenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
p-Isopropyltoluene	ND		0.500	1	11/06/2019 05:58	WG1375600
2-Butanone (MEK)	ND		5.00	1	11/06/2019 05:58	WG1375600
Methylene Chloride	ND		2.50	1	11/06/2019 05:58	WG1375600
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 05:58	WG1375600
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 05:58	WG1375600
Naphthalene	ND		2.50	1	11/06/2019 05:58	WG1375600
n-Propylbenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
Styrene	ND		0.500	1	11/06/2019 05:58	WG1375600
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 05:58	WG1375600
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 05:58	WG1375600

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	11/06/2019 05:58	WG1375600
Tetrachloroethene	15.0		0.500	1	11/06/2019 05:58	WG1375600
Toluene	ND		0.500	1	11/06/2019 05:58	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 05:58	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 05:58	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 05:58	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 05:58	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 05:58	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 05:58	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 05:58	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 05:58	WG1375600
(S) Toluene-d8	*93.9*		*80.0-120*		*11/06/2019 05:58*	WG1375600
(S) 4-Bromofluorobenzene	*101*		*77.0-126*		*11/06/2019 05:58*	WG1375600
(S) 1,2-Dichloroethane-d4	*96.7*		*70.0-130*		*11/06/2019 05:58*	WG1375600

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J0	25.0	1	11/06/2019 06:18	WG1375600
Acrylonitrile	ND		5.00	1	11/06/2019 06:18	WG1375600
Benzene	ND		0.500	1	11/06/2019 06:18	WG1375600
Bromobenzene	ND		0.500	1	11/06/2019 06:18	WG1375600
Bromodichloromethane	ND		0.500	1	11/06/2019 06:18	WG1375600
Bromochloromethane	ND		0.500	1	11/06/2019 06:18	WG1375600
Bromoform	ND		0.500	1	11/06/2019 06:18	WG1375600
Bromomethane	ND		2.50	1	11/06/2019 06:18	WG1375600
n-Butylbenzene	ND		0.500	1	11/06/2019 06:18	WG1375600
sec-Butylbenzene	ND	J0	0.500	1	11/06/2019 06:18	WG1375600
tert-Butylbenzene	ND	J0 J4	0.500	1	11/06/2019 06:18	WG1375600
Carbon disulfide	ND		0.500	1	11/06/2019 06:18	WG1375600
Carbon tetrachloride	ND		0.500	1	11/06/2019 06:18	WG1375600
Chlorobenzene	ND		0.500	1	11/06/2019 06:18	WG1375600
Chlorodibromomethane	ND		0.500	1	11/06/2019 06:18	WG1375600
Chloroethane	ND		2.50	1	11/06/2019 06:18	WG1375600
Chloroform	ND		0.500	1	11/06/2019 06:18	WG1375600
Chloromethane	ND		1.25	1	11/06/2019 06:18	WG1375600
2-Chlorotoluene	ND		0.500	1	11/06/2019 06:18	WG1375600
4-Chlorotoluene	ND		0.500	1	11/06/2019 06:18	WG1375600
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 06:18	WG1375600
1,2-Dibromoethane	ND		0.500	1	11/06/2019 06:18	WG1375600
Dibromomethane	ND		0.500	1	11/06/2019 06:18	WG1375600
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 06:18	WG1375600
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 06:18	WG1375600
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 06:18	WG1375600
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 06:18	WG1375600
1,1-Dichloroethane	ND		0.500	1	11/06/2019 06:18	WG1375600
1,2-Dichloroethane	ND		0.500	1	11/06/2019 06:18	WG1375600
1,1-Dichloroethene	ND		0.500	1	11/06/2019 06:18	WG1375600
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 06:18	WG1375600
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 06:18	WG1375600
1,2-Dichloropropane	ND		0.500	1	11/06/2019 06:18	WG1375600
1,1-Dichloropropene	ND		0.500	1	11/06/2019 06:18	WG1375600
1,3-Dichloropropane	ND		1.00	1	11/06/2019 06:18	WG1375600
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 06:18	WG1375600
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 06:18	WG1375600
trans-1,4-Dichloro-2-butene	ND	J0	5.00	1	11/06/2019 06:18	WG1375600
2,2-Dichloropropane	ND		0.500	1	11/06/2019 06:18	WG1375600
Di-isopropyl ether	ND		0.500	1	11/06/2019 06:18	WG1375600
Ethylbenzene	ND		0.500	1	11/06/2019 06:18	WG1375600
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 06:18	WG1375600
2-Hexanone	ND		5.00	1	11/06/2019 06:18	WG1375600
n-Hexane	ND		5.00	1	11/06/2019 06:18	WG1375600
Iodomethane	ND		10.0	1	11/06/2019 06:18	WG1375600
Isopropylbenzene	ND		0.500	1	11/06/2019 06:18	WG1375600
p-Isopropyltoluene	ND		0.500	1	11/06/2019 06:18	WG1375600
2-Butanone (MEK)	ND		5.00	1	11/06/2019 06:18	WG1375600
Methylene Chloride	ND		2.50	1	11/06/2019 06:18	WG1375600
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 06:18	WG1375600
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 06:18	WG1375600
Naphthalene	ND		2.50	1	11/06/2019 06:18	WG1375600
n-Propylbenzene	ND		0.500	1	11/06/2019 06:18	WG1375600
Styrene	ND		0.500	1	11/06/2019 06:18	WG1375600
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 06:18	WG1375600
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 06:18	WG1375600

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	11/06/2019 06:18	WG1375600
Tetrachloroethene	0.631		0.500	1	11/06/2019 06:18	WG1375600
Toluene	ND		0.500	1	11/06/2019 06:18	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 06:18	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 06:18	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 06:18	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 06:18	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 06:18	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 06:18	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 06:18	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 06:18	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 06:18	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 06:18	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 06:18	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 06:18	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 06:18	WG1375600
(S) Toluene-d8	*93.1*		*80.0-120*		*11/06/2019 06:18*	WG1375600
(S) 4-Bromofluorobenzene	*101*		*77.0-126*		*11/06/2019 06:18*	WG1375600
(S) 1,2-Dichloroethane-d4	*93.6*		*70.0-130*		*11/06/2019 06:18*	WG1375600

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	11/06/2019 06:39	WG1375600
Acrylonitrile	ND		5.00	1	11/06/2019 06:39	WG1375600
Benzene	ND		0.500	1	11/06/2019 06:39	WG1375600
Bromobenzene	ND		0.500	1	11/06/2019 06:39	WG1375600
Bromodichloromethane	ND		0.500	1	11/06/2019 06:39	WG1375600
Bromochloromethane	ND		0.500	1	11/06/2019 06:39	WG1375600
Bromoform	ND		0.500	1	11/06/2019 06:39	WG1375600
Bromomethane	ND		2.50	1	11/06/2019 06:39	WG1375600
n-Butylbenzene	ND		0.500	1	11/06/2019 06:39	WG1375600
sec-Butylbenzene	ND	J0	0.500	1	11/06/2019 06:39	WG1375600
tert-Butylbenzene	ND	J0 J4	0.500	1	11/06/2019 06:39	WG1375600
Carbon disulfide	ND		0.500	1	11/06/2019 06:39	WG1375600
Carbon tetrachloride	ND		0.500	1	11/06/2019 06:39	WG1375600
Chlorobenzene	ND		0.500	1	11/06/2019 06:39	WG1375600
Chlorodibromomethane	ND		0.500	1	11/06/2019 06:39	WG1375600
Chloroethane	ND		2.50	1	11/06/2019 06:39	WG1375600
Chloroform	ND		0.500	1	11/06/2019 06:39	WG1375600
Chloromethane	ND		1.25	1	11/06/2019 06:39	WG1375600
2-Chlorotoluene	ND		0.500	1	11/06/2019 06:39	WG1375600
4-Chlorotoluene	ND		0.500	1	11/06/2019 06:39	WG1375600
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 06:39	WG1375600
1,2-Dibromoethane	ND		0.500	1	11/06/2019 06:39	WG1375600
Dibromomethane	ND		0.500	1	11/06/2019 06:39	WG1375600
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 06:39	WG1375600
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 06:39	WG1375600
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 06:39	WG1375600
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 06:39	WG1375600
1,1-Dichloroethane	ND		0.500	1	11/06/2019 06:39	WG1375600
1,2-Dichloroethane	ND		0.500	1	11/06/2019 06:39	WG1375600
1,1-Dichloroethene	ND		0.500	1	11/06/2019 06:39	WG1375600
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 06:39	WG1375600
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 06:39	WG1375600
1,2-Dichloropropane	ND		0.500	1	11/06/2019 06:39	WG1375600
1,1-Dichloropropene	ND		0.500	1	11/06/2019 06:39	WG1375600
1,3-Dichloropropane	ND		1.00	1	11/06/2019 06:39	WG1375600
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 06:39	WG1375600
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 06:39	WG1375600
trans-1,4-Dichloro-2-butene	ND	J0	5.00	1	11/06/2019 06:39	WG1375600
2,2-Dichloropropane	ND		0.500	1	11/06/2019 06:39	WG1375600
Di-isopropyl ether	ND		0.500	1	11/06/2019 06:39	WG1375600
Ethylbenzene	ND		0.500	1	11/06/2019 06:39	WG1375600
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 06:39	WG1375600
2-Hexanone	ND		5.00	1	11/06/2019 06:39	WG1375600
n-Hexane	ND		5.00	1	11/06/2019 06:39	WG1375600
Iodomethane	ND		10.0	1	11/06/2019 06:39	WG1375600
Isopropylbenzene	ND		0.500	1	11/06/2019 06:39	WG1375600
p-Isopropyltoluene	ND		0.500	1	11/06/2019 06:39	WG1375600
2-Butanone (MEK)	ND		5.00	1	11/06/2019 06:39	WG1375600
Methylene Chloride	ND		2.50	1	11/06/2019 06:39	WG1375600
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 06:39	WG1375600
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 06:39	WG1375600
Naphthalene	ND		2.50	1	11/06/2019 06:39	WG1375600
n-Propylbenzene	ND		0.500	1	11/06/2019 06:39	WG1375600
Styrene	ND		0.500	1	11/06/2019 06:39	WG1375600
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 06:39	WG1375600
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 06:39	WG1375600

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	11/06/2019 06:39	WG1375600
Tetrachloroethene	9.72		0.500	1	11/06/2019 06:39	WG1375600
Toluene	ND		0.500	1	11/06/2019 06:39	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 06:39	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 06:39	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 06:39	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 06:39	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 06:39	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 06:39	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 06:39	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 06:39	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 06:39	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 06:39	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 06:39	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 06:39	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 06:39	WG1375600
(S) Toluene-d8	*92.1*		*80.0-120*		*11/06/2019 06:39*	WG1375600
(S) 4-Bromofluorobenzene	*98.4*		*77.0-126*		*11/06/2019 06:39*	WG1375600
(S) 1,2-Dichloroethane-d4	*95.1*		*70.0-130*		*11/06/2019 06:39*	WG1375600

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	11/06/2019 06:59	WG1375600
Acrylonitrile	ND		5.00	1	11/06/2019 06:59	WG1375600
Benzene	ND		0.500	1	11/06/2019 06:59	WG1375600
Bromobenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
Bromodichloromethane	ND		0.500	1	11/06/2019 06:59	WG1375600
Bromochloromethane	ND		0.500	1	11/06/2019 06:59	WG1375600
Bromoform	ND		0.500	1	11/06/2019 06:59	WG1375600
Bromomethane	ND		2.50	1	11/06/2019 06:59	WG1375600
n-Butylbenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
sec-Butylbenzene	ND	J0	0.500	1	11/06/2019 06:59	WG1375600
tert-Butylbenzene	ND	J0 J4	0.500	1	11/06/2019 06:59	WG1375600
Carbon disulfide	ND		0.500	1	11/06/2019 06:59	WG1375600
Carbon tetrachloride	ND		0.500	1	11/06/2019 06:59	WG1375600
Chlorobenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
Chlorodibromomethane	ND		0.500	1	11/06/2019 06:59	WG1375600
Chloroethane	ND		2.50	1	11/06/2019 06:59	WG1375600
Chloroform	ND		0.500	1	11/06/2019 06:59	WG1375600
Chloromethane	ND		1.25	1	11/06/2019 06:59	WG1375600
2-Chlorotoluene	ND		0.500	1	11/06/2019 06:59	WG1375600
4-Chlorotoluene	ND		0.500	1	11/06/2019 06:59	WG1375600
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 06:59	WG1375600
1,2-Dibromoethane	ND		0.500	1	11/06/2019 06:59	WG1375600
Dibromomethane	ND		0.500	1	11/06/2019 06:59	WG1375600
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 06:59	WG1375600
1,1-Dichloroethane	ND		0.500	1	11/06/2019 06:59	WG1375600
1,2-Dichloroethane	ND		0.500	1	11/06/2019 06:59	WG1375600
1,1-Dichloroethene	ND		0.500	1	11/06/2019 06:59	WG1375600
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 06:59	WG1375600
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 06:59	WG1375600
1,2-Dichloropropane	ND		0.500	1	11/06/2019 06:59	WG1375600
1,1-Dichloropropene	ND		0.500	1	11/06/2019 06:59	WG1375600
1,3-Dichloropropane	ND		1.00	1	11/06/2019 06:59	WG1375600
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 06:59	WG1375600
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 06:59	WG1375600
trans-1,4-Dichloro-2-butene	ND	J0	5.00	1	11/06/2019 06:59	WG1375600
2,2-Dichloropropane	ND		0.500	1	11/06/2019 06:59	WG1375600
Di-isopropyl ether	ND		0.500	1	11/06/2019 06:59	WG1375600
Ethylbenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 06:59	WG1375600
2-Hexanone	ND		5.00	1	11/06/2019 06:59	WG1375600
n-Hexane	ND		5.00	1	11/06/2019 06:59	WG1375600
Iodomethane	ND		10.0	1	11/06/2019 06:59	WG1375600
Isopropylbenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
p-Isopropyltoluene	ND		0.500	1	11/06/2019 06:59	WG1375600
2-Butanone (MEK)	ND		5.00	1	11/06/2019 06:59	WG1375600
Methylene Chloride	ND		2.50	1	11/06/2019 06:59	WG1375600
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 06:59	WG1375600
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 06:59	WG1375600
Naphthalene	ND		2.50	1	11/06/2019 06:59	WG1375600
n-Propylbenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
Styrene	ND		0.500	1	11/06/2019 06:59	WG1375600
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 06:59	WG1375600
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 06:59	WG1375600

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	11/06/2019 06:59	WG1375600
Tetrachloroethene	16.3		0.500	1	11/06/2019 06:59	WG1375600
Toluene	ND		0.500	1	11/06/2019 06:59	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 06:59	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 06:59	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 06:59	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 06:59	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 06:59	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 06:59	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 06:59	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 06:59	WG1375600
(S) Toluene-d8	*92.5*		*80.0-120*		*11/06/2019 06:59*	WG1375600
(S) 4-Bromofluorobenzene	*96.4*		*77.0-126*		*11/06/2019 06:59*	WG1375600
(S) 1,2-Dichloroethane-d4	*95.9*		*70.0-130*		*11/06/2019 06:59*	WG1375600

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	11/06/2019 07:20	WG1375600
Acrylonitrile	ND		5.00	1	11/06/2019 07:20	WG1375600
Benzene	ND		0.500	1	11/06/2019 07:20	WG1375600
Bromobenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
Bromodichloromethane	ND		0.500	1	11/06/2019 07:20	WG1375600
Bromochloromethane	ND		0.500	1	11/06/2019 07:20	WG1375600
Bromoform	ND		0.500	1	11/06/2019 07:20	WG1375600
Bromomethane	ND		2.50	1	11/06/2019 07:20	WG1375600
n-Butylbenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
sec-Butylbenzene	ND	J0	0.500	1	11/06/2019 07:20	WG1375600
tert-Butylbenzene	ND	J0 J4	0.500	1	11/06/2019 07:20	WG1375600
Carbon disulfide	ND		0.500	1	11/06/2019 07:20	WG1375600
Carbon tetrachloride	ND		0.500	1	11/06/2019 07:20	WG1375600
Chlorobenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
Chlorodibromomethane	ND		0.500	1	11/06/2019 07:20	WG1375600
Chloroethane	ND		2.50	1	11/06/2019 07:20	WG1375600
Chloroform	ND		0.500	1	11/06/2019 07:20	WG1375600
Chloromethane	ND		1.25	1	11/06/2019 07:20	WG1375600
2-Chlorotoluene	ND		0.500	1	11/06/2019 07:20	WG1375600
4-Chlorotoluene	ND		0.500	1	11/06/2019 07:20	WG1375600
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 07:20	WG1375600
1,2-Dibromoethane	ND		0.500	1	11/06/2019 07:20	WG1375600
Dibromomethane	ND		0.500	1	11/06/2019 07:20	WG1375600
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 07:20	WG1375600
1,1-Dichloroethane	ND		0.500	1	11/06/2019 07:20	WG1375600
1,2-Dichloroethane	ND		0.500	1	11/06/2019 07:20	WG1375600
1,1-Dichloroethene	ND		0.500	1	11/06/2019 07:20	WG1375600
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 07:20	WG1375600
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 07:20	WG1375600
1,2-Dichloropropane	ND		0.500	1	11/06/2019 07:20	WG1375600
1,1-Dichloropropene	ND		0.500	1	11/06/2019 07:20	WG1375600
1,3-Dichloropropane	ND		1.00	1	11/06/2019 07:20	WG1375600
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 07:20	WG1375600
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 07:20	WG1375600
trans-1,4-Dichloro-2-butene	ND	J0	5.00	1	11/06/2019 07:20	WG1375600
2,2-Dichloropropane	ND		0.500	1	11/06/2019 07:20	WG1375600
Di-isopropyl ether	ND		0.500	1	11/06/2019 07:20	WG1375600
Ethylbenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 07:20	WG1375600
2-Hexanone	ND		5.00	1	11/06/2019 07:20	WG1375600
n-Hexane	ND		5.00	1	11/06/2019 07:20	WG1375600
Iodomethane	ND		10.0	1	11/06/2019 07:20	WG1375600
Isopropylbenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
p-Isopropyltoluene	ND		0.500	1	11/06/2019 07:20	WG1375600
2-Butanone (MEK)	ND		5.00	1	11/06/2019 07:20	WG1375600
Methylene Chloride	ND		2.50	1	11/06/2019 07:20	WG1375600
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 07:20	WG1375600
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 07:20	WG1375600
Naphthalene	ND		2.50	1	11/06/2019 07:20	WG1375600
n-Propylbenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
Styrene	ND		0.500	1	11/06/2019 07:20	WG1375600
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 07:20	WG1375600
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 07:20	WG1375600

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	11/06/2019 07:20	WG1375600
Tetrachloroethene	17.1		0.500	1	11/06/2019 07:20	WG1375600
Toluene	ND		0.500	1	11/06/2019 07:20	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 07:20	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 07:20	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 07:20	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 07:20	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 07:20	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 07:20	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 07:20	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 07:20	WG1375600
(S) Toluene-d8	*90.2*		*80.0-120*		*11/06/2019 07:20*	WG1375600
(S) 4-Bromofluorobenzene	*92.1*		*77.0-126*		*11/06/2019 07:20*	WG1375600
(S) 1,2-Dichloroethane-d4	*96.3*		*70.0-130*		*11/06/2019 07:20*	WG1375600

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	11/06/2019 07:41	WG1375600
Acrylonitrile	ND		5.00	1	11/06/2019 07:41	WG1375600
Benzene	ND		0.500	1	11/06/2019 07:41	WG1375600
Bromobenzene	ND		0.500	1	11/06/2019 07:41	WG1375600
Bromodichloromethane	ND		0.500	1	11/06/2019 07:41	WG1375600
Bromochloromethane	ND		0.500	1	11/06/2019 07:41	WG1375600
Bromoform	ND		0.500	1	11/06/2019 07:41	WG1375600
Bromomethane	ND		2.50	1	11/06/2019 07:41	WG1375600
n-Butylbenzene	ND		0.500	1	11/06/2019 07:41	WG1375600
sec-Butylbenzene	ND	J0	0.500	1	11/06/2019 07:41	WG1375600
tert-Butylbenzene	ND	J0 J4	0.500	1	11/06/2019 07:41	WG1375600
Carbon disulfide	ND		0.500	1	11/06/2019 07:41	WG1375600
Carbon tetrachloride	ND		0.500	1	11/06/2019 07:41	WG1375600
Chlorobenzene	ND		0.500	1	11/06/2019 07:41	WG1375600
Chlorodibromomethane	ND		0.500	1	11/06/2019 07:41	WG1375600
Chloroethane	ND		2.50	1	11/06/2019 07:41	WG1375600
Chloroform	ND		0.500	1	11/06/2019 07:41	WG1375600
Chloromethane	ND		1.25	1	11/06/2019 07:41	WG1375600
2-Chlorotoluene	ND		0.500	1	11/06/2019 07:41	WG1375600
4-Chlorotoluene	ND		0.500	1	11/06/2019 07:41	WG1375600
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 07:41	WG1375600
1,2-Dibromoethane	ND		0.500	1	11/06/2019 07:41	WG1375600
Dibromomethane	ND		0.500	1	11/06/2019 07:41	WG1375600
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 07:41	WG1375600
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 07:41	WG1375600
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 07:41	WG1375600
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 07:41	WG1375600
1,1-Dichloroethane	ND		0.500	1	11/06/2019 07:41	WG1375600
1,2-Dichloroethane	ND		0.500	1	11/06/2019 07:41	WG1375600
1,1-Dichloroethene	ND		0.500	1	11/06/2019 07:41	WG1375600
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 07:41	WG1375600
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 07:41	WG1375600
1,2-Dichloropropane	ND		0.500	1	11/06/2019 07:41	WG1375600
1,1-Dichloropropene	ND		0.500	1	11/06/2019 07:41	WG1375600
1,3-Dichloropropane	ND		1.00	1	11/06/2019 07:41	WG1375600
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 07:41	WG1375600
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 07:41	WG1375600
trans-1,4-Dichloro-2-butene	ND	J0	5.00	1	11/06/2019 07:41	WG1375600
2,2-Dichloropropane	ND		0.500	1	11/06/2019 07:41	WG1375600
Di-isopropyl ether	ND		0.500	1	11/06/2019 07:41	WG1375600
Ethylbenzene	ND		0.500	1	11/06/2019 07:41	WG1375600
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 07:41	WG1375600
2-Hexanone	ND		5.00	1	11/06/2019 07:41	WG1375600
n-Hexane	ND		5.00	1	11/06/2019 07:41	WG1375600
Iodomethane	ND		10.0	1	11/06/2019 07:41	WG1375600
Isopropylbenzene	ND		0.500	1	11/06/2019 07:41	WG1375600
p-Isopropyltoluene	ND		0.500	1	11/06/2019 07:41	WG1375600
2-Butanone (MEK)	ND		5.00	1	11/06/2019 07:41	WG1375600
Methylene Chloride	ND		2.50	1	11/06/2019 07:41	WG1375600
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 07:41	WG1375600
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 07:41	WG1375600
Naphthalene	ND		2.50	1	11/06/2019 07:41	WG1375600
n-Propylbenzene	ND		0.500	1	11/06/2019 07:41	WG1375600
Styrene	ND		0.500	1	11/06/2019 07:41	WG1375600
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 07:41	WG1375600
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 07:41	WG1375600

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	11/06/2019 07:41	WG1375600
Tetrachloroethene	5.72		0.500	1	11/06/2019 07:41	WG1375600
Toluene	ND		0.500	1	11/06/2019 07:41	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 07:41	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 07:41	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 07:41	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 07:41	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 07:41	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 07:41	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 07:41	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 07:41	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 07:41	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 07:41	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 07:41	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 07:41	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 07:41	WG1375600
(S) Toluene-d8	*92.9*		*80.0-120*		*11/06/2019 07:41*	WG1375600
(S) 4-Bromofluorobenzene	*99.1*		*77.0-126*		*11/06/2019 07:41*	WG1375600
(S) 1,2-Dichloroethane-d4	*101*		*70.0-130*		*11/06/2019 07:41*	WG1375600

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	11/06/2019 01:11	WG1375600
Acrylonitrile	ND		5.00	1	11/06/2019 01:11	WG1375600
Benzene	ND		0.500	1	11/06/2019 01:11	WG1375600
Bromobenzene	ND		0.500	1	11/06/2019 01:11	WG1375600
Bromodichloromethane	ND		0.500	1	11/06/2019 01:11	WG1375600
Bromochloromethane	ND		0.500	1	11/06/2019 01:11	WG1375600
Bromoform	ND		0.500	1	11/06/2019 01:11	WG1375600
Bromomethane	ND		2.50	1	11/06/2019 01:11	WG1375600
n-Butylbenzene	ND		0.500	1	11/06/2019 01:11	WG1375600
sec-Butylbenzene	ND	J0	0.500	1	11/06/2019 01:11	WG1375600
tert-Butylbenzene	ND	J0 J4	0.500	1	11/06/2019 01:11	WG1375600
Carbon disulfide	ND		0.500	1	11/06/2019 01:11	WG1375600
Carbon tetrachloride	ND		0.500	1	11/06/2019 01:11	WG1375600
Chlorobenzene	ND		0.500	1	11/06/2019 01:11	WG1375600
Chlorodibromomethane	ND		0.500	1	11/06/2019 01:11	WG1375600
Chloroethane	ND		2.50	1	11/06/2019 01:11	WG1375600
Chloroform	ND		0.500	1	11/06/2019 01:11	WG1375600
Chloromethane	ND		1.25	1	11/06/2019 01:11	WG1375600
2-Chlorotoluene	ND		0.500	1	11/06/2019 01:11	WG1375600
4-Chlorotoluene	ND		0.500	1	11/06/2019 01:11	WG1375600
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 01:11	WG1375600
1,2-Dibromoethane	ND		0.500	1	11/06/2019 01:11	WG1375600
Dibromomethane	ND		0.500	1	11/06/2019 01:11	WG1375600
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 01:11	WG1375600
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 01:11	WG1375600
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 01:11	WG1375600
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 01:11	WG1375600
1,1-Dichloroethane	ND		0.500	1	11/06/2019 01:11	WG1375600
1,2-Dichloroethane	ND		0.500	1	11/06/2019 01:11	WG1375600
1,1-Dichloroethene	ND		0.500	1	11/06/2019 01:11	WG1375600
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 01:11	WG1375600
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 01:11	WG1375600
1,2-Dichloropropane	ND		0.500	1	11/06/2019 01:11	WG1375600
1,1-Dichloropropene	ND		0.500	1	11/06/2019 01:11	WG1375600
1,3-Dichloropropane	ND		1.00	1	11/06/2019 01:11	WG1375600
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 01:11	WG1375600
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 01:11	WG1375600
trans-1,4-Dichloro-2-butene	ND	J0	5.00	1	11/06/2019 01:11	WG1375600
2,2-Dichloropropane	ND		0.500	1	11/06/2019 01:11	WG1375600
Di-isopropyl ether	ND		0.500	1	11/06/2019 01:11	WG1375600
Ethylbenzene	ND		0.500	1	11/06/2019 01:11	WG1375600
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 01:11	WG1375600
2-Hexanone	ND		5.00	1	11/06/2019 01:11	WG1375600
n-Hexane	ND		5.00	1	11/06/2019 01:11	WG1375600
Iodomethane	ND		10.0	1	11/06/2019 01:11	WG1375600
Isopropylbenzene	ND		0.500	1	11/06/2019 01:11	WG1375600
p-Isopropyltoluene	ND		0.500	1	11/06/2019 01:11	WG1375600
2-Butanone (MEK)	ND		5.00	1	11/06/2019 01:11	WG1375600
Methylene Chloride	ND		2.50	1	11/06/2019 01:11	WG1375600
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 01:11	WG1375600
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 01:11	WG1375600
Naphthalene	ND		2.50	1	11/06/2019 01:11	WG1375600
n-Propylbenzene	ND		0.500	1	11/06/2019 01:11	WG1375600
Styrene	ND		0.500	1	11/06/2019 01:11	WG1375600
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 01:11	WG1375600
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 01:11	WG1375600

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	11/06/2019 01:11	WG1375600
Tetrachloroethene	ND		0.500	1	11/06/2019 01:11	WG1375600
Toluene	ND		0.500	1	11/06/2019 01:11	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 01:11	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 01:11	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 01:11	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 01:11	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 01:11	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 01:11	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 01:11	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 01:11	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 01:11	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 01:11	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 01:11	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 01:11	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 01:11	WG1375600
(S) Toluene-d8	*97.9*		*80.0-120*		*11/06/2019 01:11*	WG1375600
(S) 4-Bromofluorobenzene	*95.6*		*77.0-126*		*11/06/2019 01:11*	WG1375600
(S) 1,2-Dichloroethane-d4	*96.3*		*70.0-130*		*11/06/2019 01:11*	WG1375600

Method Blank (MB)

(MB) R3469823-2 11/05/19 23:03

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
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
trans-1,4-Dichloro-2-butene	U		0.257	5.00
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
2,2-Dichloropropane	U		0.0929	0.500
Di-isopropyl ether	U		0.0924	0.500

Method Blank (MB)

(MB) R3469823-2 11/05/19 23:03

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
Tetrachloroethene	U		0.199	0.500
Toluene	U		0.412	0.500
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
1,2,3-Trichloropropane	U		0.247	2.50
1,2,3-Trimethylbenzene	U		0.0739	0.500
1,2,4-Trimethylbenzene	U		0.123	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	*98.8*			*80.0-120*
(S) 4-Bromofluorobenzene	*101*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*95.8*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3469823-1 11/05/19 22:22

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acetone	25.0	35.1	140	19.0-160	
Acrylonitrile	25.0	25.8	103	55.0-149	
Benzene	5.00	4.71	94.2	70.0-123	
Bromobenzene	5.00	4.55	91.0	73.0-121	
Bromodichloromethane	5.00	5.11	102	75.0-120	
Bromochloromethane	5.00	5.41	108	76.0-122	
Bromoform	5.00	5.45	109	68.0-132	
Bromomethane	5.00	4.55	91.0	10.0-160	
n-Butylbenzene	5.00	4.84	96.8	73.0-125	
sec-Butylbenzene	5.00	3.90	78.0	75.0-125	
tert-Butylbenzene	5.00	3.77	75.4	76.0-124	J4
Carbon disulfide	5.00	5.13	103	61.0-128	
Carbon tetrachloride	5.00	5.40	108	68.0-126	
Chlorobenzene	5.00	4.84	96.8	80.0-121	
Chlorodibromomethane	5.00	4.94	98.8	77.0-125	
Chloroethane	5.00	4.42	88.4	47.0-150	
Chloroform	5.00	5.07	101	73.0-120	
Chloromethane	5.00	4.76	95.2	41.0-142	
2-Chlorotoluene	5.00	4.54	90.8	76.0-123	
4-Chlorotoluene	5.00	4.42	88.4	75.0-122	
1,2-Dibromo-3-Chloropropane	5.00	4.85	97.0	58.0-134	
1,2-Dibromoethane	5.00	4.99	99.8	80.0-122	
Dibromomethane	5.00	4.96	99.2	80.0-120	
1,2-Dichlorobenzene	5.00	4.92	98.4	79.0-121	
1,3-Dichlorobenzene	5.00	4.65	93.0	79.0-120	
1,4-Dichlorobenzene	5.00	5.03	101	79.0-120	
trans-1,4-Dichloro-2-butene	5.00	2.70	54.0	33.0-144	
Dichlorodifluoromethane	5.00	5.37	107	51.0-149	
1,1-Dichloroethane	5.00	4.98	99.6	70.0-126	
1,2-Dichloroethane	5.00	4.87	97.4	70.0-128	
1,1-Dichloroethene	5.00	4.92	98.4	71.0-124	
cis-1,2-Dichloroethene	5.00	5.22	104	73.0-120	
trans-1,2-Dichloroethene	5.00	5.15	103	73.0-120	
1,2-Dichloropropane	5.00	4.50	90.0	77.0-125	
1,1-Dichloropropene	5.00	4.91	98.2	74.0-126	
1,3-Dichloropropane	5.00	4.88	97.6	80.0-120	
cis-1,3-Dichloropropene	5.00	4.59	91.8	80.0-123	
trans-1,3-Dichloropropene	5.00	4.81	96.2	78.0-124	
2,2-Dichloropropane	5.00	4.81	96.2	58.0-130	
Di-isopropyl ether	5.00	4.88	97.6	58.0-138	

Laboratory Control Sample (LCS)

(LCS) R3469823-1 11/05/19 22:22

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Ethylbenzene	5.00	5.01	100	79.0-123	
Hexachloro-1,3-butadiene	5.00	5.14	103	54.0-138	
2-Hexanone	25.0	25.9	104	67.0-149	
n-Hexane	5.00	4.81	96.2	57.0-133	
Iodomethane	25.0	27.0	108	33.0-147	
Isopropylbenzene	5.00	5.15	103	76.0-127	
p-Isopropyltoluene	5.00	4.66	93.2	76.0-125	
2-Butanone (MEK)	25.0	27.2	109	44.0-160	
Methylene Chloride	5.00	4.97	99.4	67.0-120	
4-Methyl-2-pentanone (MIBK)	25.0	25.4	102	68.0-142	
Methyl tert-butyl ether	5.00	5.15	103	68.0-125	
Naphthalene	5.00	4.92	98.4	54.0-135	
n-Propylbenzene	5.00	4.49	89.8	77.0-124	
Styrene	5.00	5.23	105	73.0-130	
1,1,1,2-Tetrachloroethane	5.00	5.27	105	75.0-125	
1,1,2,2-Tetrachloroethane	5.00	4.42	88.4	65.0-130	
Tetrachloroethene	5.00	5.29	106	72.0-132	
Toluene	5.00	4.87	97.4	79.0-120	
1,1,2-Trichlorotrifluoroethane	5.00	5.37	107	69.0-132	
1,2,3-Trichlorobenzene	5.00	5.08	102	50.0-138	
1,2,4-Trichlorobenzene	5.00	5.23	105	57.0-137	
1,1,1-Trichloroethane	5.00	5.23	105	73.0-124	
1,1,2-Trichloroethane	5.00	4.98	99.6	80.0-120	
Trichloroethene	5.00	5.03	101	78.0-124	
Trichlorofluoromethane	5.00	4.90	98.0	59.0-147	
1,2,3-Trichloropropane	5.00	4.64	92.8	73.0-130	
1,2,3-Trimethylbenzene	5.00	4.80	96.0	77.0-120	
1,2,4-Trimethylbenzene	5.00	4.47	89.4	76.0-121	
1,3,5-Trimethylbenzene	5.00	4.64	92.8	76.0-122	
Vinyl acetate	25.0	21.2	84.8	11.0-160	
Vinyl chloride	5.00	5.05	101	67.0-131	
Xylenes, Total	15.0	14.8	98.7	79.0-123	
(S) Toluene-d8			*93.9*	*80.0-120*	
(S) 4-Bromofluorobenzene			*92.9*	*77.0-126*	
(S) 1,2-Dichloroethane-d4			*97.3*	*70.0-130*	

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.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

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, the sample preparation volume or weight values differ from the standard, 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.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
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
J0	J0: The identification of the analyte is acceptable, but the reported concentration is an estimate. The calibration met method criteria.
J4	The associated batch QC was outside the established quality control range for accuracy.

Pace National 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.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

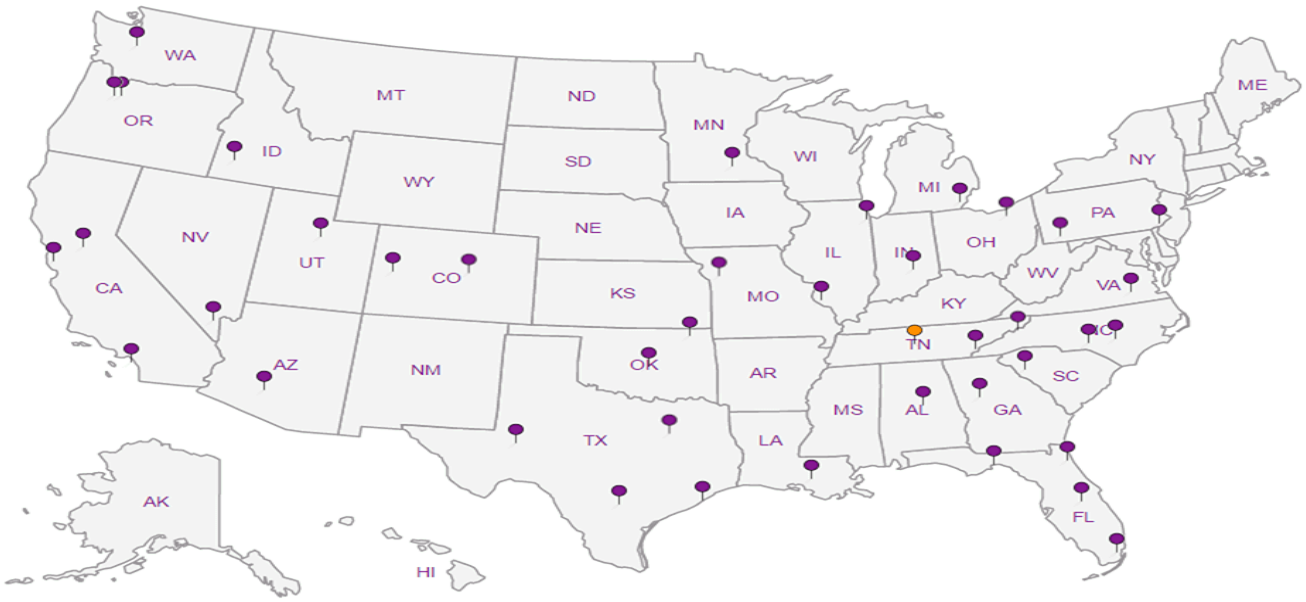
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National 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. Pace National 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; mdahl@pesenv.com; cdeboer@pesenv.com

Project Description: MVSC

City/State Collected: Normandy Park, WA

Please Circle: PT MT CT ET

Phone: 206-529-3980
Fax: 206-529-3985

Client Project # 1358.001.02.013

Lab Project # PESENVSWA-MVSC

Collected by (print): Hannah Cohen

Site/Facility ID # MVSC

P.O. #

Collected by (signature): Hannah Cohen

Immediately Packed on Ice N ___ Y ✓

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

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	VOCs (V8260LLC) 40mlAmb-HCl	Remarks	Sample # (lab only)
KMW-8-102819	Grab	GW	40	10/28/19	1320	3	X		-01
MW-18-102819	"	GW	38	10/28/19	1423	3	X		-02
MW-17-102819	"	GW	35	10/28/19	1637	3	X		-03
MW-19-102919	"	GW	49	10/29/19	1015	3	X		-04
MW-20-102919	"	GW	38	10/29/19	1120	3	X		-05
DC-8-102919	"	GW	38	10/29/19	1240	3	X		-06
KMW-7-102919	"	GW	35.5	10/29/19	1405	3	X		-07
DC-15-102919	"	GW	39	10/29/19	1525	3	X		-08
MW-101-103019	"	GW	900	10/30/19	900	3	X		-09
DC-7-103019	"	GW	1000	10/30/19	1000	3	X		-10

Chain of Custody Page 1 of 2

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # 1155907

M138

Acctnum: PESVSWA

Template: T157814

Prelogin: P736538

PM: 110 - Brian Ford

PB:

Shipped Via:

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other ____

Remarks:

pH ____ Temp ____

Flow ____ Other ____

Samples returned via: __ UPS X FedEx __ Courier ____

Tracking # 1275 8102 0423

Sample Receipt Checklist

COC Seal Present/Intact:	NP	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
RAD Screen <0.5 mR/hr:		✓ Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Hannah Cohen	10/30/19	1550	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No (ACE / MeoH) TBR

Temp: As °C 0.5-3=0.2 Bottles Received: 33

Date: 10-31-19 Time: 9:00

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Pace Analytical®

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: PES Environmental, Inc.	Billing Information: Attn: Accounts Payable, 1215 4th Ave STE1350, Seattle, WA 98161
Address: 1215 4th Ave STE 1350, Seattle, WA 98161	
Report To: Matt Dahl	Email To: Mdahl@pesenv.com
Copy To: Kim Vik, Shannon McKernan, Karsten Springstead	Site Collection Info/Address: Normandy Park, WA
Customer Project Name/Number: MVSC	State: WA / County/City: Normandy Park / Time Zone Collected: [X]PT [ ]MT [ ]CT [ ]ET
Phone: 206-529-3980 Email: Mdahl@pesenv.com	Site/Facility ID #: 1358.001.02.013 / Compliance Monitoring? [ ] Yes [ ] No
Collected By (print): Hannah Cohen	Purchase Order # : Quote #: / DW PWS ID #: DW Location Code:
Collected By (signature): Hannah Cohen	Turnaround Date Required: Standard / Immediately Packed on Ice: [X] Yes [ ] No
Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply) / Field Filtered (if applicable): [ ] Yes [ ] No / Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	VOCs by EPA 8260B
DC-17-103019	GW	Grab	10/30/19	1119	—	—		3	X
TRIP-103019	-	-	10/30/19	1200	—	—		1	X

Container Preservative Type **

Lab Project Manager:

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Analyses

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips: _____			
Sample pH Acceptable	Y	N	NA
pH Strips: _____			
Sulfide Present	Y	N	NA
Lead Acetate Strips: _____			

LAB USE ONLY:
Lab Sample # / Comments:
L1155907
-11
-12

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #:

Samples received via: (FEDEX) UPS Client Courier Pace Courier

LAB Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: ASpm
Cooler 1 Temp Upon Receipt: 0.6 oC
Cooler 1 Therm Corr. Factor: -.3 oC
Cooler 1 Corrected Temp: 0.2 oC
Comments:

Relinquished by/Company: (Signature) Hannah Cohen	Date/Time: 10/30/19 1550	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time: 10-31-19 9:00

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: 2 of: 2

MEMORANDUM

TO: Project File **DATE:** November 20, 2019

FROM: Jessie Compeau

SUBJECT: Laboratory Data Validation Review

PROJECT: Manhattan Village Shopping Center

PROJECT #: 1358.001.02.013

TASK: EIM Data Validation Level EPA2A – May and October 2019 Groundwater Samples

LAB: Pace Sample Delivery Groups (SDGs): L1101499, L1154255, and L1155907

Groundwater samples were collected in May and October 2019 as part of remediation performance monitoring at the Manhattan Village Shopping Centre site in Normandy Park, Washington.

- **May 21, 2019:** Four (4) groundwater samples including one field duplicate, one equipment blank, and one trip blank were collected.
- **October 25 and 28-30, 2019:** Sixteen (16) groundwater samples including one field duplicate, one equipment blank, and two trip blanks were collected.

The samples were delivered to Pace Analytical (Pace) of Mount Juliet, TN for laboratory analysis. Samples were analyzed for volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method 8260C.

The quality assurance review of the laboratory data for Pace SDGs L1101499, L1154255, and L1155907 are summarized below.

DATA QUALIFICATIONS

Guidelines established by USEPA for a limited data validation 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 coolers and delivered in good condition to the laboratory. Sample temperatures at the time of receipt were slightly below EPA's recommended temperature preservation range of less than 6.0 °Centigrade. No data qualifications are warranted.

Holding Times

USEPA Method 8260C:
All samples were analyzed for VOCs within the EPA recommended holding time of 14 days for preserved water samples. All holding time criteria were met.

Initial and Continuing Calibration

Calibration data for this project are not required for this deliverable however Pace's notes indicate the following:

- SDGs L1154255 and L1155907 - *USEPA Method 8260C:* Continuing calibration verification (CCV) issues were noted by Pace for multiple compounds associated with analytical batches in each SDG. These compounds are qualified by the laboratory "J0" to indicate that percent difference CCV is outside of laboratory acceptance criteria. **Associated sample results with laboratory qualified (J0) results are estimated and qualified (J/UJ).**

Method Blank Results

USEPA Method 8260C:
Laboratory method blanks were included with the analytical batches per method requirement. The target analytes (VOCs) were not detected in the method blanks at a concentration at or above the reporting detection limits (RDLs) with the following exceptions:

- SDG L1101499: Hexachloro-1,3-butadiene, naphthalene, and 1,2,3-trichlorobenzene are detected below the RDLs in the method blank (analytical batch WG1286542). No action is taken since these compounds are not detected in the associated samples.

Trip Blank Results

Three trip blanks (Trip Blank, TRIP-102519, and TRIP-103019) were collected and analyzed. The target analytes were not detected in the trip blanks at or above the RDLs.

Equipment Blank Results

Two equipment blanks (EQ-052119 and EQ-102519) associated with groundwater samples collected in May and October of 2019 (Pace SDGs L1101499 and L1154255) were collected and submitted for VOC analysis. The target analytes (VOCs) were not detected in the equipment blanks at concentrations at or above the RDLs.

Field Duplicate Analyses

Field duplicate sample pairs are as follows:

- SDG L1101499: Samples DC-17 and MW-101-052119; and
- SDG L1155907: Samples DC-7 and MW-101-103019.

Field duplicate pairs were submitted and analyzed for VOCs. VOC target analyte results are comparable and within a relative percent difference (RPD) of 30% (± 1x RDL for groundwater results <5X the RDL) for the field duplicates.

Laboratory Duplicate Analyses

USEPA Method 8260C:
Laboratory duplicate analysis were not analyzed. Refer to LCS, LCS/LCSD or field duplicate results for accuracy and precision data.

Surrogate Recoveries

USEPA Method 8260C:
The surrogate percent recovery (%R) results for the samples, method blanks, matrix spike samples, and laboratory control samples are within the laboratory surrogate control limits. No data qualifications were warranted.

Laboratory Control Samples

USEPA Method 8260C:
Laboratory control sample/laboratory control sample duplicates (LCS/LCSD) were analyzed by USEPA Method 8260C. In some cases, only an LCS was analyzed and for precision data refer to field duplicate results. The LCS or LCS/LCSD %R's and RPDs for the target compounds are within the laboratory control criteria for waters with the following discussions:

- SDG L1101499: LCS (WG1286542) vinyl acetate recovery is above laboratory acceptance criteria and laboratory qualified (J4). No action is taken on this basis since vinyl acetate is not detected in the associated samples.

- SDG L1154255: LCS and/or LCSD (WG1373989) 2-chlorotoluene, 4-chlorotoluene 1,2,4-trimethylbenzene recoveries are above laboratory acceptance criteria and laboratory qualified (J4). No action is taken on this basis since these compounds are not detected in the associated samples. Naphthalene RPD exceeds laboratory control limit criteria and laboratory qualified (J3) however no action is taken since both recoveries are within criteria but were recovered wide.

- SDG L1155907: LCS recovery for tert-butylbenzene is slightly below the laboratory acceptance criteria and laboratory qualified (J4). **All associated sample tert-butylbenzene results are estimated and qualified (UJ/J).** Refer to Initial and Continuing Calibration section for additional information.

Matrix Spike/Matrix Spike Duplicates

USEPA Method 8260C:
Matrix spike/matrix spike duplicate (MS/MSD) analyses were not performed. Refer to LCS or LCS/LCSD and field duplicate results for accuracy and precision data.

Other Quality Control Issues

No laboratory quality control issues were identified in the laboratory reports with the following discussion:

- Electronic data deliverables (EDDs) for these SDGs were provided by the laboratory and data validator qualifiers were entered where needed.

Quantitation Limits

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

Data Assessment

Data qualifiers are 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		25.0	1	11/02/2019 14:31	WG1373989
Acrylonitrile	ND		5.00	1	11/02/2019 14:31	WG1373989
Benzene	ND		0.500	1	11/02/2019 14:31	WG1373989
Bromobenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
Bromodichloromethane	ND		0.500	1	11/02/2019 14:31	WG1373989
Bromochloromethane	ND		0.500	1	11/02/2019 14:31	WG1373989
Bromoform	ND	UJ J0	0.500	1	11/02/2019 14:31	WG1373989
Bromomethane	ND		2.50	1	11/02/2019 14:31	WG1373989
n-Butylbenzene	ND	UJ J0	0.500	1	11/02/2019 14:31	WG1373989
sec-Butylbenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
tert-Butylbenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
Carbon disulfide	ND		0.500	1	11/02/2019 14:31	WG1373989
Carbon tetrachloride	ND		0.500	1	11/02/2019 14:31	WG1373989
Chlorobenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
Chlorodibromomethane	ND		0.500	1	11/02/2019 14:31	WG1373989
Chloroethane	ND		2.50	1	11/02/2019 14:31	WG1373989
Chloroform	ND		0.500	1	11/02/2019 14:31	WG1373989
Chloromethane	ND		1.25	1	11/02/2019 14:31	WG1373989
2-Chlorotoluene	ND	J4	0.500	1	11/02/2019 14:31	WG1373989
4-Chlorotoluene	ND	J4	0.500	1	11/02/2019 14:31	WG1373989
1,2-Dibromo-3-Chloropropane	ND	UJ J0	2.50	1	11/02/2019 14:31	WG1373989
1,2-Dibromoethane	ND		0.500	1	11/02/2019 14:31	WG1373989
Dibromomethane	ND		0.500	1	11/02/2019 14:31	WG1373989
1,2-Dichlorobenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
1,3-Dichlorobenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
1,4-Dichlorobenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
Dichlorodifluoromethane	ND	UJ J0	2.50	1	11/02/2019 14:31	WG1373989
1,1-Dichloroethane	ND		0.500	1	11/02/2019 14:31	WG1373989
1,2-Dichloroethane	ND		0.500	1	11/02/2019 14:31	WG1373989
1,1-Dichloroethene	ND		0.500	1	11/02/2019 14:31	WG1373989
cis-1,2-Dichloroethene	ND		0.500	1	11/02/2019 14:31	WG1373989
trans-1,2-Dichloroethene	ND		0.500	1	11/02/2019 14:31	WG1373989
1,2-Dichloropropane	ND		0.500	1	11/02/2019 14:31	WG1373989
1,1-Dichloropropene	ND		0.500	1	11/02/2019 14:31	WG1373989
1,3-Dichloropropane	ND		1.00	1	11/02/2019 14:31	WG1373989
cis-1,3-Dichloropropene	ND		0.500	1	11/02/2019 14:31	WG1373989
trans-1,3-Dichloropropene	ND		0.500	1	11/02/2019 14:31	WG1373989
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/02/2019 14:31	WG1373989
2,2-Dichloropropane	ND		0.500	1	11/02/2019 14:31	WG1373989
Di-isopropyl ether	ND		0.500	1	11/02/2019 14:31	WG1373989
Ethylbenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
Hexachloro-1,3-butadiene	ND	UJ J0	1.00	1	11/02/2019 14:31	WG1373989
2-Hexanone	ND		5.00	1	11/02/2019 14:31	WG1373989
n-Hexane	ND		5.00	1	11/02/2019 14:31	WG1373989
Iodomethane	ND		10.0	1	11/02/2019 14:31	WG1373989
Isopropylbenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
p-Isopropyltoluene	ND		0.500	1	11/02/2019 14:31	WG1373989
2-Butanone (MEK)	ND		5.00	1	11/02/2019 14:31	WG1373989
Methylene Chloride	ND		2.50	1	11/02/2019 14:31	WG1373989
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/02/2019 14:31	WG1373989
Methyl tert-butyl ether	ND		0.500	1	11/02/2019 14:31	WG1373989
Naphthalene	ND	UJ J0 J3	2.50	1	11/02/2019 14:31	WG1373989
n-Propylbenzene	ND		0.500	1	11/02/2019 14:31	WG1373989 JC 11/21/19
Styrene	ND		0.500	1	11/02/2019 14:31	WG1373989
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/02/2019 14:31	WG1373989
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/02/2019 14:31	WG1373989

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	11/02/2019 14:31	WG1373989
Tetrachloroethene	ND		0.500	1	11/02/2019 14:31	WG1373989
Toluene	ND		0.500	1	11/02/2019 14:31	WG1373989
1,2,3-Trichlorobenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
1,2,4-Trichlorobenzene	ND	UJ J0	0.500	1	11/02/2019 14:31	WG1373989
1,1,1-Trichloroethane	ND		0.500	1	11/02/2019 14:31	WG1373989
1,1,2-Trichloroethane	ND		0.500	1	11/02/2019 14:31	WG1373989
Trichloroethene	ND		0.500	1	11/02/2019 14:31	WG1373989
Trichlorofluoromethane	ND		2.50	1	11/02/2019 14:31	WG1373989
1,2,3-Trichloropropane	ND		2.50	1	11/02/2019 14:31	WG1373989
1,2,4-Trimethylbenzene	ND	J4	0.500	1	11/02/2019 14:31	WG1373989
1,2,3-Trimethylbenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
1,3,5-Trimethylbenzene	ND		0.500	1	11/02/2019 14:31	WG1373989
Vinyl acetate	ND	UJ J0	5.00	1	11/02/2019 14:31	WG1373989
Vinyl chloride	ND		0.500	1	11/02/2019 14:31	WG1373989
Xylenes, Total	ND		1.50	1	11/02/2019 14:31	WG1373989
(S) Toluene-d8	*93.0*		*80.0-120*		*11/02/2019 14:31*	WG1373989
(S) 4-Bromofluorobenzene	*101*		*77.0-126*		*11/02/2019 14:31*	WG1373989
(S) 1,2-Dichloroethane-d4	*108*		*70.0-130*		*11/02/2019 14:31*	WG1373989

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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	11/02/2019 14:51	WG1373989
Acrylonitrile	ND		5.00	1	11/02/2019 14:51	WG1373989
Benzene	ND		0.500	1	11/02/2019 14:51	WG1373989
Bromobenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
Bromodichloromethane	ND		0.500	1	11/02/2019 14:51	WG1373989
Bromochloromethane	ND		0.500	1	11/02/2019 14:51	WG1373989
Bromoform	ND	UJ J0	0.500	1	11/02/2019 14:51	WG1373989
Bromomethane	ND		2.50	1	11/02/2019 14:51	WG1373989
n-Butylbenzene	ND	UJ J0	0.500	1	11/02/2019 14:51	WG1373989
sec-Butylbenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
tert-Butylbenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
Carbon disulfide	ND		0.500	1	11/02/2019 14:51	WG1373989
Carbon tetrachloride	ND		0.500	1	11/02/2019 14:51	WG1373989
Chlorobenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
Chlorodibromomethane	ND		0.500	1	11/02/2019 14:51	WG1373989
Chloroethane	ND		2.50	1	11/02/2019 14:51	WG1373989
Chloroform	ND		0.500	1	11/02/2019 14:51	WG1373989
Chloromethane	ND		1.25	1	11/02/2019 14:51	WG1373989
2-Chlorotoluene	ND	J4	0.500	1	11/02/2019 14:51	WG1373989
4-Chlorotoluene	ND	J4	0.500	1	11/02/2019 14:51	WG1373989
1,2-Dibromo-3-Chloropropane	ND	UJ J0	2.50	1	11/02/2019 14:51	WG1373989
1,2-Dibromoethane	ND		0.500	1	11/02/2019 14:51	WG1373989
Dibromomethane	ND		0.500	1	11/02/2019 14:51	WG1373989
1,2-Dichlorobenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
1,3-Dichlorobenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
1,4-Dichlorobenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
Dichlorodifluoromethane	ND	UJ J0	2.50	1	11/02/2019 14:51	WG1373989
1,1-Dichloroethane	ND		0.500	1	11/02/2019 14:51	WG1373989
1,2-Dichloroethane	ND		0.500	1	11/02/2019 14:51	WG1373989
1,1-Dichloroethene	ND		0.500	1	11/02/2019 14:51	WG1373989
cis-1,2-Dichloroethene	ND		0.500	1	11/02/2019 14:51	WG1373989
trans-1,2-Dichloroethene	ND		0.500	1	11/02/2019 14:51	WG1373989
1,2-Dichloropropane	ND		0.500	1	11/02/2019 14:51	WG1373989
1,1-Dichloropropene	ND		0.500	1	11/02/2019 14:51	WG1373989
1,3-Dichloropropane	ND		1.00	1	11/02/2019 14:51	WG1373989
cis-1,3-Dichloropropene	ND		0.500	1	11/02/2019 14:51	WG1373989
trans-1,3-Dichloropropene	ND		0.500	1	11/02/2019 14:51	WG1373989
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/02/2019 14:51	WG1373989
2,2-Dichloropropane	ND		0.500	1	11/02/2019 14:51	WG1373989
Di-isopropyl ether	ND		0.500	1	11/02/2019 14:51	WG1373989
Ethylbenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
Hexachloro-1,3-butadiene	ND	UJ J0	1.00	1	11/02/2019 14:51	WG1373989
2-Hexanone	ND		5.00	1	11/02/2019 14:51	WG1373989
n-Hexane	ND		5.00	1	11/02/2019 14:51	WG1373989
Iodomethane	ND		10.0	1	11/02/2019 14:51	WG1373989
Isopropylbenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
p-Isopropyltoluene	ND		0.500	1	11/02/2019 14:51	WG1373989
2-Butanone (MEK)	ND		5.00	1	11/02/2019 14:51	WG1373989
Methylene Chloride	ND		2.50	1	11/02/2019 14:51	WG1373989
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/02/2019 14:51	WG1373989
Methyl tert-butyl ether	ND		0.500	1	11/02/2019 14:51	WG1373989
Naphthalene	ND	UJ J0 J3	2.50	1	11/02/2019 14:51	WG1373989
n-Propylbenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
Styrene	ND		0.500	1	11/02/2019 14:51	WG1373989
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/02/2019 14:51	WG1373989
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/02/2019 14:51	WG1373989

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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	11/02/2019 14:51	WG1373989
Tetrachloroethene	1.01		0.500	1	11/02/2019 14:51	WG1373989
Toluene	ND		0.500	1	11/02/2019 14:51	WG1373989
1,2,3-Trichlorobenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
1,2,4-Trichlorobenzene	ND	UJ J0	0.500	1	11/02/2019 14:51	WG1373989
1,1,1-Trichloroethane	ND		0.500	1	11/02/2019 14:51	WG1373989
1,1,2-Trichloroethane	ND		0.500	1	11/02/2019 14:51	WG1373989
Trichloroethene	ND		0.500	1	11/02/2019 14:51	WG1373989
Trichlorofluoromethane	ND		2.50	1	11/02/2019 14:51	WG1373989
1,2,3-Trichloropropane	ND		2.50	1	11/02/2019 14:51	WG1373989
1,2,4-Trimethylbenzene	ND	J4	0.500	1	11/02/2019 14:51	WG1373989
1,2,3-Trimethylbenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
1,3,5-Trimethylbenzene	ND		0.500	1	11/02/2019 14:51	WG1373989
Vinyl acetate	ND	UJ J0	5.00	1	11/02/2019 14:51	WG1373989
Vinyl chloride	ND		0.500	1	11/02/2019 14:51	WG1373989
Xylenes, Total	ND		1.50	1	11/02/2019 14:51	WG1373989
(S) Toluene-d8	*92.9*		*80.0-120*		*11/02/2019 14:51*	WG1373989
(S) 4-Bromofluorobenzene	*100*		*77.0-126*		*11/02/2019 14:51*	WG1373989
(S) 1,2-Dichloroethane-d4	*104*		*70.0-130*		*11/02/2019 14:51*	WG1373989

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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	11/02/2019 15:11	WG1373989	
Acrylonitrile	ND		5.00	1	11/02/2019 15:11	WG1373989	
Benzene	ND		0.500	1	11/02/2019 15:11	WG1373989	
Bromobenzene	ND		0.500	1	11/02/2019 15:11	WG1373989	
Bromodichloromethane	ND		0.500	1	11/02/2019 15:11	WG1373989	
Bromochloromethane	ND		0.500	1	11/02/2019 15:11	WG1373989	
Bromoform	ND	UJ J0	0.500	1	11/02/2019 15:11	WG1373989	
Bromomethane	ND		2.50	1	11/02/2019 15:11	WG1373989	
n-Butylbenzene	ND	UJ J0	0.500	1	11/02/2019 15:11	WG1373989	
sec-Butylbenzene	ND		0.500	1	11/02/2019 15:11	WG1373989	
tert-Butylbenzene	ND		0.500	1	11/02/2019 15:11	WG1373989	
Carbon disulfide	ND		0.500	1	11/02/2019 15:11	WG1373989	
Carbon tetrachloride	ND		0.500	1	11/02/2019 15:11	WG1373989	
Chlorobenzene	ND		0.500	1	11/02/2019 15:11	WG1373989	
Chlorodibromomethane	ND		0.500	1	11/02/2019 15:11	WG1373989	
Chloroethane	ND		2.50	1	11/02/2019 15:11	WG1373989	
Chloroform	1.53		0.500	1	11/02/2019 15:11	WG1373989	
Chloromethane	ND		1.25	1	11/02/2019 15:11	WG1373989	
2-Chlorotoluene	ND	J4	0.500	1	11/02/2019 15:11	WG1373989	
4-Chlorotoluene	ND	J4	0.500	1	11/02/2019 15:11	WG1373989	
1,2-Dibromo-3-Chloropropane	ND	UJ J0	2.50	1	11/02/2019 15:11	WG1373989	
1,2-Dibromoethane	ND		0.500	1	11/02/2019 15:11	WG1373989	
Dibromomethane	ND		0.500	1	11/02/2019 15:11	WG1373989	
1,2-Dichlorobenzene	ND		0.500	1	11/02/2019 15:11	WG1373989	
1,3-Dichlorobenzene	ND		0.500	1	11/02/2019 15:11	WG1373989	
1,4-Dichlorobenzene	ND		0.500	1	11/02/2019 15:11	WG1373989	
Dichlorodifluoromethane	ND	UJ J0	2.50	1	11/02/2019 15:11	WG1373989	
1,1-Dichloroethane	ND		0.500	1	11/02/2019 15:11	WG1373989	
1,2-Dichloroethane	ND		0.500	1	11/02/2019 15:11	WG1373989	
1,1-Dichloroethene	ND		0.500	1	11/02/2019 15:11	WG1373989	
cis-1,2-Dichloroethene	ND		0.500	1	11/02/2019 15:11	WG1373989	
trans-1,2-Dichloroethene	ND		0.500	1	11/02/2019 15:11	WG1373989	
1,2-Dichloropropane	ND		0.500	1	11/02/2019 15:11	WG1373989	
1,1-Dichloropropene	ND		0.500	1	11/02/2019 15:11	WG1373989	
1,3-Dichloropropane	ND		1.00	1	11/02/2019 15:11	WG1373989	
cis-1,3-Dichloropropene	ND		0.500	1	11/02/2019 15:11	WG1373989	
trans-1,3-Dichloropropene	ND		0.500	1	11/02/2019 15:11	WG1373989	
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/02/2019 15:11	WG1373989	
2,2-Dichloropropane	ND		0.500	1	11/02/2019 15:11	WG1373989	
Di-isopropyl ether	ND		0.500	1	11/02/2019 15:11	WG1373989	
Ethylbenzene	ND		0.500	1	11/02/2019 15:11	WG1373989	
Hexachloro-1,3-butadiene	ND	UJ J0	1.00	1	11/02/2019 15:11	WG1373989	
2-Hexanone	ND		5.00	1	11/02/2019 15:11	WG1373989	
n-Hexane	ND		5.00	1	11/02/2019 15:11	WG1373989	JC 11/21/19
Iodomethane	ND		10.0	1	11/02/2019 15:11	WG1373989	
Isopropylbenzene	ND		0.500	1	11/02/2019 15:11	WG1373989	
p-Isopropyltoluene	ND		0.500	1	11/02/2019 15:11	WG1373989	
2-Butanone (MEK)	ND		5.00	1	11/02/2019 15:11	WG1373989	
Methylene Chloride	ND		2.50	1	11/02/2019 15:11	WG1373989	
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/02/2019 15:11	WG1373989	
Methyl tert-butyl ether	ND		0.500	1	11/02/2019 15:11	WG1373989	
Naphthalene	ND	UJ J0 J3	2.50	1	11/02/2019 15:11	WG1373989	
n-Propylbenzene	ND		0.500	1	11/02/2019 15:11	WG1373989	
Styrene	ND		0.500	1	11/02/2019 15:11	WG1373989	
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/02/2019 15:11	WG1373989	
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/02/2019 15:11	WG1373989	

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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	11/02/2019 15:11	WG1373989
Tetrachloroethene	1.20		0.500	1	11/02/2019 15:11	WG1373989
Toluene	ND		0.500	1	11/02/2019 15:11	WG1373989
1,2,3-Trichlorobenzene	ND		0.500	1	11/02/2019 15:11	WG1373989
1,2,4-Trichlorobenzene	ND	UJ J0	0.500	1	11/02/2019 15:11	WG1373989
1,1,1-Trichloroethane	ND		0.500	1	11/02/2019 15:11	WG1373989
1,1,2-Trichloroethane	ND		0.500	1	11/02/2019 15:11	WG1373989
Trichloroethene	ND		0.500	1	11/02/2019 15:11	WG1373989
Trichlorofluoromethane	ND		2.50	1	11/02/2019 15:11	WG1373989
1,2,3-Trichloropropane	ND		2.50	1	11/02/2019 15:11	WG1373989
1,2,4-Trimethylbenzene	ND	J4	0.500	1	11/02/2019 15:11	WG1373989
1,2,3-Trimethylbenzene	ND		0.500	1	11/02/2019 15:11	WG1373989
1,3,5-Trimethylbenzene	ND		0.500	1	11/02/2019 15:11	WG1373989
Vinyl acetate	ND	UJ J0	5.00	1	11/02/2019 15:11	WG1373989
Vinyl chloride	ND		0.500	1	11/02/2019 15:11	WG1373989
Xylenes, Total	ND		1.50	1	11/02/2019 15:11	WG1373989
(S) Toluene-d8	*95.0*		*80.0-120*		*11/02/2019 15:11*	WG1373989
(S) 4-Bromofluorobenzene	*102*		*77.0-126*		*11/02/2019 15:11*	WG1373989
(S) 1,2-Dichloroethane-d4	*104*		*70.0-130*		*11/02/2019 15:11*	WG1373989

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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	11/02/2019 15:31	WG1373989	
Acrylonitrile	ND		5.00	1	11/02/2019 15:31	WG1373989	
Benzene	ND		0.500	1	11/02/2019 15:31	WG1373989	
Bromobenzene	ND		0.500	1	11/02/2019 15:31	WG1373989	
Bromodichloromethane	ND		0.500	1	11/02/2019 15:31	WG1373989	
Bromochloromethane	ND		0.500	1	11/02/2019 15:31	WG1373989	
Bromoform	ND	UJ J0	0.500	1	11/02/2019 15:31	WG1373989	
Bromomethane	ND		2.50	1	11/02/2019 15:31	WG1373989	
n-Butylbenzene	ND	UJ J0	0.500	1	11/02/2019 15:31	WG1373989	
sec-Butylbenzene	ND		0.500	1	11/02/2019 15:31	WG1373989	
tert-Butylbenzene	ND		0.500	1	11/02/2019 15:31	WG1373989	
Carbon disulfide	ND		0.500	1	11/02/2019 15:31	WG1373989	
Carbon tetrachloride	ND		0.500	1	11/02/2019 15:31	WG1373989	
Chlorobenzene	ND		0.500	1	11/02/2019 15:31	WG1373989	
Chlorodibromomethane	ND		0.500	1	11/02/2019 15:31	WG1373989	
Chloroethane	ND		2.50	1	11/02/2019 15:31	WG1373989	
Chloroform	ND		0.500	1	11/02/2019 15:31	WG1373989	
Chloromethane	ND		1.25	1	11/02/2019 15:31	WG1373989	
2-Chlorotoluene	ND	J4	0.500	1	11/02/2019 15:31	WG1373989	
4-Chlorotoluene	ND	J4	0.500	1	11/02/2019 15:31	WG1373989	
1,2-Dibromo-3-Chloropropane	ND	UJ J0	2.50	1	11/02/2019 15:31	WG1373989	
1,2-Dibromoethane	ND		0.500	1	11/02/2019 15:31	WG1373989	
Dibromomethane	ND		0.500	1	11/02/2019 15:31	WG1373989	
1,2-Dichlorobenzene	ND		0.500	1	11/02/2019 15:31	WG1373989	
1,3-Dichlorobenzene	ND		0.500	1	11/02/2019 15:31	WG1373989	
1,4-Dichlorobenzene	ND		0.500	1	11/02/2019 15:31	WG1373989	
Dichlorodifluoromethane	ND	UJ J0	2.50	1	11/02/2019 15:31	WG1373989	
1,1-Dichloroethane	ND		0.500	1	11/02/2019 15:31	WG1373989	
1,2-Dichloroethane	ND		0.500	1	11/02/2019 15:31	WG1373989	
1,1-Dichloroethene	ND		0.500	1	11/02/2019 15:31	WG1373989	
cis-1,2-Dichloroethene	ND		0.500	1	11/02/2019 15:31	WG1373989	
trans-1,2-Dichloroethene	ND		0.500	1	11/02/2019 15:31	WG1373989	
1,2-Dichloropropane	ND		0.500	1	11/02/2019 15:31	WG1373989	
1,1-Dichloropropene	ND		0.500	1	11/02/2019 15:31	WG1373989	
1,3-Dichloropropane	ND		1.00	1	11/02/2019 15:31	WG1373989	
cis-1,3-Dichloropropene	ND		0.500	1	11/02/2019 15:31	WG1373989	
trans-1,3-Dichloropropene	ND		0.500	1	11/02/2019 15:31	WG1373989	
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/02/2019 15:31	WG1373989	
2,2-Dichloropropane	ND		0.500	1	11/02/2019 15:31	WG1373989	
Di-isopropyl ether	ND		0.500	1	11/02/2019 15:31	WG1373989	
Ethylbenzene	ND		0.500	1	11/02/2019 15:31	WG1373989	
Hexachloro-1,3-butadiene	ND	UJ J0	1.00	1	11/02/2019 15:31	WG1373989	
2-Hexanone	ND		5.00	1	11/02/2019 15:31	WG1373989	JC 11/21/19
n-Hexane	ND		5.00	1	11/02/2019 15:31	WG1373989	
Iodomethane	ND		10.0	1	11/02/2019 15:31	WG1373989	
Isopropylbenzene	ND		0.500	1	11/02/2019 15:31	WG1373989	
p-Isopropyltoluene	ND		0.500	1	11/02/2019 15:31	WG1373989	
2-Butanone (MEK)	ND		5.00	1	11/02/2019 15:31	WG1373989	
Methylene Chloride	ND		2.50	1	11/02/2019 15:31	WG1373989	
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/02/2019 15:31	WG1373989	
Methyl tert-butyl ether	ND		0.500	1	11/02/2019 15:31	WG1373989	
Naphthalene	ND	UJ J0 J3	2.50	1	11/02/2019 15:31	WG1373989	
n-Propylbenzene	ND		0.500	1	11/02/2019 15:31	WG1373989	
Styrene	ND		0.500	1	11/02/2019 15:31	WG1373989	
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/02/2019 15:31	WG1373989	
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/02/2019 15:31	WG1373989	

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	11/02/2019 15:31	WG1373989
Tetrachloroethene	4.74		0.500	1	11/02/2019 15:31	WG1373989
Toluene	ND		0.500	1	11/02/2019 15:31	WG1373989
1,2,3-Trichlorobenzene	ND		0.500	1	11/02/2019 15:31	WG1373989
1,2,4-Trichlorobenzene	ND	UJ J0	0.500	1	11/02/2019 15:31	WG1373989
1,1,1-Trichloroethane	ND		0.500	1	11/02/2019 15:31	WG1373989
1,1,2-Trichloroethane	ND		0.500	1	11/02/2019 15:31	WG1373989
Trichloroethene	ND		0.500	1	11/02/2019 15:31	WG1373989
Trichlorofluoromethane	ND		2.50	1	11/02/2019 15:31	WG1373989
1,2,3-Trichloropropane	ND		2.50	1	11/02/2019 15:31	WG1373989
1,2,4-Trimethylbenzene	ND	J4	0.500	1	11/02/2019 15:31	WG1373989
1,2,3-Trimethylbenzene	ND		0.500	1	11/02/2019 15:31	WG1373989
1,3,5-Trimethylbenzene	ND		0.500	1	11/02/2019 15:31	WG1373989
Vinyl acetate	ND		5.00	1	11/02/2019 15:31	WG1373989
Vinyl chloride	ND	UJ J0	0.500	1	11/02/2019 15:31	WG1373989
Xylenes, Total	ND		1.50	1	11/02/2019 15:31	WG1373989
(S) Toluene-d8	*95.1*		*80.0-120*		*11/02/2019 15:31*	WG1373989
(S) 4-Bromofluorobenzene	*101*		*77.0-126*		*11/02/2019 15:31*	WG1373989
(S) 1,2-Dichloroethane-d4	*108*		*70.0-130*		*11/02/2019 15:31*	WG1373989

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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	11/02/2019 15:51	WG1373989
Acrylonitrile	ND		5.00	1	11/02/2019 15:51	WG1373989
Benzene	ND		0.500	1	11/02/2019 15:51	WG1373989
Bromobenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
Bromodichloromethane	ND		0.500	1	11/02/2019 15:51	WG1373989
Bromochloromethane	ND		0.500	1	11/02/2019 15:51	WG1373989
Bromoform	ND	UJ J0	0.500	1	11/02/2019 15:51	WG1373989
Bromomethane	ND		2.50	1	11/02/2019 15:51	WG1373989
n-Butylbenzene	ND	UJ J0	0.500	1	11/02/2019 15:51	WG1373989
sec-Butylbenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
tert-Butylbenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
Carbon disulfide	ND		0.500	1	11/02/2019 15:51	WG1373989
Carbon tetrachloride	ND		0.500	1	11/02/2019 15:51	WG1373989
Chlorobenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
Chlorodibromomethane	ND		0.500	1	11/02/2019 15:51	WG1373989
Chloroethane	ND		2.50	1	11/02/2019 15:51	WG1373989
Chloroform	ND		0.500	1	11/02/2019 15:51	WG1373989
Chloromethane	ND		1.25	1	11/02/2019 15:51	WG1373989
2-Chlorotoluene	ND	J4	0.500	1	11/02/2019 15:51	WG1373989
4-Chlorotoluene	ND	J4	0.500	1	11/02/2019 15:51	WG1373989
1,2-Dibromo-3-Chloropropane	ND	UJ J0	2.50	1	11/02/2019 15:51	WG1373989
1,2-Dibromoethane	ND		0.500	1	11/02/2019 15:51	WG1373989
Dibromomethane	ND		0.500	1	11/02/2019 15:51	WG1373989
1,2-Dichlorobenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
1,3-Dichlorobenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
1,4-Dichlorobenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
Dichlorodifluoromethane	ND	UJ J0	2.50	1	11/02/2019 15:51	WG1373989
1,1-Dichloroethane	ND		0.500	1	11/02/2019 15:51	WG1373989
1,2-Dichloroethane	ND		0.500	1	11/02/2019 15:51	WG1373989
1,1-Dichloroethene	ND		0.500	1	11/02/2019 15:51	WG1373989
cis-1,2-Dichloroethene	ND		0.500	1	11/02/2019 15:51	WG1373989
trans-1,2-Dichloroethene	ND		0.500	1	11/02/2019 15:51	WG1373989
1,2-Dichloropropane	ND		0.500	1	11/02/2019 15:51	WG1373989
1,1-Dichloropropene	ND		0.500	1	11/02/2019 15:51	WG1373989
1,3-Dichloropropane	ND		1.00	1	11/02/2019 15:51	WG1373989
cis-1,3-Dichloropropene	ND		0.500	1	11/02/2019 15:51	WG1373989
trans-1,3-Dichloropropene	ND		0.500	1	11/02/2019 15:51	WG1373989
trans-1,4-Dichloro-2-butene	ND		5.00	1	11/02/2019 15:51	WG1373989
2,2-Dichloropropane	ND		0.500	1	11/02/2019 15:51	WG1373989
Di-isopropyl ether	ND		0.500	1	11/02/2019 15:51	WG1373989
Ethylbenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
Hexachloro-1,3-butadiene	ND	UJ J0	1.00	1	11/02/2019 15:51	WG1373989
2-Hexanone	ND		5.00	1	11/02/2019 15:51	WG1373989
n-Hexane	ND		5.00	1	11/02/2019 15:51	WG1373989
Iodomethane	ND		10.0	1	11/02/2019 15:51	WG1373989
Isopropylbenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
p-Isopropyltoluene	ND		0.500	1	11/02/2019 15:51	WG1373989
2-Butanone (MEK)	ND		5.00	1	11/02/2019 15:51	WG1373989
Methylene Chloride	ND		2.50	1	11/02/2019 15:51	WG1373989
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/02/2019 15:51	WG1373989
Methyl tert-butyl ether	ND		0.500	1	11/02/2019 15:51	WG1373989
Naphthalene	ND	UJ J0 J3	2.50	1	11/02/2019 15:51	WG1373989
n-Propylbenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
Styrene	ND		0.500	1	11/02/2019 15:51	WG1373989
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/02/2019 15:51	WG1373989
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/02/2019 15:51	WG1373989

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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	11/02/2019 15:51	WG1373989
Tetrachloroethene	7.13		0.500	1	11/02/2019 15:51	WG1373989
Toluene	ND		0.500	1	11/02/2019 15:51	WG1373989
1,2,3-Trichlorobenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
1,2,4-Trichlorobenzene	ND	UJ J0	0.500	1	11/02/2019 15:51	WG1373989
1,1,1-Trichloroethane	ND		0.500	1	11/02/2019 15:51	WG1373989
1,1,2-Trichloroethane	ND		0.500	1	11/02/2019 15:51	WG1373989
Trichloroethene	ND		0.500	1	11/02/2019 15:51	WG1373989
Trichlorofluoromethane	ND		2.50	1	11/02/2019 15:51	WG1373989
1,2,3-Trichloropropane	ND		2.50	1	11/02/2019 15:51	WG1373989
1,2,4-Trimethylbenzene	ND	J4	0.500	1	11/02/2019 15:51	WG1373989
1,2,3-Trimethylbenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
1,3,5-Trimethylbenzene	ND		0.500	1	11/02/2019 15:51	WG1373989
Vinyl acetate	ND	UJ J0	5.00	1	11/02/2019 15:51	WG1373989
Vinyl chloride	ND		0.500	1	11/02/2019 15:51	WG1373989
Xylenes, Total	ND		1.50	1	11/02/2019 15:51	WG1373989
(S) Toluene-d8	*95.4*		*80.0-120*		*11/02/2019 15:51*	WG1373989
(S) 4-Bromofluorobenzene	*99.4*		*77.0-126*		*11/02/2019 15:51*	WG1373989
(S) 1,2-Dichloroethane-d4	*105*		*70.0-130*		*11/02/2019 15:51*	WG1373989

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	UJ J0	25.0	1	11/06/2019 04:15	WG1375600
Acrylonitrile	ND		5.00	1	11/06/2019 04:15	WG1375600
Benzene	ND		0.500	1	11/06/2019 04:15	WG1375600
Bromobenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
Bromodichloromethane	ND		0.500	1	11/06/2019 04:15	WG1375600
Bromochloromethane	ND		0.500	1	11/06/2019 04:15	WG1375600
Bromoform	ND		0.500	1	11/06/2019 04:15	WG1375600
Bromomethane	ND		2.50	1	11/06/2019 04:15	WG1375600
n-Butylbenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
sec-Butylbenzene	ND	UJ J0	0.500	1	11/06/2019 04:15	WG1375600
tert-Butylbenzene	ND	UJ J0 J4	0.500	1	11/06/2019 04:15	WG1375600
Carbon disulfide	ND		0.500	1	11/06/2019 04:15	WG1375600
Carbon tetrachloride	ND		0.500	1	11/06/2019 04:15	WG1375600
Chlorobenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
Chlorodibromomethane	ND		0.500	1	11/06/2019 04:15	WG1375600
Chloroethane	ND		2.50	1	11/06/2019 04:15	WG1375600
Chloroform	ND		0.500	1	11/06/2019 04:15	WG1375600
Chloromethane	ND		1.25	1	11/06/2019 04:15	WG1375600
2-Chlorotoluene	ND		0.500	1	11/06/2019 04:15	WG1375600
4-Chlorotoluene	ND		0.500	1	11/06/2019 04:15	WG1375600
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 04:15	WG1375600
1,2-Dibromoethane	ND		0.500	1	11/06/2019 04:15	WG1375600
Dibromomethane	ND		0.500	1	11/06/2019 04:15	WG1375600
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 04:15	WG1375600
1,1-Dichloroethane	ND		0.500	1	11/06/2019 04:15	WG1375600
1,2-Dichloroethane	ND		0.500	1	11/06/2019 04:15	WG1375600
1,1-Dichloroethene	ND		0.500	1	11/06/2019 04:15	WG1375600
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 04:15	WG1375600
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 04:15	WG1375600
1,2-Dichloropropane	ND		0.500	1	11/06/2019 04:15	WG1375600
1,1-Dichloropropene	ND		0.500	1	11/06/2019 04:15	WG1375600
1,3-Dichloropropane	ND		1.00	1	11/06/2019 04:15	WG1375600
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 04:15	WG1375600
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 04:15	WG1375600
trans-1,4-Dichloro-2-butene	ND	UJ J0	5.00	1	11/06/2019 04:15	WG1375600
2,2-Dichloropropane	ND		0.500	1	11/06/2019 04:15	WG1375600
Di-isopropyl ether	ND		0.500	1	11/06/2019 04:15	WG1375600
Ethylbenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 04:15	WG1375600
2-Hexanone	ND		5.00	1	11/06/2019 04:15	WG1375600
n-Hexane	ND		5.00	1	11/06/2019 04:15	WG1375600
Iodomethane	ND		10.0	1	11/06/2019 04:15	WG1375600
Isopropylbenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
p-Isopropyltoluene	ND		0.500	1	11/06/2019 04:15	WG1375600
2-Butanone (MEK)	ND		5.00	1	11/06/2019 04:15	WG1375600
Methylene Chloride	ND		2.50	1	11/06/2019 04:15	WG1375600
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 04:15	WG1375600
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 04:15	WG1375600
Naphthalene	ND		2.50	1	11/06/2019 04:15	WG1375600
n-Propylbenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
Styrene	ND		0.500	1	11/06/2019 04:15	WG1375600
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 04:15	WG1375600
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 04:15	WG1375600

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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	11/06/2019 04:15	WG1375600
Tetrachloroethene	6.24		0.500	1	11/06/2019 04:15	WG1375600
Toluene	ND		0.500	1	11/06/2019 04:15	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 04:15	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 04:15	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 04:15	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 04:15	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 04:15	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 04:15	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 04:15	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 04:15	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 04:15	WG1375600
(S) Toluene-d8	*91.1*		*80.0-120*		*11/06/2019 04:15*	WG1375600
(S) 4-Bromofluorobenzene	*96.7*		*77.0-126*		*11/06/2019 04:15*	WG1375600
(S) 1,2-Dichloroethane-d4	*95.0*		*70.0-130*		*11/06/2019 04:15*	WG1375600

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	UJ J0	25.0	1	11/06/2019 04:36	WG1375600
Acrylonitrile	ND		5.00	1	11/06/2019 04:36	WG1375600
Benzene	ND		0.500	1	11/06/2019 04:36	WG1375600
Bromobenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
Bromodichloromethane	ND		0.500	1	11/06/2019 04:36	WG1375600
Bromochloromethane	ND		0.500	1	11/06/2019 04:36	WG1375600
Bromoform	ND		0.500	1	11/06/2019 04:36	WG1375600
Bromomethane	ND		2.50	1	11/06/2019 04:36	WG1375600
n-Butylbenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
sec-Butylbenzene	ND	UJ J0	0.500	1	11/06/2019 04:36	WG1375600
tert-Butylbenzene	ND	UJ J0 J4	0.500	1	11/06/2019 04:36	WG1375600
Carbon disulfide	ND		0.500	1	11/06/2019 04:36	WG1375600
Carbon tetrachloride	ND		0.500	1	11/06/2019 04:36	WG1375600
Chlorobenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
Chlorodibromomethane	ND		0.500	1	11/06/2019 04:36	WG1375600
Chloroethane	ND		2.50	1	11/06/2019 04:36	WG1375600
Chloroform	ND		0.500	1	11/06/2019 04:36	WG1375600
Chloromethane	ND		1.25	1	11/06/2019 04:36	WG1375600
2-Chlorotoluene	ND		0.500	1	11/06/2019 04:36	WG1375600
4-Chlorotoluene	ND		0.500	1	11/06/2019 04:36	WG1375600
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 04:36	WG1375600
1,2-Dibromoethane	ND		0.500	1	11/06/2019 04:36	WG1375600
Dibromomethane	ND		0.500	1	11/06/2019 04:36	WG1375600
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 04:36	WG1375600
1,1-Dichloroethane	ND		0.500	1	11/06/2019 04:36	WG1375600
1,2-Dichloroethane	ND		0.500	1	11/06/2019 04:36	WG1375600
1,1-Dichloroethene	ND		0.500	1	11/06/2019 04:36	WG1375600
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 04:36	WG1375600
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 04:36	WG1375600
1,2-Dichloropropane	ND		0.500	1	11/06/2019 04:36	WG1375600
1,1-Dichloropropene	ND		0.500	1	11/06/2019 04:36	WG1375600
1,3-Dichloropropane	ND		1.00	1	11/06/2019 04:36	WG1375600
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 04:36	WG1375600
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 04:36	WG1375600
trans-1,4-Dichloro-2-butene	ND	UJ J0	5.00	1	11/06/2019 04:36	WG1375600
2,2-Dichloropropane	ND		0.500	1	11/06/2019 04:36	WG1375600
Di-isopropyl ether	ND		0.500	1	11/06/2019 04:36	WG1375600
Ethylbenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 04:36	WG1375600
2-Hexanone	ND		5.00	1	11/06/2019 04:36	WG1375600
n-Hexane	ND		5.00	1	11/06/2019 04:36	WG1375600
Iodomethane	ND		10.0	1	11/06/2019 04:36	WG1375600
Isopropylbenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
p-Isopropyltoluene	ND		0.500	1	11/06/2019 04:36	WG1375600
2-Butanone (MEK)	ND		5.00	1	11/06/2019 04:36	WG1375600
Methylene Chloride	ND		2.50	1	11/06/2019 04:36	WG1375600
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 04:36	WG1375600
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 04:36	WG1375600
Naphthalene	ND		2.50	1	11/06/2019 04:36	WG1375600
n-Propylbenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
Styrene	ND		0.500	1	11/06/2019 04:36	WG1375600
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 04:36	WG1375600
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 04:36	WG1375600

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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	11/06/2019 04:36	WG1375600
Tetrachloroethene	11.3		0.500	1	11/06/2019 04:36	WG1375600
Toluene	ND		0.500	1	11/06/2019 04:36	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 04:36	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 04:36	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 04:36	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 04:36	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 04:36	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 04:36	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 04:36	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 04:36	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 04:36	WG1375600
(S) Toluene-d8	*91.8*		*80.0-120*		*11/06/2019 04:36*	WG1375600
(S) 4-Bromofluorobenzene	*98.8*		*77.0-126*		*11/06/2019 04:36*	WG1375600
(S) 1,2-Dichloroethane-d4	*96.0*		*70.0-130*		*11/06/2019 04:36*	WG1375600

JC 11/21/19

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	11/06/2019 04:56	WG1375600	
Acrylonitrile	ND		5.00	1	11/06/2019 04:56	WG1375600	
Benzene	ND		0.500	1	11/06/2019 04:56	WG1375600	
Bromobenzene	ND		0.500	1	11/06/2019 04:56	WG1375600	
Bromodichloromethane	ND		0.500	1	11/06/2019 04:56	WG1375600	
Bromochloromethane	ND		0.500	1	11/06/2019 04:56	WG1375600	
Bromoform	ND		0.500	1	11/06/2019 04:56	WG1375600	
Bromomethane	ND		2.50	1	11/06/2019 04:56	WG1375600	
n-Butylbenzene	ND		0.500	1	11/06/2019 04:56	WG1375600	
sec-Butylbenzene	ND	UJ J0	0.500	1	11/06/2019 04:56	WG1375600	
tert-Butylbenzene	ND	UJ J0 J4	0.500	1	11/06/2019 04:56	WG1375600	
Carbon disulfide	ND		0.500	1	11/06/2019 04:56	WG1375600	
Carbon tetrachloride	ND		0.500	1	11/06/2019 04:56	WG1375600	
Chlorobenzene	ND		0.500	1	11/06/2019 04:56	WG1375600	
Chlorodibromomethane	ND		0.500	1	11/06/2019 04:56	WG1375600	
Chloroethane	ND		2.50	1	11/06/2019 04:56	WG1375600	
Chloroform	ND		0.500	1	11/06/2019 04:56	WG1375600	
Chloromethane	ND		1.25	1	11/06/2019 04:56	WG1375600	
2-Chlorotoluene	ND		0.500	1	11/06/2019 04:56	WG1375600	
4-Chlorotoluene	ND		0.500	1	11/06/2019 04:56	WG1375600	
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 04:56	WG1375600	
1,2-Dibromoethane	ND		0.500	1	11/06/2019 04:56	WG1375600	
Dibromomethane	ND		0.500	1	11/06/2019 04:56	WG1375600	
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 04:56	WG1375600	
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 04:56	WG1375600	
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 04:56	WG1375600	
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 04:56	WG1375600	
1,1-Dichloroethane	ND		0.500	1	11/06/2019 04:56	WG1375600	
1,2-Dichloroethane	ND		0.500	1	11/06/2019 04:56	WG1375600	
1,1-Dichloroethene	ND		0.500	1	11/06/2019 04:56	WG1375600	
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 04:56	WG1375600	
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 04:56	WG1375600	
1,2-Dichloropropane	ND		0.500	1	11/06/2019 04:56	WG1375600	
1,1-Dichloropropene	ND		0.500	1	11/06/2019 04:56	WG1375600	
1,3-Dichloropropane	ND		1.00	1	11/06/2019 04:56	WG1375600	
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 04:56	WG1375600	
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 04:56	WG1375600	
trans-1,4-Dichloro-2-butene	ND	UJ J0	5.00	1	11/06/2019 04:56	WG1375600	
2,2-Dichloropropane	ND		0.500	1	11/06/2019 04:56	WG1375600	
Di-isopropyl ether	ND		0.500	1	11/06/2019 04:56	WG1375600	
Ethylbenzene	ND		0.500	1	11/06/2019 04:56	WG1375600	
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 04:56	WG1375600	
2-Hexanone	ND		5.00	1	11/06/2019 04:56	WG1375600	
n-Hexane	ND		5.00	1	11/06/2019 04:56	WG1375600	
Iodomethane	ND		10.0	1	11/06/2019 04:56	WG1375600	JC 11/21/19
Isopropylbenzene	ND		0.500	1	11/06/2019 04:56	WG1375600	
p-Isopropyltoluene	ND		0.500	1	11/06/2019 04:56	WG1375600	
2-Butanone (MEK)	ND		5.00	1	11/06/2019 04:56	WG1375600	
Methylene Chloride	ND		2.50	1	11/06/2019 04:56	WG1375600	
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 04:56	WG1375600	
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 04:56	WG1375600	
Naphthalene	ND		2.50	1	11/06/2019 04:56	WG1375600	
n-Propylbenzene	ND		0.500	1	11/06/2019 04:56	WG1375600	
Styrene	ND		0.500	1	11/06/2019 04:56	WG1375600	
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 04:56	WG1375600	
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 04:56	WG1375600	

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	11/06/2019 04:56	WG1375600
Tetrachloroethene	2.85		0.500	1	11/06/2019 04:56	WG1375600
Toluene	ND		0.500	1	11/06/2019 04:56	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 04:56	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 04:56	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 04:56	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 04:56	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 04:56	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 04:56	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 04:56	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 04:56	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 04:56	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 04:56	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 04:56	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 04:56	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 04:56	WG1375600
(S) Toluene-d8	*94.6*		*80.0-120*		*11/06/2019 04:56*	WG1375600
(S) 4-Bromofluorobenzene	*98.3*		*77.0-126*		*11/06/2019 04:56*	WG1375600
(S) 1,2-Dichloroethane-d4	*94.6*		*70.0-130*		*11/06/2019 04:56*	WG1375600

JC 11/21/19

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	11/06/2019 05:17	WG1375600
Acrylonitrile	ND		5.00	1	11/06/2019 05:17	WG1375600
Benzene	ND		0.500	1	11/06/2019 05:17	WG1375600
Bromobenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
Bromodichloromethane	ND		0.500	1	11/06/2019 05:17	WG1375600
Bromochloromethane	ND		0.500	1	11/06/2019 05:17	WG1375600
Bromoform	ND		0.500	1	11/06/2019 05:17	WG1375600
Bromomethane	ND		2.50	1	11/06/2019 05:17	WG1375600
n-Butylbenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
sec-Butylbenzene	ND	UJ J0	0.500	1	11/06/2019 05:17	WG1375600
tert-Butylbenzene	ND	UJ J0 J4	0.500	1	11/06/2019 05:17	WG1375600
Carbon disulfide	ND		0.500	1	11/06/2019 05:17	WG1375600
Carbon tetrachloride	ND		0.500	1	11/06/2019 05:17	WG1375600
Chlorobenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
Chlorodibromomethane	ND		0.500	1	11/06/2019 05:17	WG1375600
Chloroethane	ND		2.50	1	11/06/2019 05:17	WG1375600
Chloroform	0.560		0.500	1	11/06/2019 05:17	WG1375600
Chloromethane	ND		1.25	1	11/06/2019 05:17	WG1375600
2-Chlorotoluene	ND		0.500	1	11/06/2019 05:17	WG1375600
4-Chlorotoluene	ND		0.500	1	11/06/2019 05:17	WG1375600
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 05:17	WG1375600
1,2-Dibromoethane	ND		0.500	1	11/06/2019 05:17	WG1375600
Dibromomethane	ND		0.500	1	11/06/2019 05:17	WG1375600
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 05:17	WG1375600
1,1-Dichloroethane	ND		0.500	1	11/06/2019 05:17	WG1375600
1,2-Dichloroethane	ND		0.500	1	11/06/2019 05:17	WG1375600
1,1-Dichloroethene	ND		0.500	1	11/06/2019 05:17	WG1375600
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 05:17	WG1375600
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 05:17	WG1375600
1,2-Dichloropropane	ND		0.500	1	11/06/2019 05:17	WG1375600
1,1-Dichloropropene	ND		0.500	1	11/06/2019 05:17	WG1375600
1,3-Dichloropropane	ND		1.00	1	11/06/2019 05:17	WG1375600
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 05:17	WG1375600
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 05:17	WG1375600
trans-1,4-Dichloro-2-butene	ND	UJ J0	5.00	1	11/06/2019 05:17	WG1375600
2,2-Dichloropropane	ND		0.500	1	11/06/2019 05:17	WG1375600
Di-isopropyl ether	ND		0.500	1	11/06/2019 05:17	WG1375600
Ethylbenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 05:17	WG1375600
2-Hexanone	ND		5.00	1	11/06/2019 05:17	WG1375600 JC 11/21/19
n-Hexane	ND		5.00	1	11/06/2019 05:17	WG1375600
Iodomethane	ND		10.0	1	11/06/2019 05:17	WG1375600
Isopropylbenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
p-Isopropyltoluene	ND		0.500	1	11/06/2019 05:17	WG1375600
2-Butanone (MEK)	ND		5.00	1	11/06/2019 05:17	WG1375600
Methylene Chloride	ND		2.50	1	11/06/2019 05:17	WG1375600
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 05:17	WG1375600
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 05:17	WG1375600
Naphthalene	ND		2.50	1	11/06/2019 05:17	WG1375600
n-Propylbenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
Styrene	ND		0.500	1	11/06/2019 05:17	WG1375600
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 05:17	WG1375600
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 05:17	WG1375600

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	11/06/2019 05:17	WG1375600
Tetrachloroethene	ND		0.500	1	11/06/2019 05:17	WG1375600
Toluene	ND		0.500	1	11/06/2019 05:17	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 05:17	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 05:17	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 05:17	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 05:17	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 05:17	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 05:17	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 05:17	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 05:17	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 05:17	WG1375600
(S) Toluene-d8	*96.6*		*80.0-120*		*11/06/2019 05:17*	WG1375600
(S) 4-Bromofluorobenzene	*99.6*		*77.0-126*		*11/06/2019 05:17*	WG1375600
(S) 1,2-Dichloroethane-d4	*92.8*		*70.0-130*		*11/06/2019 05:17*	WG1375600

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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	11/06/2019 05:37	WG1375600	
Acrylonitrile	ND		5.00	1	11/06/2019 05:37	WG1375600	
Benzene	ND		0.500	1	11/06/2019 05:37	WG1375600	
Bromobenzene	ND		0.500	1	11/06/2019 05:37	WG1375600	
Bromodichloromethane	ND		0.500	1	11/06/2019 05:37	WG1375600	
Bromochloromethane	ND		0.500	1	11/06/2019 05:37	WG1375600	
Bromoform	ND		0.500	1	11/06/2019 05:37	WG1375600	
Bromomethane	ND		2.50	1	11/06/2019 05:37	WG1375600	
n-Butylbenzene	ND		0.500	1	11/06/2019 05:37	WG1375600	
sec-Butylbenzene	ND	UJ J0	0.500	1	11/06/2019 05:37	WG1375600	
tert-Butylbenzene	ND	UJ J0 J4	0.500	1	11/06/2019 05:37	WG1375600	
Carbon disulfide	ND		0.500	1	11/06/2019 05:37	WG1375600	
Carbon tetrachloride	ND		0.500	1	11/06/2019 05:37	WG1375600	
Chlorobenzene	ND		0.500	1	11/06/2019 05:37	WG1375600	
Chlorodibromomethane	ND		0.500	1	11/06/2019 05:37	WG1375600	
Chloroethane	ND		2.50	1	11/06/2019 05:37	WG1375600	
Chloroform	0.547		0.500	1	11/06/2019 05:37	WG1375600	
Chloromethane	ND		1.25	1	11/06/2019 05:37	WG1375600	
2-Chlorotoluene	ND		0.500	1	11/06/2019 05:37	WG1375600	
4-Chlorotoluene	ND		0.500	1	11/06/2019 05:37	WG1375600	
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 05:37	WG1375600	
1,2-Dibromoethane	ND		0.500	1	11/06/2019 05:37	WG1375600	
Dibromomethane	ND		0.500	1	11/06/2019 05:37	WG1375600	
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 05:37	WG1375600	
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 05:37	WG1375600	
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 05:37	WG1375600	
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 05:37	WG1375600	
1,1-Dichloroethane	ND		0.500	1	11/06/2019 05:37	WG1375600	
1,2-Dichloroethane	ND		0.500	1	11/06/2019 05:37	WG1375600	
1,1-Dichloroethene	ND		0.500	1	11/06/2019 05:37	WG1375600	
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 05:37	WG1375600	
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 05:37	WG1375600	
1,2-Dichloropropane	ND		0.500	1	11/06/2019 05:37	WG1375600	
1,1-Dichloropropene	ND		0.500	1	11/06/2019 05:37	WG1375600	
1,3-Dichloropropane	ND		1.00	1	11/06/2019 05:37	WG1375600	
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 05:37	WG1375600	
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 05:37	WG1375600	
trans-1,4-Dichloro-2-butene	ND	UJ J0	5.00	1	11/06/2019 05:37	WG1375600	
2,2-Dichloropropane	ND		0.500	1	11/06/2019 05:37	WG1375600	JC 11/21/19
Di-isopropyl ether	ND		0.500	1	11/06/2019 05:37	WG1375600	
Ethylbenzene	ND		0.500	1	11/06/2019 05:37	WG1375600	
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 05:37	WG1375600	
2-Hexanone	ND		5.00	1	11/06/2019 05:37	WG1375600	
n-Hexane	ND		5.00	1	11/06/2019 05:37	WG1375600	
Iodomethane	ND		10.0	1	11/06/2019 05:37	WG1375600	
Isopropylbenzene	ND		0.500	1	11/06/2019 05:37	WG1375600	
p-Isopropyltoluene	ND		0.500	1	11/06/2019 05:37	WG1375600	
2-Butanone (MEK)	ND		5.00	1	11/06/2019 05:37	WG1375600	
Methylene Chloride	ND		2.50	1	11/06/2019 05:37	WG1375600	
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 05:37	WG1375600	
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 05:37	WG1375600	
Naphthalene	ND		2.50	1	11/06/2019 05:37	WG1375600	
n-Propylbenzene	ND		0.500	1	11/06/2019 05:37	WG1375600	
Styrene	ND		0.500	1	11/06/2019 05:37	WG1375600	
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 05:37	WG1375600	
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 05:37	WG1375600	

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	11/06/2019 05:37	WG1375600
Tetrachloroethene	ND		0.500	1	11/06/2019 05:37	WG1375600
Toluene	ND		0.500	1	11/06/2019 05:37	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 05:37	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 05:37	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 05:37	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 05:37	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 05:37	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 05:37	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 05:37	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 05:37	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 05:37	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 05:37	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 05:37	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 05:37	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 05:37	WG1375600
(S) Toluene-d8	*92.6*		*80.0-120*		*11/06/2019 05:37*	WG1375600
(S) 4-Bromofluorobenzene	*97.6*		*77.0-126*		*11/06/2019 05:37*	WG1375600
(S) 1,2-Dichloroethane-d4	*95.6*		*70.0-130*		*11/06/2019 05:37*	WG1375600

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	UJ J0	25.0	1	11/06/2019 05:58	WG1375600
Acrylonitrile	ND		5.00	1	11/06/2019 05:58	WG1375600
Benzene	ND		0.500	1	11/06/2019 05:58	WG1375600
Bromobenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
Bromodichloromethane	ND		0.500	1	11/06/2019 05:58	WG1375600
Bromochloromethane	ND		0.500	1	11/06/2019 05:58	WG1375600
Bromoform	ND		0.500	1	11/06/2019 05:58	WG1375600
Bromomethane	ND		2.50	1	11/06/2019 05:58	WG1375600
n-Butylbenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
sec-Butylbenzene	ND	UJ J0	0.500	1	11/06/2019 05:58	WG1375600
tert-Butylbenzene	ND	UJ J0 J4	0.500	1	11/06/2019 05:58	WG1375600
Carbon disulfide	ND		0.500	1	11/06/2019 05:58	WG1375600
Carbon tetrachloride	ND		0.500	1	11/06/2019 05:58	WG1375600
Chlorobenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
Chlorodibromomethane	ND		0.500	1	11/06/2019 05:58	WG1375600
Chloroethane	ND		2.50	1	11/06/2019 05:58	WG1375600
Chloroform	ND		0.500	1	11/06/2019 05:58	WG1375600
Chloromethane	ND		1.25	1	11/06/2019 05:58	WG1375600
2-Chlorotoluene	ND		0.500	1	11/06/2019 05:58	WG1375600
4-Chlorotoluene	ND		0.500	1	11/06/2019 05:58	WG1375600
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 05:58	WG1375600
1,2-Dibromoethane	ND		0.500	1	11/06/2019 05:58	WG1375600
Dibromomethane	ND		0.500	1	11/06/2019 05:58	WG1375600
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 05:58	WG1375600
1,1-Dichloroethane	ND		0.500	1	11/06/2019 05:58	WG1375600
1,2-Dichloroethane	ND		0.500	1	11/06/2019 05:58	WG1375600
1,1-Dichloroethene	ND		0.500	1	11/06/2019 05:58	WG1375600
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 05:58	WG1375600
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 05:58	WG1375600
1,2-Dichloropropane	ND		0.500	1	11/06/2019 05:58	WG1375600
1,1-Dichloropropene	ND		0.500	1	11/06/2019 05:58	WG1375600
1,3-Dichloropropane	ND		1.00	1	11/06/2019 05:58	WG1375600
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 05:58	WG1375600
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 05:58	WG1375600
trans-1,4-Dichloro-2-butene	ND	UJ J0	5.00	1	11/06/2019 05:58	WG1375600
2,2-Dichloropropane	ND		0.500	1	11/06/2019 05:58	WG1375600
Di-isopropyl ether	ND		0.500	1	11/06/2019 05:58	WG1375600
Ethylbenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 05:58	WG1375600
2-Hexanone	ND		5.00	1	11/06/2019 05:58	WG1375600
n-Hexane	ND		5.00	1	11/06/2019 05:58	WG1375600
Iodomethane	ND		10.0	1	11/06/2019 05:58	WG1375600
Isopropylbenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
p-Isopropyltoluene	ND		0.500	1	11/06/2019 05:58	WG1375600
2-Butanone (MEK)	ND		5.00	1	11/06/2019 05:58	WG1375600
Methylene Chloride	ND		2.50	1	11/06/2019 05:58	WG1375600
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 05:58	WG1375600
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 05:58	WG1375600
Naphthalene	ND		2.50	1	11/06/2019 05:58	WG1375600
n-Propylbenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
Styrene	ND		0.500	1	11/06/2019 05:58	WG1375600
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 05:58	WG1375600
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 05:58	WG1375600

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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	11/06/2019 05:58	WG1375600
Tetrachloroethene	15.0		0.500	1	11/06/2019 05:58	WG1375600
Toluene	ND		0.500	1	11/06/2019 05:58	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 05:58	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 05:58	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 05:58	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 05:58	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 05:58	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 05:58	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 05:58	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 05:58	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 05:58	WG1375600
(S) Toluene-d8	*93.9*		*80.0-120*		*11/06/2019 05:58*	WG1375600
(S) 4-Bromofluorobenzene	*101*		*77.0-126*		*11/06/2019 05:58*	WG1375600
(S) 1,2-Dichloroethane-d4	*96.7*		*70.0-130*		*11/06/2019 05:58*	WG1375600

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch	
Acetone	ND	UJ J0	25.0	1	11/06/2019 06:18	WG1375600	
Acrylonitrile	ND		5.00	1	11/06/2019 06:18	WG1375600	
Benzene	ND		0.500	1	11/06/2019 06:18	WG1375600	
Bromobenzene	ND		0.500	1	11/06/2019 06:18	WG1375600	
Bromodichloromethane	ND		0.500	1	11/06/2019 06:18	WG1375600	
Bromochloromethane	ND		0.500	1	11/06/2019 06:18	WG1375600	
Bromoform	ND		0.500	1	11/06/2019 06:18	WG1375600	
Bromomethane	ND		2.50	1	11/06/2019 06:18	WG1375600	
n-Butylbenzene	ND		0.500	1	11/06/2019 06:18	WG1375600	
sec-Butylbenzene	ND	UJ J0	0.500	1	11/06/2019 06:18	WG1375600	
tert-Butylbenzene	ND	UJ J0 J4	0.500	1	11/06/2019 06:18	WG1375600	
Carbon disulfide	ND		0.500	1	11/06/2019 06:18	WG1375600	
Carbon tetrachloride	ND		0.500	1	11/06/2019 06:18	WG1375600	
Chlorobenzene	ND		0.500	1	11/06/2019 06:18	WG1375600	
Chlorodibromomethane	ND		0.500	1	11/06/2019 06:18	WG1375600	
Chloroethane	ND		2.50	1	11/06/2019 06:18	WG1375600	
Chloroform	ND		0.500	1	11/06/2019 06:18	WG1375600	
Chloromethane	ND		1.25	1	11/06/2019 06:18	WG1375600	
2-Chlorotoluene	ND		0.500	1	11/06/2019 06:18	WG1375600	
4-Chlorotoluene	ND		0.500	1	11/06/2019 06:18	WG1375600	
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 06:18	WG1375600	
1,2-Dibromoethane	ND		0.500	1	11/06/2019 06:18	WG1375600	
Dibromomethane	ND		0.500	1	11/06/2019 06:18	WG1375600	
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 06:18	WG1375600	
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 06:18	WG1375600	
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 06:18	WG1375600	
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 06:18	WG1375600	
1,1-Dichloroethane	ND		0.500	1	11/06/2019 06:18	WG1375600	
1,2-Dichloroethane	ND		0.500	1	11/06/2019 06:18	WG1375600	
1,1-Dichloroethene	ND		0.500	1	11/06/2019 06:18	WG1375600	
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 06:18	WG1375600	
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 06:18	WG1375600	
1,2-Dichloropropane	ND		0.500	1	11/06/2019 06:18	WG1375600	
1,1-Dichloropropene	ND		0.500	1	11/06/2019 06:18	WG1375600	
1,3-Dichloropropane	ND		1.00	1	11/06/2019 06:18	WG1375600	
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 06:18	WG1375600	
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 06:18	WG1375600	
trans-1,4-Dichloro-2-butene	ND	UJ J0	5.00	1	11/06/2019 06:18	WG1375600	
2,2-Dichloropropane	ND		0.500	1	11/06/2019 06:18	WG1375600	
Di-isopropyl ether	ND		0.500	1	11/06/2019 06:18	WG1375600	
Ethylbenzene	ND		0.500	1	11/06/2019 06:18	WG1375600	
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 06:18	WG1375600	JC 11/21/19
2-Hexanone	ND		5.00	1	11/06/2019 06:18	WG1375600	
n-Hexane	ND		5.00	1	11/06/2019 06:18	WG1375600	
Iodomethane	ND		10.0	1	11/06/2019 06:18	WG1375600	
Isopropylbenzene	ND		0.500	1	11/06/2019 06:18	WG1375600	
p-Isopropyltoluene	ND		0.500	1	11/06/2019 06:18	WG1375600	
2-Butanone (MEK)	ND		5.00	1	11/06/2019 06:18	WG1375600	
Methylene Chloride	ND		2.50	1	11/06/2019 06:18	WG1375600	
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 06:18	WG1375600	
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 06:18	WG1375600	
Naphthalene	ND		2.50	1	11/06/2019 06:18	WG1375600	
n-Propylbenzene	ND		0.500	1	11/06/2019 06:18	WG1375600	
Styrene	ND		0.500	1	11/06/2019 06:18	WG1375600	
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 06:18	WG1375600	
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 06:18	WG1375600	

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	11/06/2019 06:18	WG1375600
Tetrachloroethene	0.631		0.500	1	11/06/2019 06:18	WG1375600
Toluene	ND		0.500	1	11/06/2019 06:18	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 06:18	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 06:18	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 06:18	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 06:18	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 06:18	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 06:18	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 06:18	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 06:18	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 06:18	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 06:18	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 06:18	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 06:18	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 06:18	WG1375600
(S) Toluene-d8	*93.1*		*80.0-120*		*11/06/2019 06:18*	WG1375600
(S) 4-Bromofluorobenzene	*101*		*77.0-126*		*11/06/2019 06:18*	WG1375600
(S) 1,2-Dichloroethane-d4	*93.6*		*70.0-130*		*11/06/2019 06:18*	WG1375600

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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	11/06/2019 06:39	WG1375600	
Acrylonitrile	ND		5.00	1	11/06/2019 06:39	WG1375600	
Benzene	ND		0.500	1	11/06/2019 06:39	WG1375600	
Bromobenzene	ND		0.500	1	11/06/2019 06:39	WG1375600	
Bromodichloromethane	ND		0.500	1	11/06/2019 06:39	WG1375600	
Bromochloromethane	ND		0.500	1	11/06/2019 06:39	WG1375600	
Bromoform	ND		0.500	1	11/06/2019 06:39	WG1375600	
Bromomethane	ND		2.50	1	11/06/2019 06:39	WG1375600	
n-Butylbenzene	ND		0.500	1	11/06/2019 06:39	WG1375600	
sec-Butylbenzene	ND	UJ J0	0.500	1	11/06/2019 06:39	WG1375600	
tert-Butylbenzene	ND	UJ J0 J4	0.500	1	11/06/2019 06:39	WG1375600	
Carbon disulfide	ND		0.500	1	11/06/2019 06:39	WG1375600	
Carbon tetrachloride	ND		0.500	1	11/06/2019 06:39	WG1375600	
Chlorobenzene	ND		0.500	1	11/06/2019 06:39	WG1375600	
Chlorodibromomethane	ND		0.500	1	11/06/2019 06:39	WG1375600	
Chloroethane	ND		2.50	1	11/06/2019 06:39	WG1375600	
Chloroform	ND		0.500	1	11/06/2019 06:39	WG1375600	
Chloromethane	ND		1.25	1	11/06/2019 06:39	WG1375600	
2-Chlorotoluene	ND		0.500	1	11/06/2019 06:39	WG1375600	
4-Chlorotoluene	ND		0.500	1	11/06/2019 06:39	WG1375600	
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 06:39	WG1375600	
1,2-Dibromoethane	ND		0.500	1	11/06/2019 06:39	WG1375600	
Dibromomethane	ND		0.500	1	11/06/2019 06:39	WG1375600	
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 06:39	WG1375600	
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 06:39	WG1375600	
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 06:39	WG1375600	
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 06:39	WG1375600	
1,1-Dichloroethane	ND		0.500	1	11/06/2019 06:39	WG1375600	
1,2-Dichloroethane	ND		0.500	1	11/06/2019 06:39	WG1375600	
1,1-Dichloroethene	ND		0.500	1	11/06/2019 06:39	WG1375600	
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 06:39	WG1375600	
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 06:39	WG1375600	
1,2-Dichloropropane	ND		0.500	1	11/06/2019 06:39	WG1375600	
1,1-Dichloropropene	ND		0.500	1	11/06/2019 06:39	WG1375600	
1,3-Dichloropropane	ND		1.00	1	11/06/2019 06:39	WG1375600	
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 06:39	WG1375600	
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 06:39	WG1375600	
trans-1,4-Dichloro-2-butene	ND	UJ J0	5.00	1	11/06/2019 06:39	WG1375600	
2,2-Dichloropropane	ND		0.500	1	11/06/2019 06:39	WG1375600	
Di-isopropyl ether	ND		0.500	1	11/06/2019 06:39	WG1375600	
Ethylbenzene	ND		0.500	1	11/06/2019 06:39	WG1375600	
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 06:39	WG1375600	
2-Hexanone	ND		5.00	1	11/06/2019 06:39	WG1375600	
n-Hexane	ND		5.00	1	11/06/2019 06:39	WG1375600	
Iodomethane	ND		10.0	1	11/06/2019 06:39	WG1375600	JC 11/21/19
Isopropylbenzene	ND		0.500	1	11/06/2019 06:39	WG1375600	
p-Isopropyltoluene	ND		0.500	1	11/06/2019 06:39	WG1375600	
2-Butanone (MEK)	ND		5.00	1	11/06/2019 06:39	WG1375600	
Methylene Chloride	ND		2.50	1	11/06/2019 06:39	WG1375600	
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 06:39	WG1375600	
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 06:39	WG1375600	
Naphthalene	ND		2.50	1	11/06/2019 06:39	WG1375600	
n-Propylbenzene	ND		0.500	1	11/06/2019 06:39	WG1375600	
Styrene	ND		0.500	1	11/06/2019 06:39	WG1375600	
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 06:39	WG1375600	
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 06:39	WG1375600	

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	11/06/2019 06:39	WG1375600
Tetrachloroethene	9.72		0.500	1	11/06/2019 06:39	WG1375600
Toluene	ND		0.500	1	11/06/2019 06:39	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 06:39	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 06:39	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 06:39	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 06:39	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 06:39	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 06:39	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 06:39	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 06:39	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 06:39	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 06:39	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 06:39	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 06:39	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 06:39	WG1375600
(S) Toluene-d8	*92.1*		*80.0-120*		*11/06/2019 06:39*	WG1375600
(S) 4-Bromofluorobenzene	*98.4*		*77.0-126*		*11/06/2019 06:39*	WG1375600
(S) 1,2-Dichloroethane-d4	*95.1*		*70.0-130*		*11/06/2019 06:39*	WG1375600

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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	11/06/2019 06:59	WG1375600
Acrylonitrile	ND		5.00	1	11/06/2019 06:59	WG1375600
Benzene	ND		0.500	1	11/06/2019 06:59	WG1375600
Bromobenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
Bromodichloromethane	ND		0.500	1	11/06/2019 06:59	WG1375600
Bromochloromethane	ND		0.500	1	11/06/2019 06:59	WG1375600
Bromoform	ND		0.500	1	11/06/2019 06:59	WG1375600
Bromomethane	ND		2.50	1	11/06/2019 06:59	WG1375600
n-Butylbenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
sec-Butylbenzene	ND	UJ J0	0.500	1	11/06/2019 06:59	WG1375600
tert-Butylbenzene	ND	UJ J0 J4	0.500	1	11/06/2019 06:59	WG1375600
Carbon disulfide	ND		0.500	1	11/06/2019 06:59	WG1375600
Carbon tetrachloride	ND		0.500	1	11/06/2019 06:59	WG1375600
Chlorobenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
Chlorodibromomethane	ND		0.500	1	11/06/2019 06:59	WG1375600
Chloroethane	ND		2.50	1	11/06/2019 06:59	WG1375600
Chloroform	ND		0.500	1	11/06/2019 06:59	WG1375600
Chloromethane	ND		1.25	1	11/06/2019 06:59	WG1375600
2-Chlorotoluene	ND		0.500	1	11/06/2019 06:59	WG1375600
4-Chlorotoluene	ND		0.500	1	11/06/2019 06:59	WG1375600
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 06:59	WG1375600
1,2-Dibromoethane	ND		0.500	1	11/06/2019 06:59	WG1375600
Dibromomethane	ND		0.500	1	11/06/2019 06:59	WG1375600
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 06:59	WG1375600
1,1-Dichloroethane	ND		0.500	1	11/06/2019 06:59	WG1375600
1,2-Dichloroethane	ND		0.500	1	11/06/2019 06:59	WG1375600
1,1-Dichloroethene	ND		0.500	1	11/06/2019 06:59	WG1375600
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 06:59	WG1375600
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 06:59	WG1375600
1,2-Dichloropropane	ND		0.500	1	11/06/2019 06:59	WG1375600
1,1-Dichloropropene	ND		0.500	1	11/06/2019 06:59	WG1375600
1,3-Dichloropropane	ND		1.00	1	11/06/2019 06:59	WG1375600
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 06:59	WG1375600
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 06:59	WG1375600
trans-1,4-Dichloro-2-butene	ND	UJ J0	5.00	1	11/06/2019 06:59	WG1375600
2,2-Dichloropropane	ND		0.500	1	11/06/2019 06:59	WG1375600
Di-isopropyl ether	ND		0.500	1	11/06/2019 06:59	WG1375600
Ethylbenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 06:59	WG1375600
2-Hexanone	ND		5.00	1	11/06/2019 06:59	WG1375600
n-Hexane	ND		5.00	1	11/06/2019 06:59	WG1375600
Iodomethane	ND		10.0	1	11/06/2019 06:59	WG1375600
Isopropylbenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
p-Isopropyltoluene	ND		0.500	1	11/06/2019 06:59	WG1375600
2-Butanone (MEK)	ND		5.00	1	11/06/2019 06:59	WG1375600
Methylene Chloride	ND		2.50	1	11/06/2019 06:59	WG1375600
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 06:59	WG1375600
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 06:59	WG1375600
Naphthalene	ND		2.50	1	11/06/2019 06:59	WG1375600
n-Propylbenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
Styrene	ND		0.500	1	11/06/2019 06:59	WG1375600
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 06:59	WG1375600
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 06:59	WG1375600

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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	11/06/2019 06:59	WG1375600
Tetrachloroethene	16.3		0.500	1	11/06/2019 06:59	WG1375600
Toluene	ND		0.500	1	11/06/2019 06:59	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 06:59	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 06:59	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 06:59	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 06:59	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 06:59	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 06:59	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 06:59	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 06:59	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 06:59	WG1375600
(S) Toluene-d8	*92.5*		*80.0-120*		*11/06/2019 06:59*	WG1375600
(S) 4-Bromofluorobenzene	*96.4*		*77.0-126*		*11/06/2019 06:59*	WG1375600
(S) 1,2-Dichloroethane-d4	*95.9*		*70.0-130*		*11/06/2019 06:59*	WG1375600

JC 11/21/19

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	11/06/2019 07:20	WG1375600
Acrylonitrile	ND		5.00	1	11/06/2019 07:20	WG1375600
Benzene	ND		0.500	1	11/06/2019 07:20	WG1375600
Bromobenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
Bromodichloromethane	ND		0.500	1	11/06/2019 07:20	WG1375600
Bromochloromethane	ND		0.500	1	11/06/2019 07:20	WG1375600
Bromoform	ND		0.500	1	11/06/2019 07:20	WG1375600
Bromomethane	ND		2.50	1	11/06/2019 07:20	WG1375600
n-Butylbenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
sec-Butylbenzene	ND	UJ J0	0.500	1	11/06/2019 07:20	WG1375600
tert-Butylbenzene	ND	UJ J0 J4	0.500	1	11/06/2019 07:20	WG1375600
Carbon disulfide	ND		0.500	1	11/06/2019 07:20	WG1375600
Carbon tetrachloride	ND		0.500	1	11/06/2019 07:20	WG1375600
Chlorobenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
Chlorodibromomethane	ND		0.500	1	11/06/2019 07:20	WG1375600
Chloroethane	ND		2.50	1	11/06/2019 07:20	WG1375600
Chloroform	ND		0.500	1	11/06/2019 07:20	WG1375600
Chloromethane	ND		1.25	1	11/06/2019 07:20	WG1375600
2-Chlorotoluene	ND		0.500	1	11/06/2019 07:20	WG1375600
4-Chlorotoluene	ND		0.500	1	11/06/2019 07:20	WG1375600
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 07:20	WG1375600
1,2-Dibromoethane	ND		0.500	1	11/06/2019 07:20	WG1375600
Dibromomethane	ND		0.500	1	11/06/2019 07:20	WG1375600
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 07:20	WG1375600
1,1-Dichloroethane	ND		0.500	1	11/06/2019 07:20	WG1375600
1,2-Dichloroethane	ND		0.500	1	11/06/2019 07:20	WG1375600
1,1-Dichloroethene	ND		0.500	1	11/06/2019 07:20	WG1375600
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 07:20	WG1375600
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 07:20	WG1375600
1,2-Dichloropropane	ND		0.500	1	11/06/2019 07:20	WG1375600
1,1-Dichloropropene	ND		0.500	1	11/06/2019 07:20	WG1375600
1,3-Dichloropropane	ND		1.00	1	11/06/2019 07:20	WG1375600
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 07:20	WG1375600
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 07:20	WG1375600
trans-1,4-Dichloro-2-butene	ND	UJ J0	5.00	1	11/06/2019 07:20	WG1375600
2,2-Dichloropropane	ND		0.500	1	11/06/2019 07:20	WG1375600
Di-isopropyl ether	ND		0.500	1	11/06/2019 07:20	WG1375600
Ethylbenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 07:20	WG1375600
2-Hexanone	ND		5.00	1	11/06/2019 07:20	WG1375600
n-Hexane	ND		5.00	1	11/06/2019 07:20	WG1375600
Iodomethane	ND		10.0	1	11/06/2019 07:20	WG1375600
Isopropylbenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
p-Isopropyltoluene	ND		0.500	1	11/06/2019 07:20	WG1375600
2-Butanone (MEK)	ND		5.00	1	11/06/2019 07:20	WG1375600
Methylene Chloride	ND		2.50	1	11/06/2019 07:20	WG1375600
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 07:20	WG1375600
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 07:20	WG1375600 JC 11/21/19
Naphthalene	ND		2.50	1	11/06/2019 07:20	WG1375600
n-Propylbenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
Styrene	ND		0.500	1	11/06/2019 07:20	WG1375600
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 07:20	WG1375600
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 07:20	WG1375600

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	11/06/2019 07:20	WG1375600
Tetrachloroethene	17.1		0.500	1	11/06/2019 07:20	WG1375600
Toluene	ND		0.500	1	11/06/2019 07:20	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 07:20	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 07:20	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 07:20	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 07:20	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 07:20	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 07:20	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 07:20	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 07:20	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 07:20	WG1375600
(S) Toluene-d8	*90.2*		*80.0-120*		*11/06/2019 07:20*	WG1375600
(S) 4-Bromofluorobenzene	*92.1*		*77.0-126*		*11/06/2019 07:20*	WG1375600
(S) 1,2-Dichloroethane-d4	*96.3*		*70.0-130*		*11/06/2019 07:20*	WG1375600

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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	11/06/2019 07:41	WG1375600	
Acrylonitrile	ND		5.00	1	11/06/2019 07:41	WG1375600	
Benzene	ND		0.500	1	11/06/2019 07:41	WG1375600	
Bromobenzene	ND		0.500	1	11/06/2019 07:41	WG1375600	
Bromodichloromethane	ND		0.500	1	11/06/2019 07:41	WG1375600	
Bromochloromethane	ND		0.500	1	11/06/2019 07:41	WG1375600	
Bromoform	ND		0.500	1	11/06/2019 07:41	WG1375600	
Bromomethane	ND		2.50	1	11/06/2019 07:41	WG1375600	
n-Butylbenzene	ND		0.500	1	11/06/2019 07:41	WG1375600	
sec-Butylbenzene	ND	UJ J0	0.500	1	11/06/2019 07:41	WG1375600	
tert-Butylbenzene	ND	UJ J0 J4	0.500	1	11/06/2019 07:41	WG1375600	
Carbon disulfide	ND		0.500	1	11/06/2019 07:41	WG1375600	
Carbon tetrachloride	ND		0.500	1	11/06/2019 07:41	WG1375600	
Chlorobenzene	ND		0.500	1	11/06/2019 07:41	WG1375600	
Chlorodibromomethane	ND		0.500	1	11/06/2019 07:41	WG1375600	
Chloroethane	ND		2.50	1	11/06/2019 07:41	WG1375600	
Chloroform	ND		0.500	1	11/06/2019 07:41	WG1375600	
Chloromethane	ND		1.25	1	11/06/2019 07:41	WG1375600	
2-Chlorotoluene	ND		0.500	1	11/06/2019 07:41	WG1375600	
4-Chlorotoluene	ND		0.500	1	11/06/2019 07:41	WG1375600	
1,2-Dibromo-3-Chloropropane	ND		2.50	1	11/06/2019 07:41	WG1375600	
1,2-Dibromoethane	ND		0.500	1	11/06/2019 07:41	WG1375600	
Dibromomethane	ND		0.500	1	11/06/2019 07:41	WG1375600	
1,2-Dichlorobenzene	ND		0.500	1	11/06/2019 07:41	WG1375600	
1,3-Dichlorobenzene	ND		0.500	1	11/06/2019 07:41	WG1375600	
1,4-Dichlorobenzene	ND		0.500	1	11/06/2019 07:41	WG1375600	
Dichlorodifluoromethane	ND		2.50	1	11/06/2019 07:41	WG1375600	
1,1-Dichloroethane	ND		0.500	1	11/06/2019 07:41	WG1375600	
1,2-Dichloroethane	ND		0.500	1	11/06/2019 07:41	WG1375600	
1,1-Dichloroethene	ND		0.500	1	11/06/2019 07:41	WG1375600	
cis-1,2-Dichloroethene	ND		0.500	1	11/06/2019 07:41	WG1375600	
trans-1,2-Dichloroethene	ND		0.500	1	11/06/2019 07:41	WG1375600	
1,2-Dichloropropane	ND		0.500	1	11/06/2019 07:41	WG1375600	
1,1-Dichloropropene	ND		0.500	1	11/06/2019 07:41	WG1375600	
1,3-Dichloropropane	ND		1.00	1	11/06/2019 07:41	WG1375600	
cis-1,3-Dichloropropene	ND		0.500	1	11/06/2019 07:41	WG1375600	
trans-1,3-Dichloropropene	ND		0.500	1	11/06/2019 07:41	WG1375600	
trans-1,4-Dichloro-2-butene	ND	UJ J0	5.00	1	11/06/2019 07:41	WG1375600	
2,2-Dichloropropane	ND		0.500	1	11/06/2019 07:41	WG1375600	
Di-isopropyl ether	ND		0.500	1	11/06/2019 07:41	WG1375600	
Ethylbenzene	ND		0.500	1	11/06/2019 07:41	WG1375600	
Hexachloro-1,3-butadiene	ND		1.00	1	11/06/2019 07:41	WG1375600	
2-Hexanone	ND		5.00	1	11/06/2019 07:41	WG1375600	
n-Hexane	ND		5.00	1	11/06/2019 07:41	WG1375600	
Iodomethane	ND		10.0	1	11/06/2019 07:41	WG1375600	
Isopropylbenzene	ND		0.500	1	11/06/2019 07:41	WG1375600	
p-Isopropyltoluene	ND		0.500	1	11/06/2019 07:41	WG1375600	JC 11/21/19
2-Butanone (MEK)	ND		5.00	1	11/06/2019 07:41	WG1375600	
Methylene Chloride	ND		2.50	1	11/06/2019 07:41	WG1375600	
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	11/06/2019 07:41	WG1375600	
Methyl tert-butyl ether	ND		0.500	1	11/06/2019 07:41	WG1375600	
Naphthalene	ND		2.50	1	11/06/2019 07:41	WG1375600	
n-Propylbenzene	ND		0.500	1	11/06/2019 07:41	WG1375600	
Styrene	ND		0.500	1	11/06/2019 07:41	WG1375600	
1,1,1,2-Tetrachloroethane	ND		0.500	1	11/06/2019 07:41	WG1375600	
1,1,2,2-Tetrachloroethane	ND		0.500	1	11/06/2019 07:41	WG1375600	

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	11/06/2019 07:41	WG1375600
Tetrachloroethene	5.72		0.500	1	11/06/2019 07:41	WG1375600
Toluene	ND		0.500	1	11/06/2019 07:41	WG1375600
1,2,3-Trichlorobenzene	ND		0.500	1	11/06/2019 07:41	WG1375600
1,2,4-Trichlorobenzene	ND		0.500	1	11/06/2019 07:41	WG1375600
1,1,1-Trichloroethane	ND		0.500	1	11/06/2019 07:41	WG1375600
1,1,2-Trichloroethane	ND		0.500	1	11/06/2019 07:41	WG1375600
Trichloroethene	ND		0.500	1	11/06/2019 07:41	WG1375600
Trichlorofluoromethane	ND		2.50	1	11/06/2019 07:41	WG1375600
1,2,3-Trichloropropane	ND		2.50	1	11/06/2019 07:41	WG1375600
1,2,4-Trimethylbenzene	ND		0.500	1	11/06/2019 07:41	WG1375600
1,2,3-Trimethylbenzene	ND		0.500	1	11/06/2019 07:41	WG1375600
1,3,5-Trimethylbenzene	ND		0.500	1	11/06/2019 07:41	WG1375600
Vinyl acetate	ND		5.00	1	11/06/2019 07:41	WG1375600
Vinyl chloride	ND		0.500	1	11/06/2019 07:41	WG1375600
Xylenes, Total	ND		1.50	1	11/06/2019 07:41	WG1375600
(S) Toluene-d8	*92.9*		*80.0-120*		*11/06/2019 07:41*	WG1375600
(S) 4-Bromofluorobenzene	*99.1*		*77.0-126*		*11/06/2019 07:41*	WG1375600
(S) 1,2-Dichloroethane-d4	*101*		*70.0-130*		*11/06/2019 07:41*	WG1375600

JC 11/21/19

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

December 17, 2019

PES Environmental, Inc.- WA

Sample Delivery Group:	L1167629
Samples Received:	12/05/2019
Project Number:	1358.001.02.013
Description:	MVSC
Site:	MVSC-HARRIS
Report To:	Karsten Springstead 1215 Fourth Ave., Suite 1350 Seattle, WA 98161

Entire Report Reviewed By:

Brian Ford

Brian Ford
Project Manager

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 Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



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MW-19-120419 L1167629-01 GW

Collected by: Ben Hecht
Collected date/time: 12/04/19 09:55
Received date/time: 12/05/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1392962	1	12/11/19 02:07	12/11/19 02:07	JCP	Sacramento, CA
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1395047	1	12/12/19 00:49	12/12/19 00:49	KAT	Sacramento, CA

MW-20-120419 L1167629-02 GW

Collected by: Ben Hecht
Collected date/time: 12/04/19 11:00
Received date/time: 12/05/19 08:45

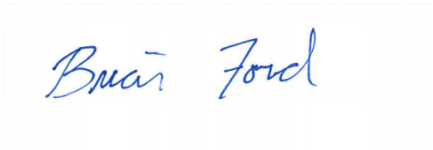
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1392962	1	12/11/19 02:27	12/11/19 02:27	JCP	Sacramento, CA
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1395047	1	12/12/19 01:10	12/12/19 01:10	KAT	Sacramento, CA

TB-120419 L1167629-03 GW

Collected by: Ben Hecht
Collected date/time: 12/04/19 13:15
Received date/time: 12/05/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1392962	1	12/10/19 22:44	12/10/19 22:44	JCP	Sacramento, CA
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1395047	1	12/11/19 23:49	12/11/19 23:49	KAT	Sacramento, CA

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, 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
Project Manager

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J3	25.0	1	12/12/2019 00:49	WG1395047
Acrylonitrile	ND		5.00	1	12/11/2019 02:07	WG1392962
Benzene	ND		0.500	1	12/11/2019 02:07	WG1392962
Bromobenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
Bromodichloromethane	ND		0.500	1	12/11/2019 02:07	WG1392962
Bromochloromethane	ND		0.500	1	12/11/2019 02:07	WG1392962
Bromoform	ND		0.500	1	12/11/2019 02:07	WG1392962
Bromomethane	ND	J0 J3	2.50	1	12/12/2019 00:49	WG1395047
n-Butylbenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
sec-Butylbenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
tert-Butylbenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
Carbon disulfide	ND		0.500	1	12/11/2019 02:07	WG1392962
Carbon tetrachloride	ND		0.500	1	12/11/2019 02:07	WG1392962
Chlorobenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
Chlorodibromomethane	ND		0.500	1	12/11/2019 02:07	WG1392962
Chloroethane	ND		2.50	1	12/11/2019 02:07	WG1392962
Chloroform	ND		0.500	1	12/11/2019 02:07	WG1392962
Chloromethane	ND	J0 J4	1.25	1	12/12/2019 00:49	WG1395047
2-Chlorotoluene	ND		0.500	1	12/11/2019 02:07	WG1392962
4-Chlorotoluene	ND		0.500	1	12/11/2019 02:07	WG1392962
1,2-Dibromo-3-Chloropropane	ND		2.50	1	12/11/2019 02:07	WG1392962
1,2-Dibromoethane	ND		0.500	1	12/11/2019 02:07	WG1392962
Dibromomethane	ND		0.500	1	12/11/2019 02:07	WG1392962
1,2-Dichlorobenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
1,3-Dichlorobenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
1,4-Dichlorobenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
Dichlorodifluoromethane	ND		2.50	1	12/11/2019 02:07	WG1392962
1,1-Dichloroethane	ND		0.500	1	12/11/2019 02:07	WG1392962
1,2-Dichloroethane	ND		0.500	1	12/11/2019 02:07	WG1392962
1,1-Dichloroethene	ND		0.500	1	12/11/2019 02:07	WG1392962
cis-1,2-Dichloroethene	ND		0.500	1	12/11/2019 02:07	WG1392962
trans-1,2-Dichloroethene	ND		0.500	1	12/11/2019 02:07	WG1392962
1,2-Dichloropropane	ND		0.500	1	12/11/2019 02:07	WG1392962
1,1-Dichloropropene	ND		0.500	1	12/11/2019 02:07	WG1392962
1,3-Dichloropropane	ND		1.00	1	12/11/2019 02:07	WG1392962
cis-1,3-Dichloropropene	ND		0.500	1	12/11/2019 02:07	WG1392962
trans-1,3-Dichloropropene	ND		0.500	1	12/11/2019 02:07	WG1392962
trans-1,4-Dichloro-2-butene	ND	J0	5.00	1	12/12/2019 00:49	WG1395047
2,2-Dichloropropane	ND		0.500	1	12/11/2019 02:07	WG1392962
Di-isopropyl ether	ND		0.500	1	12/11/2019 02:07	WG1392962
Ethylbenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
Hexachloro-1,3-butadiene	ND	J4	1.00	1	12/11/2019 02:07	WG1392962
2-Hexanone	ND	J0	5.00	1	12/12/2019 00:49	WG1395047
n-Hexane	ND		5.00	1	12/11/2019 02:07	WG1392962
Iodomethane	ND	J0	10.0	1	12/12/2019 00:49	WG1395047
Isopropylbenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
p-Isopropyltoluene	ND		0.500	1	12/11/2019 02:07	WG1392962
2-Butanone (MEK)	ND		5.00	1	12/11/2019 02:07	WG1392962
Methylene Chloride	ND		2.50	1	12/11/2019 02:07	WG1392962
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	12/11/2019 02:07	WG1392962
Methyl tert-butyl ether	ND		0.500	1	12/11/2019 02:07	WG1392962
Naphthalene	ND		2.50	1	12/11/2019 02:07	WG1392962
n-Propylbenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
Styrene	ND		0.500	1	12/11/2019 02:07	WG1392962
1,1,1,2-Tetrachloroethane	ND		0.500	1	12/11/2019 02:07	WG1392962
1,1,2,2-Tetrachloroethane	ND		0.500	1	12/11/2019 02:07	WG1392962

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	12/11/2019 02:07	WG1392962
Tetrachloroethene	ND		0.500	1	12/11/2019 02:07	WG1392962
Toluene	ND		0.500	1	12/11/2019 02:07	WG1392962
1,2,3-Trichlorobenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
1,2,4-Trichlorobenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
1,1,1-Trichloroethane	ND		0.500	1	12/11/2019 02:07	WG1392962
1,1,2-Trichloroethane	ND		0.500	1	12/11/2019 02:07	WG1392962
Trichloroethene	ND		0.500	1	12/11/2019 02:07	WG1392962
Trichlorofluoromethane	ND		2.50	1	12/11/2019 02:07	WG1392962
1,2,3-Trichloropropane	ND		2.50	1	12/11/2019 02:07	WG1392962
1,2,4-Trimethylbenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
1,2,3-Trimethylbenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
1,3,5-Trimethylbenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
Vinyl acetate	ND		5.00	1	12/11/2019 02:07	WG1392962
Vinyl chloride	ND		0.500	1	12/11/2019 02:07	WG1392962
Xylenes, Total	ND		1.50	1	12/11/2019 02:07	WG1392962
(S) Toluene-d8	*95.9*		*80.0-120*		*12/11/2019 02:07*	WG1392962
(S) Toluene-d8	*96.4*		*80.0-120*		*12/12/2019 00:49*	WG1395047
(S) 4-Bromofluorobenzene	*98.2*		*80.0-120*		*12/11/2019 02:07*	WG1392962
(S) 4-Bromofluorobenzene	*104*		*80.0-120*		*12/12/2019 00:49*	WG1395047
(S) 1,2-Dichloroethane-d4	*98.9*		*80.0-120*		*12/11/2019 02:07*	WG1392962
(S) 1,2-Dichloroethane-d4	*97.4*		*80.0-120*		*12/12/2019 00:49*	WG1395047

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J3	25.0	1	12/12/2019 01:10	WG1395047
Acrylonitrile	ND		5.00	1	12/11/2019 02:27	WG1392962
Benzene	ND		0.500	1	12/11/2019 02:27	WG1392962
Bromobenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
Bromodichloromethane	ND		0.500	1	12/11/2019 02:27	WG1392962
Bromochloromethane	ND		0.500	1	12/11/2019 02:27	WG1392962
Bromoform	ND		0.500	1	12/11/2019 02:27	WG1392962
Bromomethane	ND	J3	2.50	1	12/12/2019 01:10	WG1395047
n-Butylbenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
sec-Butylbenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
tert-Butylbenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
Carbon disulfide	ND		0.500	1	12/11/2019 02:27	WG1392962
Carbon tetrachloride	ND		0.500	1	12/11/2019 02:27	WG1392962
Chlorobenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
Chlorodibromomethane	ND		0.500	1	12/11/2019 02:27	WG1392962
Chloroethane	ND		2.50	1	12/11/2019 02:27	WG1392962
Chloroform	ND		0.500	1	12/11/2019 02:27	WG1392962
Chloromethane	ND	J4	1.25	1	12/12/2019 01:10	WG1395047
2-Chlorotoluene	ND		0.500	1	12/11/2019 02:27	WG1392962
4-Chlorotoluene	ND		0.500	1	12/11/2019 02:27	WG1392962
1,2-Dibromo-3-Chloropropane	ND		2.50	1	12/11/2019 02:27	WG1392962
1,2-Dibromoethane	ND		0.500	1	12/11/2019 02:27	WG1392962
Dibromomethane	ND		0.500	1	12/11/2019 02:27	WG1392962
1,2-Dichlorobenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
1,3-Dichlorobenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
1,4-Dichlorobenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
Dichlorodifluoromethane	ND		2.50	1	12/11/2019 02:27	WG1392962
1,1-Dichloroethane	ND		0.500	1	12/11/2019 02:27	WG1392962
1,2-Dichloroethane	ND		0.500	1	12/11/2019 02:27	WG1392962
1,1-Dichloroethene	ND		0.500	1	12/11/2019 02:27	WG1392962
cis-1,2-Dichloroethene	ND		0.500	1	12/11/2019 02:27	WG1392962
trans-1,2-Dichloroethene	ND		0.500	1	12/11/2019 02:27	WG1392962
1,2-Dichloropropane	ND		0.500	1	12/11/2019 02:27	WG1392962
1,1-Dichloropropene	ND		0.500	1	12/11/2019 02:27	WG1392962
1,3-Dichloropropane	ND		1.00	1	12/11/2019 02:27	WG1392962
cis-1,3-Dichloropropene	ND		0.500	1	12/11/2019 02:27	WG1392962
trans-1,3-Dichloropropene	ND		0.500	1	12/11/2019 02:27	WG1392962
trans-1,4-Dichloro-2-butene	ND	J0	5.00	1	12/12/2019 01:10	WG1395047
2,2-Dichloropropane	ND		0.500	1	12/11/2019 02:27	WG1392962
Di-isopropyl ether	ND		0.500	1	12/11/2019 02:27	WG1392962
Ethylbenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
Hexachloro-1,3-butadiene	ND	J4	1.00	1	12/11/2019 02:27	WG1392962
2-Hexanone	ND	J0	5.00	1	12/12/2019 01:10	WG1395047
n-Hexane	ND		5.00	1	12/11/2019 02:27	WG1392962
Iodomethane	ND	J0	10.0	1	12/12/2019 01:10	WG1395047
Isopropylbenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
p-Isopropyltoluene	ND		0.500	1	12/11/2019 02:27	WG1392962
2-Butanone (MEK)	ND		5.00	1	12/11/2019 02:27	WG1392962
Methylene Chloride	ND		2.50	1	12/11/2019 02:27	WG1392962
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	12/11/2019 02:27	WG1392962
Methyl tert-butyl ether	ND		0.500	1	12/11/2019 02:27	WG1392962
Naphthalene	ND		2.50	1	12/11/2019 02:27	WG1392962
n-Propylbenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
Styrene	ND		0.500	1	12/11/2019 02:27	WG1392962
1,1,1,2-Tetrachloroethane	ND		0.500	1	12/11/2019 02:27	WG1392962
1,1,2,2-Tetrachloroethane	ND		0.500	1	12/11/2019 02:27	WG1392962

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	12/11/2019 02:27	WG1392962
Tetrachloroethene	ND		0.500	1	12/11/2019 02:27	WG1392962
Toluene	ND		0.500	1	12/11/2019 02:27	WG1392962
1,2,3-Trichlorobenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
1,2,4-Trichlorobenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
1,1,1-Trichloroethane	ND		0.500	1	12/11/2019 02:27	WG1392962
1,1,2-Trichloroethane	ND		0.500	1	12/11/2019 02:27	WG1392962
Trichloroethene	ND		0.500	1	12/11/2019 02:27	WG1392962
Trichlorofluoromethane	ND		2.50	1	12/11/2019 02:27	WG1392962
1,2,3-Trichloropropane	ND		2.50	1	12/11/2019 02:27	WG1392962
1,2,4-Trimethylbenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
1,2,3-Trimethylbenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
1,3,5-Trimethylbenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
Vinyl acetate	ND		5.00	1	12/11/2019 02:27	WG1392962
Vinyl chloride	ND		0.500	1	12/11/2019 02:27	WG1392962
Xylenes, Total	ND		1.50	1	12/11/2019 02:27	WG1392962
(S) Toluene-d8	*96.8*		*80.0-120*		*12/11/2019 02:27*	WG1392962
(S) Toluene-d8	*96.1*		*80.0-120*		*12/12/2019 01:10*	WG1395047
(S) 4-Bromofluorobenzene	*99.4*		*80.0-120*		*12/11/2019 02:27*	WG1392962
(S) 4-Bromofluorobenzene	*101*		*80.0-120*		*12/12/2019 01:10*	WG1395047
(S) 1,2-Dichloroethane-d4	*101*		*80.0-120*		*12/11/2019 02:27*	WG1392962
(S) 1,2-Dichloroethane-d4	*98.5*		*80.0-120*		*12/12/2019 01:10*	WG1395047

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	J3	25.0	1	12/11/2019 23:49	WG1395047
Acrylonitrile	ND		5.00	1	12/10/2019 22:44	WG1392962
Benzene	ND		0.500	1	12/10/2019 22:44	WG1392962
Bromobenzene	ND		0.500	1	12/10/2019 22:44	WG1392962
Bromodichloromethane	ND		0.500	1	12/10/2019 22:44	WG1392962
Bromochloromethane	ND		0.500	1	12/10/2019 22:44	WG1392962
Bromoform	ND		0.500	1	12/10/2019 22:44	WG1392962
Bromomethane	ND	J3	2.50	1	12/11/2019 23:49	WG1395047
n-Butylbenzene	ND		0.500	1	12/10/2019 22:44	WG1392962
sec-Butylbenzene	ND		0.500	1	12/10/2019 22:44	WG1392962
tert-Butylbenzene	ND		0.500	1	12/10/2019 22:44	WG1392962
Carbon disulfide	ND		0.500	1	12/10/2019 22:44	WG1392962
Carbon tetrachloride	ND		0.500	1	12/10/2019 22:44	WG1392962
Chlorobenzene	ND		0.500	1	12/10/2019 22:44	WG1392962
Chlorodibromomethane	ND		0.500	1	12/10/2019 22:44	WG1392962
Chloroethane	ND		2.50	1	12/10/2019 22:44	WG1392962
Chloroform	ND		0.500	1	12/10/2019 22:44	WG1392962
Chloromethane	ND	J4	1.25	1	12/11/2019 23:49	WG1395047
2-Chlorotoluene	ND		0.500	1	12/10/2019 22:44	WG1392962
4-Chlorotoluene	ND		0.500	1	12/10/2019 22:44	WG1392962
1,2-Dibromo-3-Chloropropane	ND		2.50	1	12/10/2019 22:44	WG1392962
1,2-Dibromoethane	ND		0.500	1	12/10/2019 22:44	WG1392962
Dibromomethane	ND		0.500	1	12/10/2019 22:44	WG1392962
1,2-Dichlorobenzene	ND		0.500	1	12/10/2019 22:44	WG1392962
1,3-Dichlorobenzene	ND		0.500	1	12/10/2019 22:44	WG1392962
1,4-Dichlorobenzene	ND		0.500	1	12/10/2019 22:44	WG1392962
Dichlorodifluoromethane	ND		2.50	1	12/10/2019 22:44	WG1392962
1,1-Dichloroethane	ND		0.500	1	12/10/2019 22:44	WG1392962
1,2-Dichloroethane	ND		0.500	1	12/10/2019 22:44	WG1392962
1,1-Dichloroethene	ND		0.500	1	12/10/2019 22:44	WG1392962
cis-1,2-Dichloroethene	ND		0.500	1	12/10/2019 22:44	WG1392962
trans-1,2-Dichloroethene	ND		0.500	1	12/10/2019 22:44	WG1392962
1,2-Dichloropropane	ND		0.500	1	12/10/2019 22:44	WG1392962
1,1-Dichloropropene	ND		0.500	1	12/10/2019 22:44	WG1392962
1,3-Dichloropropane	ND		1.00	1	12/10/2019 22:44	WG1392962
cis-1,3-Dichloropropene	ND		0.500	1	12/10/2019 22:44	WG1392962
trans-1,3-Dichloropropene	ND		0.500	1	12/10/2019 22:44	WG1392962
trans-1,4-Dichloro-2-butene	ND	J0	5.00	1	12/11/2019 23:49	WG1395047
2,2-Dichloropropane	ND		0.500	1	12/10/2019 22:44	WG1392962
Di-isopropyl ether	ND		0.500	1	12/10/2019 22:44	WG1392962
Ethylbenzene	ND		0.500	1	12/10/2019 22:44	WG1392962
Hexachloro-1,3-butadiene	ND	J4	1.00	1	12/10/2019 22:44	WG1392962
2-Hexanone	ND	J0	5.00	1	12/11/2019 23:49	WG1395047
n-Hexane	ND		5.00	1	12/10/2019 22:44	WG1392962
Iodomethane	ND	J0	10.0	1	12/11/2019 23:49	WG1395047
Isopropylbenzene	ND		0.500	1	12/10/2019 22:44	WG1392962
p-Isopropyltoluene	ND		0.500	1	12/10/2019 22:44	WG1392962
2-Butanone (MEK)	ND		5.00	1	12/10/2019 22:44	WG1392962
Methylene Chloride	ND		2.50	1	12/10/2019 22:44	WG1392962
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	12/10/2019 22:44	WG1392962
Methyl tert-butyl ether	ND		0.500	1	12/10/2019 22:44	WG1392962
Naphthalene	ND		2.50	1	12/10/2019 22:44	WG1392962
n-Propylbenzene	ND		0.500	1	12/10/2019 22:44	WG1392962
Styrene	ND		0.500	1	12/10/2019 22:44	WG1392962
1,1,1,2-Tetrachloroethane	ND		0.500	1	12/10/2019 22:44	WG1392962
1,1,2,2-Tetrachloroethane	ND		0.500	1	12/10/2019 22:44	WG1392962

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	12/10/2019 22:44	WG1392962
Tetrachloroethene	ND		0.500	1	12/10/2019 22:44	WG1392962
Toluene	ND		0.500	1	12/10/2019 22:44	WG1392962
1,2,3-Trichlorobenzene	ND		0.500	1	12/10/2019 22:44	WG1392962
1,2,4-Trichlorobenzene	ND		0.500	1	12/10/2019 22:44	WG1392962
1,1,1-Trichloroethane	ND		0.500	1	12/10/2019 22:44	WG1392962
1,1,2-Trichloroethane	ND		0.500	1	12/10/2019 22:44	WG1392962
Trichloroethene	ND		0.500	1	12/10/2019 22:44	WG1392962
Trichlorofluoromethane	ND		2.50	1	12/10/2019 22:44	WG1392962
1,2,3-Trichloropropane	ND		2.50	1	12/10/2019 22:44	WG1392962
1,2,4-Trimethylbenzene	ND		0.500	1	12/10/2019 22:44	WG1392962
1,2,3-Trimethylbenzene	ND		0.500	1	12/10/2019 22:44	WG1392962
1,3,5-Trimethylbenzene	ND		0.500	1	12/10/2019 22:44	WG1392962
Vinyl acetate	ND		5.00	1	12/10/2019 22:44	WG1392962
Vinyl chloride	ND		0.500	1	12/10/2019 22:44	WG1392962
Xylenes, Total	ND		1.50	1	12/10/2019 22:44	WG1392962
(S) Toluene-d8	*95.4*		*80.0-120*		*12/10/2019 22:44*	WG1392962
(S) Toluene-d8	*95.8*		*80.0-120*		*12/11/2019 23:49*	WG1395047
(S) 4-Bromofluorobenzene	*101*		*80.0-120*		*12/10/2019 22:44*	WG1392962
(S) 4-Bromofluorobenzene	*101*		*80.0-120*		*12/11/2019 23:49*	WG1395047
(S) 1,2-Dichloroethane-d4	*96.0*		*80.0-120*		*12/10/2019 22:44*	WG1392962
(S) 1,2-Dichloroethane-d4	*96.2*		*80.0-120*		*12/11/2019 23:49*	WG1395047

Method Blank (MB)

(MB) R3481340-4 12/10/19 22:03

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
1,1,1,2-Tetrachloroethane	U		0.120	0.500
1,1,1-Trichloroethane	U		0.0940	0.500
1,1,2,2-Tetrachloroethane	U		0.130	0.500
1,1,2-Trichloroethane	U		0.186	0.500
1,1,2-Trichlorotrifluoroethane	U		0.164	0.500
1,1-Dichloroethane	U		0.114	0.500
1,1-Dichloroethene	U		0.188	0.500
1,1-Dichloropropene	U		0.128	0.500
1,2,3-Trichlorobenzene	U		0.164	0.500
1,2,3-Trichloropropane	U		0.247	2.50
1,2,4-Trichlorobenzene	U		0.355	0.500
1,2,4-Trimethylbenzene	U		0.123	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
1,2-Dichloroethane	U		0.108	0.500
1,2-Dichloropropane	U		0.190	0.500
1,3,5-Trimethylbenzene	U		0.124	0.500
1,3-Dichlorobenzene	U		0.130	0.500
1,3-Dichloropropane	U		0.147	1.00
1,4-Dichlorobenzene	U		0.121	0.500
2,2-Dichloropropane	U		0.0929	0.500
2-Butanone (MEK)	U		1.28	5.00
2-Chlorotoluene	U		0.111	0.500
4-Chlorotoluene	U		0.0972	0.500
4-Methyl-2-pentanone (MIBK)	U		0.823	5.00
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
Carbon Disulfide	0.115	J	0.101	0.500
Carbon Tetrachloride	U		0.159	0.500
Chlorobenzene	U		0.140	0.500
Chloroethane	U		0.141	2.50
Chloroform	0.0890	J	0.0860	0.500
Cis-1,2-Dichloroethene	U		0.0933	0.500
Cis-1,3-Dichloropropene	U		0.0976	0.500
Chlorodibromomethane	U		0.128	0.500

Method Blank (MB)

(MB) R3481340-4 12/10/19 22:03

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dibromomethane	U		0.117	0.500
Dichlorodifluoromethane	U		0.127	2.50
Di-isopropyl ether	U		0.0924	0.500
Ethylbenzene	U		0.158	0.500
Hexachloro-1,3-butadiene	U		0.157	1.00
Isopropylbenzene	U		0.126	0.500
Methylene Chloride	U		1.07	2.50
Methyl tert-butyl ether	U		0.102	0.500
Naphthalene	U		0.174	2.50
n-Butylbenzene	U		0.143	0.500
n-Hexane	U		0.305	5.00
n-Propylbenzene	U		0.162	0.500
p-Isopropyltoluene	U		0.138	0.500
sec-Butylbenzene	U		0.134	0.500
Styrene	U		0.117	0.500
tert-Butylbenzene	U		0.183	0.500
Tetrachloroethene	U		0.199	0.500
Toluene	U		0.412	0.500
trans-1,2-Dichloroethene	U		0.152	0.500
trans-1,3-Dichloropropene	U		0.222	0.500
Trichloroethene	U		0.153	0.500
Trichlorofluoromethane	U		0.130	2.50
Vinyl Acetate	U		0.645	5.00
Vinyl Chloride	U		0.118	0.500
Xylenes, Total	U		0.316	1.50
1,2,3-Trimethylbenzene	U		0.0739	0.500
(S) 1,2-Dichloroethane-d4	*94.1*			*80.0-120*
(S) 4-Bromofluorobenzene	*105*			*80.0-120*
(S) Toluene-d8	*94.8*			*80.0-120*

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

(LCS) R3481340-1 12/10/19 20:42 • (LCSD) R3481340-2 12/10/19 21:02

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 %
1,1,1,2-Tetrachloroethane	40.0	40.3	41.6	101	104	65.0-137			3.17	20
1,1,1-Trichloroethane	40.0	35.8	36.8	89.5	92.0	77.0-123			2.75	20
1,1,2,2-Tetrachloroethane	40.0	38.6	40.8	96.5	102	80.0-120			5.54	20
1,1,2-Trichloroethane	40.0	37.7	37.0	94.3	92.5	80.0-120			1.87	20

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

(LCS) R3481340-1 12/10/19 20:42 • (LCSD) R3481340-2 12/10/19 21:02

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 %
1,1,2-Trichlorotrifluoroethane	40.0	38.0	37.5	95.0	93.8	80.0-121			1.32	20
1,1-Dichloroethane	40.0	36.3	37.0	90.8	92.5	80.0-120			1.91	20
1,1-Dichloroethene	40.0	39.4	39.5	98.5	98.8	80.0-120			0.253	20
1,1-Dichloropropene	40.0	37.6	38.2	94.0	95.5	80.0-120			1.58	20
1,2,3-Trichlorobenzene	40.0	36.6	35.8	91.5	89.5	76.0-120			2.21	20
1,2,3-Trichloropropane	40.0	39.2	40.2	98.0	101	77.0-120			2.52	20
1,2,4-Trichlorobenzene	40.0	35.0	33.9	87.5	84.8	77.0-120			3.19	20
1,2,4-Trimethylbenzene	40.0	40.4	40.6	101	102	75.0-120			0.494	20
1,2-Dibromo-3-Chloropropane	100	89.9	93.5	89.9	93.5	54.0-140			3.93	20
1,2-Dibromoethane	40.0	40.6	41.5	102	104	73.0-125			2.19	20
1,2-Dichlorobenzene	40.0	38.9	39.4	97.3	98.5	80.0-120			1.28	20
1,2-Dichloroethane	40.0	35.3	35.1	88.3	87.8	80.0-120			0.568	20
1,2-Dichloropropane	40.0	35.5	36.2	88.8	90.5	80.0-120			1.95	20
1,3,5-Trimethylbenzene	40.0	42.6	41.0	106	103	76.0-120			3.83	20
1,3-Dichlorobenzene	40.0	40.2	40.7	101	102	79.0-120			1.24	20
1,3-Dichloropropane	40.0	37.2	37.9	93.0	94.8	80.0-120			1.86	20
1,4-Dichlorobenzene	40.0	36.8	37.1	92.0	92.8	80.0-120			0.812	20
2,2-Dichloropropane	40.0	34.1	35.5	85.3	88.8	52.0-153			4.02	20
2-Butanone (MEK)	200	160	169	80.0	84.5	71.0-120			5.47	20
2-Chlorotoluene	40.0	41.1	41.4	103	104	80.0-120			0.727	20
4-Chlorotoluene	40.0	39.8	39.5	99.5	98.8	80.0-120			0.757	20
4-Methyl-2-pentanone (MIBK)	200	183	186	91.5	93.0	70.0-121			1.63	20
Acrylonitrile	400	377	390	94.3	97.5	77.0-120			3.39	20
Benzene	40.0	38.6	38.7	96.5	96.8	80.0-120			0.259	20
Bromobenzene	40.0	40.4	41.2	101	103	80.0-120			1.96	20
Bromochloromethane	40.0	36.2	37.2	90.5	93.0	80.0-125			2.72	20
Bromodichloromethane	40.0	36.6	36.8	91.5	92.0	71.0-131			0.545	20
Bromoform	40.0	38.8	40.4	97.0	101	57.0-143			4.04	20
Carbon Disulfide	40.0	36.4	36.4	91.0	91.0	80.0-122			0.000	20
Carbon Tetrachloride	40.0	34.7	35.6	86.8	89.0	61.0-145			2.56	20
Chlorobenzene	40.0	39.5	39.8	98.8	99.5	80.0-120			0.757	20
Chloroethane	40.0	34.9	34.1	87.3	85.3	76.0-126			2.32	20
Chloroform	40.0	35.5	35.4	88.8	88.5	80.0-120			0.282	20
Cis-1,2-Dichloroethene	40.0	39.2	40.1	98.0	100	80.0-120			2.27	20
Cis-1,3-Dichloropropene	40.0	37.8	38.6	94.5	96.5	77.0-124			2.09	20
Chlorodibromomethane	40.0	36.0	36.0	90.0	90.0	68.0-136			0.000	20
Dibromomethane	40.0	38.4	38.6	96.0	96.5	77.0-123			0.519	20
Dichlorodifluoromethane	40.0	35.7	35.1	89.3	87.8	53.0-155			1.69	20
Di-isopropyl ether	40.0	36.2	36.3	90.5	90.8	80.0-120			0.276	20
Ethylbenzene	40.0	39.6	40.0	99.0	100	80.0-120			1.01	20

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

(LCS) R3481340-1 12/10/19 20:42 • (LCSD) R3481340-2 12/10/19 21:02

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 %
Hexachloro-1,3-butadiene	40.0	33.3	31.2	83.3	78.0	79.0-120		J4	6.51	20
Isopropylbenzene	40.0	41.3	41.3	103	103	80.0-120			0.000	20
Methylene Chloride	40.0	39.0	39.6	97.5	99.0	78.0-120			1.53	20
Methyl tert-butyl ether	40.0	40.0	40.8	100	102	75.0-120			1.98	20
Naphthalene	40.0	39.4	40.1	98.5	100	63.0-120			1.76	20
n-Butylbenzene	40.0	36.6	34.3	91.5	85.8	72.0-120			6.49	20
n-Hexane	100	91.9	88.8	91.9	88.8	78.0-125			3.43	20
n-Propylbenzene	40.0	41.0	40.5	103	101	79.0-120			1.23	20
p-Isopropyltoluene	40.0	39.7	37.7	99.3	94.3	74.0-120			5.17	20
sec-Butylbenzene	40.0	39.4	37.8	98.5	94.5	74.0-121			4.15	20
Styrene	40.0	42.3	43.0	106	108	80.0-120			1.64	20
tert-Butylbenzene	40.0	39.3	37.4	98.2	93.5	77.0-120			4.95	20
Tetrachloroethene	40.0	37.4	37.3	93.5	93.3	80.0-121			0.268	20
Toluene	40.0	36.6	36.7	91.5	91.8	80.0-120			0.273	20
trans-1,2-Dichloroethene	40.0	40.0	39.3	100	98.2	80.0-120			1.77	20
trans-1,3-Dichloropropene	40.0	36.5	37.2	91.3	93.0	67.0-136			1.90	20
Trichloroethene	40.0	39.2	38.9	98.0	97.3	80.0-120			0.768	20
Trichlorofluoromethane	40.0	35.5	35.7	88.8	89.3	79.0-133			0.562	20
Vinyl Acetate	40.0	42.8	43.5	107	109	71.0-139			1.62	20
Vinyl Chloride	40.0	37.2	37.2	93.0	93.0	80.0-125			0.000	20
Xylenes, Total	120	124	125	103	104	80.0-120			0.803	20
1,2,3-Trimethylbenzene	40.0	39.1	39.3	97.8	98.2	70.0-130			0.510	20
(S) 1,2-Dichloroethane-d4				*89.6*	*89.4*	*80.0-120*				
(S) 4-Bromofluorobenzene				*103*	*102*	*80.0-120*				
(S) Toluene-d8				*96.8*	*97.2*	*80.0-120*				

L1167445-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1167445-01 12/11/19 00:05 • (MS) R3481340-5 12/11/19 05:10 • (MSD) R3481340-6 12/11/19 05:30

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1,1,1,2-Tetrachloroethane	40.0	U	41.4	41.6	104	104	1	67.0-136			0.482	30
1,1,1-Trichloroethane	40.0	U	38.7	38.0	96.8	95.0	1	73.0-130			1.83	30
1,1,2,2-Tetrachloroethane	40.0	U	39.9	40.6	99.8	102	1	54.0-134			1.74	30
1,1,2-Trichloroethane	40.0	U	38.7	38.7	96.8	96.8	1	75.0-125			0.000	30
1,1,2-Trichlorotrifluoroethane	40.0	U	38.9	37.2	97.3	93.0	1	67.0-126			4.47	30
1,1-Dichloroethane	40.0	U	37.8	37.6	94.5	94.0	1	75.0-125			0.531	30
1,1-Dichloroethene	40.0	U	40.3	40.0	101	100	1	75.0-125			0.747	30
1,1-Dichloropropene	40.0	U	39.1	38.1	97.8	95.3	1	75.0-125			2.59	30

L1167445-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1167445-01 12/11/19 00:05 • (MS) R3481340-5 12/11/19 05:10 • (MSD) R3481340-6 12/11/19 05:30

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1,2,3-Trichlorobenzene	40.0	U	39.1	40.2	97.8	101	1	65.0-125			2.77	30
1,2,3-Trichloropropane	40.0	U	41.5	41.5	104	104	1	48.0-142			0.000	30
1,2,4-Trichlorobenzene	40.0	U	37.1	37.6	92.8	94.0	1	63.0-125			1.34	30
1,2,4-Trimethylbenzene	40.0	U	41.8	41.3	105	103	1	75.0-125			1.20	30
1,2-Dibromo-3-Chloropropane	100	U	96.2	97.2	96.2	97.2	1	39.0-150			1.03	30
1,2-Dibromoethane	40.0	U	42.2	42.1	105	105	1	64.0-132			0.237	30
1,2-Dichlorobenzene	40.0	U	40.4	40.7	101	102	1	75.0-125			0.740	30
1,2-Dichloroethane	40.0	U	38.6	37.9	96.5	94.8	1	75.0-125			1.83	30
1,2-Dichloropropane	40.0	U	36.7	35.7	91.8	89.3	1	75.0-125			2.76	30
1,3,5-Trimethylbenzene	40.0	U	43.2	42.6	108	106	1	75.0-125			1.40	30
1,3-Dichlorobenzene	40.0	U	41.2	40.4	103	101	1	75.0-125			1.96	30
1,3-Dichloropropane	40.0	U	39.0	39.4	97.5	98.5	1	72.0-125			1.02	30
1,4-Dichlorobenzene	40.0	U	38.3	38.1	95.8	95.3	1	71.0-125			0.524	30
2,2-Dichloropropane	40.0	U	26.7	26.2	66.8	65.5	1	39.0-150			1.89	30
2-Butanone (MEK)	200	U	180	172	90.0	86.0	1	56.0-132			4.55	30
2-Chlorotoluene	40.0	U	41.5	40.5	104	101	1	75.0-125			2.44	30
4-Chlorotoluene	40.0	U	41.1	40.3	103	101	1	75.0-125			1.97	30
4-Methyl-2-pentanone (MIBK)	200	U	197	195	98.5	97.5	1	58.0-127			1.02	30
Acrylonitrile	400	U	418	406	104	102	1	54.0-136			2.91	30
Benzene	40.0	U	39.4	39.0	98.5	97.5	1	75.0-125			1.02	30
Bromobenzene	40.0	U	41.8	40.6	105	102	1	75.0-125			2.91	30
Bromochloromethane	40.0	U	37.9	38.6	94.8	96.5	1	72.0-125			1.83	30
Bromodichloromethane	40.0	U	38.4	38.5	96.0	96.3	1	73.0-134			0.260	30
Bromoform	40.0	U	40.4	40.9	101	102	1	66.0-140			1.23	30
Carbon Disulfide	40.0	0.0869	37.1	35.6	92.8	89.0	1	69.0-125			4.13	30
Carbon Tetrachloride	40.0	U	37.6	37.2	94.0	93.0	1	63.0-150			1.07	30
Chlorobenzene	40.0	U	39.8	39.4	99.5	98.5	1	75.0-125			1.01	30
Chloroethane	40.0	U	35.2	34.7	88.0	86.8	1	70.0-125			1.43	30
Chloroform	40.0	U	38.0	37.2	95.0	93.0	1	75.0-127			2.13	30
Cis-1,2-Dichloroethene	40.0	2.14	43.2	41.2	103	97.7	1	75.0-125			4.74	30
Cis-1,3-Dichloropropene	40.0	U	36.5	36.6	91.3	91.5	1	73.0-125			0.274	30
Chlorodibromomethane	40.0	U	37.5	38.1	93.8	95.3	1	65.0-142			1.59	30
Dibromomethane	40.0	U	40.8	40.1	102	100	1	75.0-128			1.73	30
Dichlorodifluoromethane	40.0	U	37.4	36.2	93.5	90.5	1	48.0-139			3.26	30
Di-isopropyl ether	40.0	U	37.3	36.9	93.3	92.3	1	73.0-125			1.08	30
Ethylbenzene	40.0	U	39.4	39.5	98.5	98.8	1	75.0-125			0.253	30
Hexachloro-1,3-butadiene	40.0	U	35.6	38.3	89.0	95.8	1	75.0-125			7.31	30
Isopropylbenzene	40.0	U	42.2	41.2	105	103	1	75.0-125			2.40	30
Methylene Chloride	40.0	U	39.4	39.9	98.5	99.8	1	74.0-125			1.26	30
Methyl tert-butyl ether	40.0	U	41.3	41.6	103	104	1	68.0-128			0.724	30

L1167445-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1167445-01 12/11/19 00:05 • (MS) R3481340-5 12/11/19 05:10 • (MSD) R3481340-6 12/11/19 05:30

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Naphthalene	40.0	U	40.2	41.3	101	103	1	40.0-136			2.70	30
n-Butylbenzene	40.0	U	39.4	39.6	98.5	99.0	1	72.0-125			0.506	30
n-Hexane	100		86.7	82.7	86.7	82.7	1	70.0-130			4.72	30
n-Propylbenzene	40.0	U	42.2	41.1	105	103	1	75.0-125			2.64	30
p-Isopropyltoluene	40.0	U	42.1	41.5	105	104	1	75.0-125			1.44	30
sec-Butylbenzene	40.0	U	41.7	40.8	104	102	1	75.0-125			2.18	30
Styrene	40.0	U	42.4	41.5	106	104	1	60.0-126			2.15	30
tert-Butylbenzene	40.0	U	40.7	40.2	102	101	1	75.0-125			1.24	30
Tetrachloroethene	40.0	U	38.4	38.2	96.0	95.5	1	75.0-125			0.522	30
Toluene	40.0	U	37.6	36.7	94.0	91.8	1	75.0-125			2.42	30
trans-1,2-Dichloroethene	40.0	U	40.8	39.8	102	99.5	1	75.0-125			2.48	30
trans-1,3-Dichloropropene	40.0	U	36.3	36.0	90.8	90.0	1	62.0-136			0.830	30
Trichloroethene	40.0	U	40.4	39.1	101	97.8	1	75.0-125			3.27	30
Trichlorofluoromethane	40.0	U	38.2	37.8	95.5	94.5	1	61.0-146			1.05	30
Vinyl Acetate	40.0	U	38.0	39.5	95.0	98.8	1	71.0-127			3.87	30
Vinyl Chloride	40.0	U	38.1	37.9	95.3	94.8	1	67.0-125			0.526	30
Xylenes, Total	120	U	124	122	103	102	1	74.0-125			1.63	30
1,2,3-Trimethylbenzene	40.0	U	41.0	41.5	103	104	1	70.0-130			1.21	30
(S) 1,2-Dichloroethane-d4					*97.2*	*94.4*		*80.0-120*				
(S) 4-Bromofluorobenzene					*103*	*99.3*		*80.0-120*				
(S) Toluene-d8					*98.8*	*97.8*		*80.0-120*				

Method Blank (MB)

(MB) R3481889-4 12/11/19 14:30

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
2-Hexanone	U		0.757	5.00
Acetone	U		1.05	25.0
Bromomethane	U		0.157	2.50
Chloromethane	U		0.153	1.25
trans-1,4-Dichloro-2-butene	U		0.257	5.00
Iodomethane	0.843	J	0.377	10.0
(S) 1,2-Dichloroethane-d4	*93.6*			*80.0-120*
(S) 4-Bromofluorobenzene	*101*			*80.0-120*
(S) Toluene-d8	*95.9*			*80.0-120*

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

(LCS) R3481889-1 12/11/19 13:10 • (LCSD) R3481889-2 12/11/19 13:30

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 %
2-Hexanone	200	154	182	77.0	91.0	69.0-121			16.7	20
Acetone	200	159	219	79.5	109	71.0-120		J3	31.7	20
Bromomethane	40.0	26.5	32.6	66.3	81.5	42.0-160		J3	20.6	20
Chloromethane	40.0	23.0	23.9	57.5	59.8	68.0-130	J4	J4	3.84	20
trans-1,4-Dichloro-2-butene	100	76.3	81.4	76.3	81.4	65.0-127			6.47	20
Iodomethane	40.0	15.3	23.7	38.3	59.3	70.0-130	J4	J3 J4	43.1	20
(S) 1,2-Dichloroethane-d4				*87.1*	*87.0*	*80.0-120*				
(S) 4-Bromofluorobenzene				*103*	*103*	*80.0-120*				
(S) Toluene-d8				*94.9*	*95.3*	*80.0-120*				

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.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

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, the sample preparation volume or weight values differ from the standard, 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.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
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.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
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: The identification of the analyte is acceptable, but the reported concentration is an estimate. The calibration met method criteria.
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.

Pace National 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.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

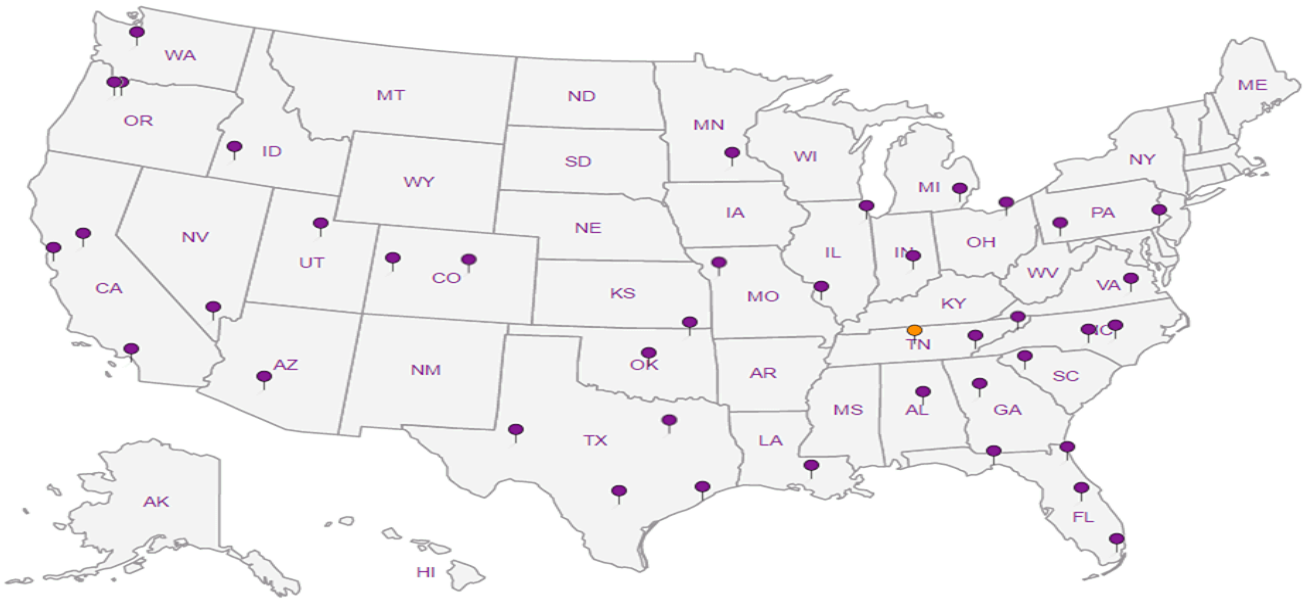
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National 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. Pace National 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; mdahl@pesenv.com; cdeboer@pesenv.com

Project Description: **MVSC**

City/State Collected: Normandy Park

Please Circle: PT MT CT ET

Phone: **206-529-3980**
Fax: **206-529-3985**

Client Project # **1358.001.02.013**

Lab Project # **PESENVSWA-MVSC**

Collected by (print): Ben Hecht

Site/Facility ID # MVSC-Harris

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

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

No. of Cntrs

Analysis / Container / Preservative

VOCs (V8260LLC) 40mlAmb-HCl

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	VOCs (V8260LLC) 40mlAmb-HCl	Remarks	Sample # (lab only)
MW-19-120419	Grab	GW	49	12/4/19	0955	3	X		-01
MW-20-120419	Grab	GW	39	12/4/19	1100	3	X		-02
TB-120419	—	GW	—	12/4/19	1315	1	X		-03
		GW							
		GW							

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # 1167629

Table A228

Acctnum: **PESENVSWA**

Template: **T159603**

Prelogin: **P742183**

PM: **110 - Brian Ford**

PB:

Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier _____

Tracking # 4794 8843 7745

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y 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
RAD Screen <0.5 mR/hr:		✓ N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
	12-4-19	13:25		1	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C 1.4+0.1=1.5 IR #4	Bottles Received: 12
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 12-5-19	Time: 0845

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

MEMORANDUM

TO: Project File **DATE:** April 22, 2020

FROM: Jessie Compeau

SUBJECT: Laboratory Data Validation Review

PROJECT: Manhattan Village Shopping Center

PROJECT #: 1358.001.02.016

TASK: EIM Data Validation Level EPA2A – December 2019 Groundwater Samples

LAB: Pace Analytical Sample Delivery Group (SDG): L1167629

Two (2) groundwater samples and one trip blank were collected as part of remediation performance monitoring at the Manhattan Village Shopping Centre site in Normandy Park, Washington on December 4, 2019. Laboratory analytical services were provided by Pace Analytical (Pace) of Mount Juliet, Tennessee. Samples were analyzed for volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method 8260D.

The quality assurance review of the laboratory data for SDG L1167629 is summarized below.

DATA QUALIFICATIONS

Guidelines established by USEPA for a limited data validation 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 coolers and delivered in good condition to the laboratory. Sample temperatures at the time of receipt were slightly below EPA's recommended temperature preservation range of less than 6.0 °Centigrade. No data qualifications are warranted.

Holding Times

USEPA Method 8260D:
All samples were analyzed for VOCs within the EPA recommended holding time of 14 days for preserved water. All holding time criteria were met.

Initial and Continuing Calibration

Initial and continuing calibration data for this project are retained by the laboratory and available for review if necessary. Pace indicated within the laboratory report that continuing calibration verification (CCV) criteria for are not met and actions are as for the following:

- CCV compounds outside of criteria are qualified by the laboratory (J0). **The associated sample results with laboratory qualifiers (J0) are estimated (UJ/J) as the associated CCV recoveries are outside of laboratory control limits.**

Method Blank Results

USEPA Method 8260D:
Laboratory method blanks were 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 reporting detection limits (RLs) with the following exceptions:

- Low levels of carbon disulfide and chloroform (analytical batch W1392962) are detected in the method blank. No action is required since these compounds are not detected in the associated samples.

- A low level of idomethane is detected in the (analytical batch W1395047) in the method blank. No action is required since these compounds are not detected in the associated samples.

Trip Blank Results

A trip blank (TB-120419) was collected and analyzed. The target analytes (VOCs) were not detected in the trip blank at a concentration at or above the reporting detection limits (RLs).

Equipment Blank Results

An equipment blank was not collected.

Field Duplicate Analyses

Field duplicate samples were not collected. Refer to client or non-client laboratory duplicate results for precision data.

Laboratory Duplicate Analyses

USEPA Method 8260D:
Laboratory duplicate analysis was not performed. Refer to laboratory control sample or matrix spike results for additional precision data.

Surrogate Recoveries

USEPA Method 8260D:
The surrogate percent recovery (%R) results for the samples, method blanks, matrix spike samples, and laboratory control samples are within the laboratory surrogate control limits. No data qualifications were warranted.

Laboratory Control Samples

USEPA Method 8260D:
The laboratory control sample and laboratory control sample duplicate (LCS/LCSD) %R's and RPDs are within the laboratory control limits with the following exceptions:

- LCSD (analytical batch WG1392962) hexachloro-1,3-butadiene recovery is slightly below criteria however no action is necessary since the LCS recovery is within criteria.

- LCS/LCSD (analytical batch WG1395047) RPDs for acetone and bromomethane exceed laboratory criteria. No action is taken in these cases since spike recoveries are within criteria but were recovered wide.

- LCS/LCSD (analytical batch WG1395047) iodomethane recoveries are below criteria and RPD exceeds laboratory criteria. **Idomethane results in associated samples are estimated and qualified (UJ).**

- LCS/LCSD (analytical batch WG1395047) chloromethane recoveries are below criteria. **Chloromethane results in associated samples are estimated and qualified (UJ).**

Matrix Spike/Matrix Spike Duplicates

USEPA Method 8260D:
Matrix spike/matrix spike duplicate (MS/MSD) analyses was performed on a non-client sample. MS/MSD %R's and RPDs are within the laboratory control limits.

Other Quality Control Issues

No laboratory quality control issues were identified in the laboratory reports with the following discussion:

- Electronic data deliverables (EDDs) for these SDGs were provided by the laboratory and data validator qualifiers were entered where needed.

Quantitation Limits

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

Data Assessment

Data qualifiers are 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 8260D

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	~~J3~~	25.0	1	12/12/2019 00:49	WG1395047
Acrylonitrile	ND		5.00	1	12/11/2019 02:07	WG1392962
Benzene	ND		0.500	1	12/11/2019 02:07	WG1392962
Bromobenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
Bromodichloromethane	ND		0.500	1	12/11/2019 02:07	WG1392962
Bromochloromethane	ND		0.500	1	12/11/2019 02:07	WG1392962
Bromoform	ND		0.500	1	12/11/2019 02:07	WG1392962
Bromomethane	ND	UJ	J0 ~~J3~~	2.50	1	12/12/2019 00:49	WG1395047
n-Butylbenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
sec-Butylbenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
tert-Butylbenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
Carbon disulfide	ND		0.500	1	12/11/2019 02:07	WG1392962
Carbon tetrachloride	ND		0.500	1	12/11/2019 02:07	WG1392962
Chlorobenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
Chlorodibromomethane	ND		0.500	1	12/11/2019 02:07	WG1392962
Chloroethane	ND		2.50	1	12/11/2019 02:07	WG1392962
Chloroform	ND		0.500	1	12/11/2019 02:07	WG1392962
Chloromethane	ND	UJ	J0 ~~J4~~	1.25	1	12/12/2019 00:49	WG1395047
2-Chlorotoluene	ND		0.500	1	12/11/2019 02:07	WG1392962
4-Chlorotoluene	ND		0.500	1	12/11/2019 02:07	WG1392962
1,2-Dibromo-3-Chloropropane	ND		2.50	1	12/11/2019 02:07	WG1392962
1,2-Dibromoethane	ND		0.500	1	12/11/2019 02:07	WG1392962
Dibromomethane	ND		0.500	1	12/11/2019 02:07	WG1392962
1,2-Dichlorobenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
1,3-Dichlorobenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
1,4-Dichlorobenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
Dichlorodifluoromethane	ND		2.50	1	12/11/2019 02:07	WG1392962
1,1-Dichloroethane	ND		0.500	1	12/11/2019 02:07	WG1392962
1,2-Dichloroethane	ND		0.500	1	12/11/2019 02:07	WG1392962
1,1-Dichloroethene	ND		0.500	1	12/11/2019 02:07	WG1392962
cis-1,2-Dichloroethene	ND		0.500	1	12/11/2019 02:07	WG1392962
trans-1,2-Dichloroethene	ND		0.500	1	12/11/2019 02:07	WG1392962
1,2-Dichloropropane	ND		0.500	1	12/11/2019 02:07	WG1392962
1,1-Dichloropropene	ND		0.500	1	12/11/2019 02:07	WG1392962
1,3-Dichloropropane	ND		1.00	1	12/11/2019 02:07	WG1392962
cis-1,3-Dichloropropene	ND		0.500	1	12/11/2019 02:07	WG1392962
trans-1,3-Dichloropropene	ND		0.500	1	12/11/2019 02:07	WG1392962
trans-1,4-Dichloro-2-butene	ND	UJ	J0	5.00	1	12/12/2019 00:49	WG1395047
2,2-Dichloropropane	ND		0.500	1	12/11/2019 02:07	WG1392962
Di-isopropyl ether	ND		0.500	1	12/11/2019 02:07	WG1392962
Ethylbenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
Hexachloro-1,3-butadiene	ND		~~J4~~	1.00	1	12/11/2019 02:07	WG1392962
2-Hexanone	ND	UJ	J0	5.00	1	12/12/2019 00:49	WG1395047
n-Hexane	ND		5.00	1	12/11/2019 02:07	WG1392962
Iodomethane	ND	UJ	J0	10.0	1	12/12/2019 00:49	WG1395047
Isopropylbenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
p-Isopropyltoluene	ND		0.500	1	12/11/2019 02:07	WG1392962
2-Butanone (MEK)	ND		5.00	1	12/11/2019 02:07	WG1392962
Methylene Chloride	ND		2.50	1	12/11/2019 02:07	WG1392962
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	12/11/2019 02:07	WG1392962
Methyl tert-butyl ether	ND		0.500	1	12/11/2019 02:07	WG1392962
Naphthalene	ND		2.50	1	12/11/2019 02:07	WG1392962
n-Propylbenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
Styrene	ND		0.500	1	12/11/2019 02:07	WG1392962
1,1,1,2-Tetrachloroethane	ND		0.500	1	12/11/2019 02:07	WG1392962
1,1,2,2-Tetrachloroethane	ND		0.500	1	12/11/2019 02:07	WG1392962

JC 4/22/2020

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	12/11/2019 02:07	WG1392962
Tetrachloroethene	ND		0.500	1	12/11/2019 02:07	WG1392962
Toluene	ND		0.500	1	12/11/2019 02:07	WG1392962
1,2,3-Trichlorobenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
1,2,4-Trichlorobenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
1,1,1-Trichloroethane	ND		0.500	1	12/11/2019 02:07	WG1392962
1,1,2-Trichloroethane	ND		0.500	1	12/11/2019 02:07	WG1392962
Trichloroethene	ND		0.500	1	12/11/2019 02:07	WG1392962
Trichlorofluoromethane	ND		2.50	1	12/11/2019 02:07	WG1392962
1,2,3-Trichloropropane	ND		2.50	1	12/11/2019 02:07	WG1392962
1,2,4-Trimethylbenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
1,2,3-Trimethylbenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
1,3,5-Trimethylbenzene	ND		0.500	1	12/11/2019 02:07	WG1392962
Vinyl acetate	ND		5.00	1	12/11/2019 02:07	WG1392962
Vinyl chloride	ND		0.500	1	12/11/2019 02:07	WG1392962
Xylenes, Total	ND		1.50	1	12/11/2019 02:07	WG1392962
(S) Toluene-d8	*95.9*		*80.0-120*		*12/11/2019 02:07*	WG1392962
(S) Toluene-d8	*96.4*		*80.0-120*		*12/12/2019 00:49*	WG1395047
(S) 4-Bromofluorobenzene	*98.2*		*80.0-120*		*12/11/2019 02:07*	WG1392962
(S) 4-Bromofluorobenzene	*104*		*80.0-120*		*12/12/2019 00:49*	WG1395047
(S) 1,2-Dichloroethane-d4	*98.9*		*80.0-120*		*12/11/2019 02:07*	WG1392962
(S) 1,2-Dichloroethane-d4	*97.4*		*80.0-120*		*12/12/2019 00:49*	WG1395047

JC 4/22/2020

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND	~~J3~~	25.0	1	12/12/2019 01:10	WG1395047
Acrylonitrile	ND		5.00	1	12/11/2019 02:27	WG1392962
Benzene	ND		0.500	1	12/11/2019 02:27	WG1392962
Bromobenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
Bromodichloromethane	ND		0.500	1	12/11/2019 02:27	WG1392962
Bromochloromethane	ND		0.500	1	12/11/2019 02:27	WG1392962
Bromoform	ND		0.500	1	12/11/2019 02:27	WG1392962
Bromomethane	ND	~~J3~~	2.50	1	12/12/2019 01:10	WG1395047
n-Butylbenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
sec-Butylbenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
tert-Butylbenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
Carbon disulfide	ND		0.500	1	12/11/2019 02:27	WG1392962
Carbon tetrachloride	ND		0.500	1	12/11/2019 02:27	WG1392962
Chlorobenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
Chlorodibromomethane	ND		0.500	1	12/11/2019 02:27	WG1392962
Chloroethane	ND		2.50	1	12/11/2019 02:27	WG1392962
Chloroform	ND		0.500	1	12/11/2019 02:27	WG1392962
Chloromethane	ND	UJ ~~J4~~	1.25	1	12/12/2019 01:10	WG1395047
2-Chlorotoluene	ND		0.500	1	12/11/2019 02:27	WG1392962
4-Chlorotoluene	ND		0.500	1	12/11/2019 02:27	WG1392962
1,2-Dibromo-3-Chloropropane	ND		2.50	1	12/11/2019 02:27	WG1392962
1,2-Dibromoethane	ND		0.500	1	12/11/2019 02:27	WG1392962
Dibromomethane	ND		0.500	1	12/11/2019 02:27	WG1392962
1,2-Dichlorobenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
1,3-Dichlorobenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
1,4-Dichlorobenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
Dichlorodifluoromethane	ND		2.50	1	12/11/2019 02:27	WG1392962
1,1-Dichloroethane	ND		0.500	1	12/11/2019 02:27	WG1392962
1,2-Dichloroethane	ND		0.500	1	12/11/2019 02:27	WG1392962
1,1-Dichloroethene	ND		0.500	1	12/11/2019 02:27	WG1392962
cis-1,2-Dichloroethene	ND		0.500	1	12/11/2019 02:27	WG1392962
trans-1,2-Dichloroethene	ND		0.500	1	12/11/2019 02:27	WG1392962
1,2-Dichloropropane	ND		0.500	1	12/11/2019 02:27	WG1392962
1,1-Dichloropropene	ND		0.500	1	12/11/2019 02:27	WG1392962
1,3-Dichloropropane	ND		1.00	1	12/11/2019 02:27	WG1392962
cis-1,3-Dichloropropene	ND		0.500	1	12/11/2019 02:27	WG1392962
trans-1,3-Dichloropropene	ND		0.500	1	12/11/2019 02:27	WG1392962
trans-1,4-Dichloro-2-butene	ND	UJ J0	5.00	1	12/12/2019 01:10	WG1395047
2,2-Dichloropropane	ND		0.500	1	12/11/2019 02:27	WG1392962
Di-isopropyl ether	ND		0.500	1	12/11/2019 02:27	WG1392962
Ethylbenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
Hexachloro-1,3-butadiene	ND	~~J4~~	1.00	1	12/11/2019 02:27	WG1392962
2-Hexanone	ND	UJ J0	5.00	1	12/12/2019 01:10	WG1395047
n-Hexane	ND		5.00	1	12/11/2019 02:27	WG1392962
Iodomethane	ND	UJ J0	10.0	1	12/12/2019 01:10	WG1395047
Isopropylbenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
p-Isopropyltoluene	ND		0.500	1	12/11/2019 02:27	WG1392962
2-Butanone (MEK)	ND		5.00	1	12/11/2019 02:27	WG1392962
Methylene Chloride	ND		2.50	1	12/11/2019 02:27	WG1392962
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	12/11/2019 02:27	WG1392962
Methyl tert-butyl ether	ND		0.500	1	12/11/2019 02:27	WG1392962
Naphthalene	ND		2.50	1	12/11/2019 02:27	WG1392962
n-Propylbenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
Styrene	ND		0.500	1	12/11/2019 02:27	WG1392962 JC 4/22/2020
1,1,1,2-Tetrachloroethane	ND		0.500	1	12/11/2019 02:27	WG1392962
1,1,2,2-Tetrachloroethane	ND		0.500	1	12/11/2019 02:27	WG1392962

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	12/11/2019 02:27	WG1392962
Tetrachloroethene	ND		0.500	1	12/11/2019 02:27	WG1392962
Toluene	ND		0.500	1	12/11/2019 02:27	WG1392962
1,2,3-Trichlorobenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
1,2,4-Trichlorobenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
1,1,1-Trichloroethane	ND		0.500	1	12/11/2019 02:27	WG1392962
1,1,2-Trichloroethane	ND		0.500	1	12/11/2019 02:27	WG1392962
Trichloroethene	ND		0.500	1	12/11/2019 02:27	WG1392962
Trichlorofluoromethane	ND		2.50	1	12/11/2019 02:27	WG1392962
1,2,3-Trichloropropane	ND		2.50	1	12/11/2019 02:27	WG1392962
1,2,4-Trimethylbenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
1,2,3-Trimethylbenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
1,3,5-Trimethylbenzene	ND		0.500	1	12/11/2019 02:27	WG1392962
Vinyl acetate	ND		5.00	1	12/11/2019 02:27	WG1392962
Vinyl chloride	ND		0.500	1	12/11/2019 02:27	WG1392962
Xylenes, Total	ND		1.50	1	12/11/2019 02:27	WG1392962
(S) Toluene-d8	*96.8*		*80.0-120*		*12/11/2019 02:27*	WG1392962
(S) Toluene-d8	*96.1*		*80.0-120*		*12/12/2019 01:10*	WG1395047
(S) 4-Bromofluorobenzene	*99.4*		*80.0-120*		*12/11/2019 02:27*	WG1392962
(S) 4-Bromofluorobenzene	*101*		*80.0-120*		*12/12/2019 01:10*	WG1395047
(S) 1,2-Dichloroethane-d4	*101*		*80.0-120*		*12/11/2019 02:27*	WG1392962
(S) 1,2-Dichloroethane-d4	*98.5*		*80.0-120*		*12/12/2019 01:10*	WG1395047

JC 4/22/2020

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: 1903006

March 05, 2019

Attention Matt Dahl:

Fremont Analytical, Inc. received 15 sample(s) on 3/1/2019 for the analyses presented in the following report.

Sample Moisture (Percent Moisture)
Volatile Organic Compounds by EPA Method 8260C

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

Date: *03/05/2019*

CLIENT: PES Environmental, Inc.
Project: MVSC
Work Order: 1903006

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1903006-001	MW-18-10	02/28/2019 10:55 AM	03/01/2019 2:34 PM
1903006-002	MW-18-15	02/28/2019 11:15 AM	03/01/2019 2:34 PM
1903006-003	MW-18-20	02/28/2019 11:20 AM	03/01/2019 2:34 PM
1903006-004	MW-18-25	02/28/2019 11:35 AM	03/01/2019 2:34 PM
1903006-005	MW-18-30	02/28/2019 11:55 AM	03/01/2019 2:34 PM
1903006-006	MW-18-35	02/28/2019 12:05 PM	03/01/2019 2:34 PM
1903006-007	MW-18-40	02/28/2019 12:30 PM	03/01/2019 2:34 PM
1903006-008	MW-17-10	03/01/2019 9:50 AM	03/01/2019 2:34 PM
1903006-009	MW-17-15	03/01/2019 10:00 AM	03/01/2019 2:34 PM
1903006-010	MW-17-20	03/01/2019 11:10 AM	03/01/2019 2:34 PM
1903006-011	MW-17-25	03/01/2019 10:25 AM	03/01/2019 2:34 PM
1903006-012	MW-17-30	03/01/2019 10:40 AM	03/01/2019 2:34 PM
1903006-013	MW-17-35	03/01/2019 10:55 AM	03/01/2019 2:34 PM
1903006-014	MW-17-38	03/01/2019 11:15 AM	03/01/2019 2:34 PM
1903006-015	Trip Blank	02/11/2019 8:00 AM	03/01/2019 2:34 PM

Case Narrative

WO#: **1903006**
Date: **3/5/2019**

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:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

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.

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. **Collection Date:** 2/28/2019 10:55:00 AM
Project: MVSC
Lab ID: 1903006-001 **Matrix:** Soil
Client Sample ID: **MW-18-10**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 23687 Analyst: CR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Chloromethane	ND	0.0628		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Vinyl chloride	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Bromomethane	ND	0.0628		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Trichlorofluoromethane (CFC-11)	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Chloroethane	ND	0.0628		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,1-Dichloroethene	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Methylene chloride	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
trans-1,2-Dichloroethene	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Methyl tert-butyl ether (MTBE)	ND	0.0628	Q	mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,1-Dichloroethane	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
2,2-Dichloropropane	ND	0.126		mg/Kg-dry	1	3/4/2019 7:55:35 PM
cis-1,2-Dichloroethene	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Chloroform	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,1,1-Trichloroethane (TCA)	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,1-Dichloropropene	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Carbon tetrachloride	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,2-Dichloroethane (EDC)	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Benzene	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Trichloroethene (TCE)	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,2-Dichloropropane	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Bromodichloromethane	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Dibromomethane	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
cis-1,3-Dichloropropene	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Toluene	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
trans-1,3-Dichloropropylene	ND	0.0251	Q	mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,1,2-Trichloroethane	ND	0.0251	Q	mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,3-Dichloropropane	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Tetrachloroethene (PCE)	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Dibromochloromethane	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,2-Dibromoethane (EDB)	ND	0.00628		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Chlorobenzene	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,1,1,2-Tetrachloroethane	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Ethylbenzene	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
m,p-Xylene	ND	0.0628		mg/Kg-dry	1	3/4/2019 7:55:35 PM
o-Xylene	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Styrene	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Isopropylbenzene	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Bromoform	ND	0.0628		mg/Kg-dry	1	3/4/2019 7:55:35 PM

Analytical Report

Work Order: **1903006**
Date Reported: **3/5/2019**

Client: PES Environmental, Inc.
Collection Date: 2/28/2019 10:55:00 AM
Project: MVSC
Lab ID: 1903006-001
Matrix: Soil
Client Sample ID: **MW-18-10**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 23687		Analyst: CR
1,1,2,2-Tetrachloroethane	ND	0.0251	Q	mg/Kg-dry	1	3/4/2019 7:55:35 PM
n-Propylbenzene	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Bromobenzene	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,3,5-Trimethylbenzene	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
2-Chlorotoluene	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
4-Chlorotoluene	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
tert-Butylbenzene	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,2,3-Trichloropropane	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,2,4-Trichlorobenzene	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
sec-Butylbenzene	ND	0.0628		mg/Kg-dry	1	3/4/2019 7:55:35 PM
4-Isopropyltoluene	ND	0.0628		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,3-Dichlorobenzene	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,4-Dichlorobenzene	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
n-Butylbenzene	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,2-Dichlorobenzene	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,2-Dibromo-3-chloropropane	ND	0.628		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,2,4-Trimethylbenzene	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Hexachlorobutadiene	ND	0.0628		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Naphthalene	ND	0.0628		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,2,3-Trichlorobenzene	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Surr: Dibromofluoromethane	90.1	56.5 - 129		%Rec	1	3/4/2019 7:55:35 PM
Surr: Toluene-d8	92.0	64.5 - 151		%Rec	1	3/4/2019 7:55:35 PM
Surr: 1-Bromo-4-fluorobenzene	97.8	54.8 - 168		%Rec	1	3/4/2019 7:55:35 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)				Batch ID: R49802		Analyst: SS
Percent Moisture	15.8	0.500		wt%	1	3/5/2019 9:15:10 AM

Client: PES Environmental, Inc. **Collection Date:** 2/28/2019 11:55:00 AM
Project: MVSC
Lab ID: 1903006-005 **Matrix:** Soil
Client Sample ID: **MW-18-30**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 23687 Analyst: CR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Chloromethane	ND	0.0550		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Vinyl chloride	ND	0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Bromomethane	ND	0.0550		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Trichlorofluoromethane (CFC-11)	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Chloroethane	ND	0.0550		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,1-Dichloroethene	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Methylene chloride	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
trans-1,2-Dichloroethene	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Methyl tert-butyl ether (MTBE)	ND	0.0550	Q	mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,1-Dichloroethane	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
2,2-Dichloropropane	ND	0.110		mg/Kg-dry	1	3/4/2019 8:55:50 PM
cis-1,2-Dichloroethene	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Chloroform	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,1,1-Trichloroethane (TCA)	ND	0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,1-Dichloropropene	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Carbon tetrachloride	ND	0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,2-Dichloroethane (EDC)	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Benzene	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Trichloroethene (TCE)	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,2-Dichloropropane	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Bromodichloromethane	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Dibromomethane	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
cis-1,3-Dichloropropene	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Toluene	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
trans-1,3-Dichloropropylene	ND	0.0220	Q	mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,1,2-Trichloroethane	ND	0.0220	Q	mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,3-Dichloropropane	ND	0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Tetrachloroethene (PCE)	0.0288	0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Dibromochloromethane	ND	0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,2-Dibromoethane (EDB)	ND	0.00550		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Chlorobenzene	ND	0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,1,1,2-Tetrachloroethane	ND	0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Ethylbenzene	ND	0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
m,p-Xylene	ND	0.0550		mg/Kg-dry	1	3/4/2019 8:55:50 PM
o-Xylene	ND	0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Styrene	ND	0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Isopropylbenzene	ND	0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Bromoform	ND	0.0550		mg/Kg-dry	1	3/4/2019 8:55:50 PM

Analytical Report

Work Order: **1903006**
Date Reported: **3/5/2019**

Client: PES Environmental, Inc.
Collection Date: 2/28/2019 11:55:00 AM
Project: MVSC
Lab ID: 1903006-005
Matrix: Soil
Client Sample ID: **MW-18-30**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 23687		Analyst: CR
1,1,2,2-Tetrachloroethane	ND	0.0220	Q	mg/Kg-dry	1	3/4/2019 8:55:50 PM
n-Propylbenzene	ND	0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Bromobenzene	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,3,5-Trimethylbenzene	ND	0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
2-Chlorotoluene	ND	0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
4-Chlorotoluene	ND	0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
tert-Butylbenzene	ND	0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,2,3-Trichloropropane	ND	0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,2,4-Trichlorobenzene	ND	0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
sec-Butylbenzene	ND	0.0550		mg/Kg-dry	1	3/4/2019 8:55:50 PM
4-Isopropyltoluene	ND	0.0550		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,3-Dichlorobenzene	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,4-Dichlorobenzene	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
n-Butylbenzene	ND	0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,2-Dichlorobenzene	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,2-Dibromo-3-chloropropane	ND	0.550		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,2,4-Trimethylbenzene	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Hexachlorobutadiene	ND	0.0550		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Naphthalene	ND	0.0550		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,2,3-Trichlorobenzene	ND	0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Surr: Dibromofluoromethane	92.8	56.5 - 129		%Rec	1	3/4/2019 8:55:50 PM
Surr: Toluene-d8	92.8	64.5 - 151		%Rec	1	3/4/2019 8:55:50 PM
Surr: 1-Bromo-4-fluorobenzene	99.5	54.8 - 168		%Rec	1	3/4/2019 8:55:50 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)				Batch ID: R49802		Analyst: SS
Percent Moisture	5.24	0.500		wt%	1	3/5/2019 9:15:10 AM

Client: PES Environmental, Inc. **Collection Date:** 2/28/2019 12:05:00 PM
Project: MVSC
Lab ID: 1903006-006 **Matrix:** Soil
Client Sample ID: **MW-18-35**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 23687 Analyst: CR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Chloromethane	ND	0.0538		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Vinyl chloride	ND	0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Bromomethane	ND	0.0538		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Trichlorofluoromethane (CFC-11)	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Chloroethane	ND	0.0538		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,1-Dichloroethene	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Methylene chloride	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
trans-1,2-Dichloroethene	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Methyl tert-butyl ether (MTBE)	ND	0.0538	Q	mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,1-Dichloroethane	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
2,2-Dichloropropane	ND	0.108		mg/Kg-dry	1	3/4/2019 9:25:57 PM
cis-1,2-Dichloroethene	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Chloroform	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,1,1-Trichloroethane (TCA)	ND	0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,1-Dichloropropene	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Carbon tetrachloride	ND	0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,2-Dichloroethane (EDC)	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Benzene	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Trichloroethene (TCE)	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,2-Dichloropropane	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Bromodichloromethane	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Dibromomethane	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
cis-1,3-Dichloropropene	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Toluene	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
trans-1,3-Dichloropropylene	ND	0.0215	Q	mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,1,2-Trichloroethane	ND	0.0215	Q	mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,3-Dichloropropane	ND	0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Tetrachloroethene (PCE)	0.0358	0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Dibromochloromethane	ND	0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,2-Dibromoethane (EDB)	ND	0.00538		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Chlorobenzene	ND	0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,1,1,2-Tetrachloroethane	ND	0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Ethylbenzene	ND	0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
m,p-Xylene	ND	0.0538		mg/Kg-dry	1	3/4/2019 9:25:57 PM
o-Xylene	ND	0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Styrene	ND	0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Isopropylbenzene	ND	0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Bromoform	ND	0.0538		mg/Kg-dry	1	3/4/2019 9:25:57 PM

Analytical Report

Work Order: **1903006**
Date Reported: **3/5/2019**

Client: PES Environmental, Inc.
Collection Date: 2/28/2019 12:05:00 PM
Project: MVSC
Lab ID: 1903006-006
Matrix: Soil
Client Sample ID: **MW-18-35**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 23687		Analyst: CR
1,1,2,2-Tetrachloroethane	ND	0.0215	Q	mg/Kg-dry	1	3/4/2019 9:25:57 PM
n-Propylbenzene	ND	0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Bromobenzene	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,3,5-Trimethylbenzene	ND	0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
2-Chlorotoluene	ND	0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
4-Chlorotoluene	ND	0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
tert-Butylbenzene	ND	0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,2,3-Trichloropropane	ND	0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,2,4-Trichlorobenzene	ND	0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
sec-Butylbenzene	ND	0.0538		mg/Kg-dry	1	3/4/2019 9:25:57 PM
4-Isopropyltoluene	ND	0.0538		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,3-Dichlorobenzene	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,4-Dichlorobenzene	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
n-Butylbenzene	ND	0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,2-Dichlorobenzene	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,2-Dibromo-3-chloropropane	ND	0.538		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,2,4-Trimethylbenzene	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Hexachlorobutadiene	ND	0.0538		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Naphthalene	ND	0.0538		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,2,3-Trichlorobenzene	ND	0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Surr: Dibromofluoromethane	92.7	56.5 - 129		%Rec	1	3/4/2019 9:25:57 PM
Surr: Toluene-d8	93.5	64.5 - 151		%Rec	1	3/4/2019 9:25:57 PM
Surr: 1-Bromo-4-fluorobenzene	96.4	54.8 - 168		%Rec	1	3/4/2019 9:25:57 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)				Batch ID: R49802		Analyst: SS
Percent Moisture	13.8	0.500		wt%	1	3/5/2019 9:15:10 AM

Client: PES Environmental, Inc. **Collection Date:** 3/1/2019 10:25:00 AM
Project: MVSC
Lab ID: 1903006-011 **Matrix:** Soil
Client Sample ID: **MW-17-25**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 23687 Analyst: CR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Chloromethane	ND	0.0487		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Vinyl chloride	ND	0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Bromomethane	ND	0.0487		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Trichlorofluoromethane (CFC-11)	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Chloroethane	ND	0.0487		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,1-Dichloroethene	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Methylene chloride	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
trans-1,2-Dichloroethene	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Methyl tert-butyl ether (MTBE)	ND	0.0487	Q	mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,1-Dichloroethane	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
2,2-Dichloropropane	ND	0.0975		mg/Kg-dry	1	3/4/2019 9:56:03 PM
cis-1,2-Dichloroethene	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Chloroform	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,1,1-Trichloroethane (TCA)	ND	0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,1-Dichloropropene	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Carbon tetrachloride	ND	0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,2-Dichloroethane (EDC)	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Benzene	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Trichloroethene (TCE)	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,2-Dichloropropane	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Bromodichloromethane	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Dibromomethane	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
cis-1,3-Dichloropropene	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Toluene	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
trans-1,3-Dichloropropylene	ND	0.0195	Q	mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,1,2-Trichloroethane	ND	0.0195	Q	mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,3-Dichloropropane	ND	0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Tetrachloroethene (PCE)	ND	0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Dibromochloromethane	ND	0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,2-Dibromoethane (EDB)	ND	0.00487		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Chlorobenzene	ND	0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,1,1,2-Tetrachloroethane	ND	0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Ethylbenzene	ND	0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
m,p-Xylene	ND	0.0487		mg/Kg-dry	1	3/4/2019 9:56:03 PM
o-Xylene	ND	0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Styrene	ND	0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Isopropylbenzene	ND	0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Bromoform	ND	0.0487		mg/Kg-dry	1	3/4/2019 9:56:03 PM

Analytical Report

Work Order: **1903006**
Date Reported: **3/5/2019**

Client: PES Environmental, Inc.
Collection Date: 3/1/2019 10:25:00 AM
Project: MVSC
Lab ID: 1903006-011
Matrix: Soil
Client Sample ID: **MW-17-25**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 23687		Analyst: CR
1,1,2,2-Tetrachloroethane	ND	0.0195	Q	mg/Kg-dry	1	3/4/2019 9:56:03 PM
n-Propylbenzene	ND	0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Bromobenzene	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,3,5-Trimethylbenzene	ND	0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
2-Chlorotoluene	ND	0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
4-Chlorotoluene	ND	0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
tert-Butylbenzene	ND	0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,2,3-Trichloropropane	ND	0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,2,4-Trichlorobenzene	ND	0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
sec-Butylbenzene	ND	0.0487		mg/Kg-dry	1	3/4/2019 9:56:03 PM
4-Isopropyltoluene	ND	0.0487		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,3-Dichlorobenzene	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,4-Dichlorobenzene	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
n-Butylbenzene	ND	0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,2-Dichlorobenzene	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,2-Dibromo-3-chloropropane	ND	0.487		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,2,4-Trimethylbenzene	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Hexachlorobutadiene	ND	0.0487		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Naphthalene	ND	0.0487		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,2,3-Trichlorobenzene	ND	0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Surr: Dibromofluoromethane	92.3	56.5 - 129		%Rec	1	3/4/2019 9:56:03 PM
Surr: Toluene-d8	92.8	64.5 - 151		%Rec	1	3/4/2019 9:56:03 PM
Surr: 1-Bromo-4-fluorobenzene	98.2	54.8 - 168		%Rec	1	3/4/2019 9:56:03 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)				Batch ID: R49802		Analyst: SS
Percent Moisture	2.79	0.500		wt%	1	3/5/2019 9:15:10 AM

Client: PES Environmental, Inc. **Collection Date:** 3/1/2019 10:40:00 AM
Project: MVSC
Lab ID: 1903006-012 **Matrix:** Soil
Client Sample ID: **MW-17-30**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 23687 Analyst: CR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Chloromethane	ND	0.0534		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Vinyl chloride	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Bromomethane	ND	0.0534		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Trichlorofluoromethane (CFC-11)	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Chloroethane	ND	0.0534		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,1-Dichloroethene	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Methylene chloride	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
trans-1,2-Dichloroethene	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Methyl tert-butyl ether (MTBE)	ND	0.0534	Q	mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,1-Dichloroethane	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
2,2-Dichloropropane	ND	0.107		mg/Kg-dry	1	3/4/2019 10:26:12 PM
cis-1,2-Dichloroethene	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Chloroform	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,1,1-Trichloroethane (TCA)	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,1-Dichloropropene	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Carbon tetrachloride	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,2-Dichloroethane (EDC)	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Benzene	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Trichloroethene (TCE)	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,2-Dichloropropane	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Bromodichloromethane	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Dibromomethane	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
cis-1,3-Dichloropropene	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Toluene	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
trans-1,3-Dichloropropylene	ND	0.0214	Q	mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,1,2-Trichloroethane	ND	0.0214	Q	mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,3-Dichloropropane	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Tetrachloroethene (PCE)	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Dibromochloromethane	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,2-Dibromoethane (EDB)	ND	0.00534		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Chlorobenzene	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,1,1,2-Tetrachloroethane	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Ethylbenzene	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
m,p-Xylene	ND	0.0534		mg/Kg-dry	1	3/4/2019 10:26:12 PM
o-Xylene	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Styrene	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Isopropylbenzene	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Bromoform	ND	0.0534		mg/Kg-dry	1	3/4/2019 10:26:12 PM

Analytical Report

Work Order: **1903006**
Date Reported: **3/5/2019**

Client: PES Environmental, Inc.
Collection Date: 3/1/2019 10:40:00 AM
Project: MVSC
Lab ID: 1903006-012
Matrix: Soil
Client Sample ID: **MW-17-30**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 23687		Analyst: CR
1,1,2,2-Tetrachloroethane	ND	0.0214	Q	mg/Kg-dry	1	3/4/2019 10:26:12 PM
n-Propylbenzene	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Bromobenzene	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,3,5-Trimethylbenzene	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
2-Chlorotoluene	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
4-Chlorotoluene	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
tert-Butylbenzene	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,2,3-Trichloropropane	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,2,4-Trichlorobenzene	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
sec-Butylbenzene	ND	0.0534		mg/Kg-dry	1	3/4/2019 10:26:12 PM
4-Isopropyltoluene	ND	0.0534		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,3-Dichlorobenzene	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,4-Dichlorobenzene	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
n-Butylbenzene	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,2-Dichlorobenzene	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,2-Dibromo-3-chloropropane	ND	0.534		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,2,4-Trimethylbenzene	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Hexachlorobutadiene	ND	0.0534		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Naphthalene	ND	0.0534		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,2,3-Trichlorobenzene	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Surr: Dibromofluoromethane	91.3	56.5 - 129		%Rec	1	3/4/2019 10:26:12 PM
Surr: Toluene-d8	93.1	64.5 - 151		%Rec	1	3/4/2019 10:26:12 PM
Surr: 1-Bromo-4-fluorobenzene	96.2	54.8 - 168		%Rec	1	3/4/2019 10:26:12 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)				Batch ID: R49802		Analyst: SS
Percent Moisture	5.52	0.500		wt%	1	3/5/2019 9:15:10 AM

Client: PES Environmental, Inc. **Collection Date:** 3/1/2019 10:55:00 AM
Project: MVSC
Lab ID: 1903006-013 **Matrix:** Soil
Client Sample ID: **MW-17-35**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 23687 Analyst: CR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Chloromethane	ND	0.0577		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Vinyl chloride	ND	0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Bromomethane	ND	0.0577		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Trichlorofluoromethane (CFC-11)	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Chloroethane	ND	0.0577		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,1-Dichloroethene	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Methylene chloride	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
trans-1,2-Dichloroethene	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Methyl tert-butyl ether (MTBE)	ND	0.0577	Q	mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,1-Dichloroethane	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
2,2-Dichloropropane	ND	0.115		mg/Kg-dry	1	3/4/2019 10:56:21 PM
cis-1,2-Dichloroethene	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Chloroform	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,1,1-Trichloroethane (TCA)	ND	0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,1-Dichloropropene	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Carbon tetrachloride	ND	0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,2-Dichloroethane (EDC)	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Benzene	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Trichloroethene (TCE)	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,2-Dichloropropane	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Bromodichloromethane	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Dibromomethane	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
cis-1,3-Dichloropropene	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Toluene	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
trans-1,3-Dichloropropylene	ND	0.0231	Q	mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,1,2-Trichloroethane	ND	0.0231	Q	mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,3-Dichloropropane	ND	0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Tetrachloroethene (PCE)	0.0543	0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Dibromochloromethane	ND	0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,2-Dibromoethane (EDB)	ND	0.00577		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Chlorobenzene	ND	0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,1,1,2-Tetrachloroethane	ND	0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Ethylbenzene	ND	0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
m,p-Xylene	ND	0.0577		mg/Kg-dry	1	3/4/2019 10:56:21 PM
o-Xylene	ND	0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Styrene	ND	0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Isopropylbenzene	ND	0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Bromoform	ND	0.0577		mg/Kg-dry	1	3/4/2019 10:56:21 PM

Analytical Report

Work Order: **1903006**
Date Reported: **3/5/2019**

Client: PES Environmental, Inc.
Collection Date: 3/1/2019 10:55:00 AM
Project: MVSC
Lab ID: 1903006-013
Matrix: Soil
Client Sample ID: **MW-17-35**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 23687		Analyst: CR
1,1,2,2-Tetrachloroethane	ND	0.0231	Q	mg/Kg-dry	1	3/4/2019 10:56:21 PM
n-Propylbenzene	ND	0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Bromobenzene	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,3,5-Trimethylbenzene	ND	0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
2-Chlorotoluene	ND	0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
4-Chlorotoluene	ND	0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
tert-Butylbenzene	ND	0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,2,3-Trichloropropane	ND	0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,2,4-Trichlorobenzene	ND	0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
sec-Butylbenzene	ND	0.0577		mg/Kg-dry	1	3/4/2019 10:56:21 PM
4-Isopropyltoluene	ND	0.0577		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,3-Dichlorobenzene	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,4-Dichlorobenzene	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
n-Butylbenzene	ND	0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,2-Dichlorobenzene	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,2-Dibromo-3-chloropropane	ND	0.577		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,2,4-Trimethylbenzene	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Hexachlorobutadiene	ND	0.0577		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Naphthalene	ND	0.0577		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,2,3-Trichlorobenzene	ND	0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Surr: Dibromofluoromethane	90.4	56.5 - 129		%Rec	1	3/4/2019 10:56:21 PM
Surr: Toluene-d8	92.8	64.5 - 151		%Rec	1	3/4/2019 10:56:21 PM
Surr: 1-Bromo-4-fluorobenzene	96.8	54.8 - 168		%Rec	1	3/4/2019 10:56:21 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)				Batch ID: R49802		Analyst: SS
Percent Moisture	16.1	0.500		wt%	1	3/5/2019 9:15:10 AM

Work Order: 1903006
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-23687** SampType: **LCS** Units: **mg/Kg** Prep Date: **3/4/2019** RunNo: **49813**
Client ID: **LCSS** Batch ID: **23687** Analysis Date: **3/4/2019** SeqNo: **976578**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.913	0.0200	1.000	0	91.3	14.3	167				
Chloromethane	0.877	0.0500	1.000	0	87.7	32	156				
Vinyl chloride	0.903	0.0250	1.000	0	90.3	43.4	151				
Bromomethane	0.923	0.0500	1.000	0	92.3	35	155				
Trichlorofluoromethane (CFC-11)	0.940	0.0200	1.000	0	94.0	33.8	156				
Chloroethane	0.895	0.0500	1.000	0	89.5	33.1	147				
1,1-Dichloroethene	0.923	0.0200	1.000	0	92.3	30.9	145				
Methylene chloride	0.908	0.0200	1.000	0	90.8	46.3	140				
trans-1,2-Dichloroethene	0.919	0.0200	1.000	0	91.9	68	130				
Methyl tert-butyl ether (MTBE)	0.803	0.0500	1.000	0	80.3	44.1	152				
1,1-Dichloroethane	0.888	0.0200	1.000	0	88.8	61.9	137				
2,2-Dichloropropane	1.01	0.100	1.000	0	101	35.5	186				
cis-1,2-Dichloroethene	0.923	0.0200	1.000	0	92.3	71.3	135				
Chloroform	0.890	0.0200	1.000	0	89.0	69	145				
1,1,1-Trichloroethane (TCA)	0.934	0.0250	1.000	0	93.4	69	132				
1,1-Dichloropropene	0.896	0.0200	1.000	0	89.6	72.7	131				
Carbon tetrachloride	0.910	0.0250	1.000	0	91.0	63.4	137				
1,2-Dichloroethane (EDC)	0.858	0.0200	1.000	0	85.8	50.9	162				
Benzene	0.870	0.0200	1.000	0	87.0	64.3	133				
Trichloroethene (TCE)	0.885	0.0200	1.000	0	88.5	65.5	137				
1,2-Dichloropropane	0.844	0.0200	1.000	0	84.4	63.2	142				
Bromodichloromethane	0.869	0.0200	1.000	0	86.9	53.4	131				
Dibromomethane	0.859	0.0200	1.000	0	85.9	60.1	146				
cis-1,3-Dichloropropene	0.807	0.0200	1.000	0	80.7	59.1	143				
Toluene	0.902	0.0200	1.000	0	90.2	67	144				
trans-1,3-Dichloropropylene	0.787	0.0200	1.000	0	78.7	49.2	149				
1,1,2-Trichloroethane	0.821	0.0200	1.000	0	82.1	56.9	147				
1,3-Dichloropropane	0.826	0.0250	1.000	0	82.6	56.1	153				
Tetrachloroethene (PCE)	0.943	0.0250	1.000	0	94.3	52.7	150				
Dibromochloromethane	0.853	0.0250	1.000	0	85.3	70.6	144				
1,2-Dibromoethane (EDB)	0.839	0.00500	1.000	0	83.9	50.5	154				

Work Order: 1903006
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-23687** SampType: **LCS** Units: **mg/Kg** Prep Date: **3/4/2019** RunNo: **49813**
Client ID: **LCSS** Batch ID: **23687** Analysis Date: **3/4/2019** SeqNo: **976578**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	0.956	0.0250	1.000	0	95.6	84.9	125				
1,1,1,2-Tetrachloroethane	0.922	0.0250	1.000	0	92.2	65.9	141				
Ethylbenzene	0.977	0.0250	1.000	0	97.7	74	129				
m,p-Xylene	1.98	0.0500	2.000	0	99.1	70	124				
o-Xylene	0.996	0.0250	1.000	0	99.6	68.1	139				
Styrene	0.976	0.0250	1.000	0	97.6	73.3	146				
Isopropylbenzene	0.992	0.0250	1.000	0	99.2	70	130				
Bromoform	0.907	0.0500	1.000	0	90.7	44.3	130				
1,1,2,2-Tetrachloroethane	0.815	0.0200	1.000	0	81.5	44.8	165				
n-Propylbenzene	0.978	0.0250	1.000	0	97.8	75.8	139				
Bromobenzene	0.972	0.0200	1.000	0	97.2	49.2	144				
1,3,5-Trimethylbenzene	0.972	0.0250	1.000	0	97.2	76.5	135				
2-Chlorotoluene	0.975	0.0250	1.000	0	97.5	76.7	129				
4-Chlorotoluene	0.956	0.0250	1.000	0	95.6	77.5	125				
tert-Butylbenzene	0.999	0.0250	1.000	0	99.9	66.2	130				
1,2,3-Trichloropropane	0.888	0.0250	1.000	0	88.8	67.9	136				
1,2,4-Trichlorobenzene	0.937	0.0250	1.000	0	93.7	65.5	150				
sec-Butylbenzene	0.994	0.0500	1.000	0	99.4	75.6	133				
4-Isopropyltoluene	1.00	0.0500	1.000	0	100	76.8	131				
1,3-Dichlorobenzene	0.986	0.0200	1.000	0	98.6	48.6	144				
1,4-Dichlorobenzene	0.979	0.0200	1.000	0	97.9	72.6	126				
n-Butylbenzene	1.01	0.0250	1.000	0	101	78.4	140				
1,2-Dichlorobenzene	0.974	0.0200	1.000	0	97.4	72.8	126				
1,2-Dibromo-3-chloropropane	0.833	0.500	1.000	0	83.3	40.2	155				
1,2,4-Trimethylbenzene	0.975	0.0200	1.000	0	97.5	77.5	129				
Hexachlorobutadiene	1.04	0.0500	1.000	0	104	42	151				
Naphthalene	0.907	0.0500	1.000	0	90.7	46.5	167				
1,2,3-Trichlorobenzene	0.925	0.0200	1.000	0	92.5	64.5	149				
Surr: Dibromofluoromethane	1.13		1.250		90.7	56.5	129				
Surr: Toluene-d8	1.16		1.250		92.9	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.23		1.250		98.0	54.8	168				

Work Order: 1903006
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-23687**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **3/4/2019**			RunNo: **49813**		
Client ID: **LCSS**	Batch ID: **23687**					Analysis Date: **3/4/2019**			SeqNo: **976578**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **LCSD-23687**	SampType: **LCSD**			Units: **mg/Kg**		Prep Date: **3/4/2019**			RunNo: **49813**		
Client ID: **LCSS02**	Batch ID: **23687**					Analysis Date: **3/4/2019**			SeqNo: **976579**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.886	0.0200	1.000	0	88.6	14.3	167	0.9129	3.02	20	
Chloromethane	0.878	0.0500	1.000	0	87.8	32	156	0.8771	0.108	20	
Vinyl chloride	0.897	0.0250	1.000	0	89.7	43.4	151	0.9032	0.630	20	
Bromomethane	0.921	0.0500	1.000	0	92.1	35	155	0.9234	0.258	20	
Trichlorofluoromethane (CFC-11)	0.970	0.0200	1.000	0	97.0	33.8	156	0.9396	3.15	20	
Chloroethane	0.896	0.0500	1.000	0	89.6	33.1	147	0.8953	0.113	20	
1,1-Dichloroethene	0.946	0.0200	1.000	0	94.6	30.9	145	0.9228	2.48	20	
Methylene chloride	0.915	0.0200	1.000	0	91.5	57.6	135	0.9081	0.778	20	
trans-1,2-Dichloroethene	0.957	0.0200	1.000	0	95.7	68	130	0.9185	4.11	20	
Methyl tert-butyl ether (MTBE)	0.822	0.0500	1.000	0	82.2	44.1	152	0.8034	2.27	20	
1,1-Dichloroethane	0.910	0.0200	1.000	0	91.0	61.9	137	0.8880	2.49	20	
2,2-Dichloropropane	1.03	0.100	1.000	0	103	35.5	186	1.012	1.77	20	
cis-1,2-Dichloroethene	0.937	0.0200	1.000	0	93.7	71.6	123	0.9230	1.54	20	
Chloroform	0.920	0.0200	1.000	0	92.0	69	145	0.8896	3.41	20	
1,1,1-Trichloroethane (TCA)	0.951	0.0250	1.000	0	95.1	69	132	0.9339	1.85	20	
1,1-Dichloropropene	0.921	0.0200	1.000	0	92.1	72.7	131	0.8962	2.72	20	
Carbon tetrachloride	0.959	0.0250	1.000	0	95.9	63.4	137	0.9103	5.24	20	
1,2-Dichloroethane (EDC)	0.871	0.0200	1.000	0	87.1	50.9	162	0.8580	1.52	20	
Benzene	0.887	0.0200	1.000	0	88.7	74.6	124	0.8700	1.90	20	
Trichloroethene (TCE)	0.909	0.0200	1.000	0	90.9	65.5	137	0.8846	2.69	20	
1,2-Dichloropropane	0.859	0.0200	1.000	0	85.9	63.2	142	0.8443	1.73	20	
Bromodichloromethane	0.906	0.0200	1.000	0	90.6	53.4	131	0.8690	4.20	20	
Dibromomethane	0.891	0.0200	1.000	0	89.1	60.1	146	0.8585	3.72	20	
cis-1,3-Dichloropropene	0.836	0.0200	1.000	0	83.6	59.1	143	0.8071	3.49	20	
Toluene	0.925	0.0200	1.000	0	92.5	67	144	0.9020	2.56	20	

Work Order: 1903006
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCSD-23687** SampType: **LCSD** Units: **mg/Kg** Prep Date: **3/4/2019** RunNo: **49813**
Client ID: **LCSS02** Batch ID: **23687** Analysis Date: **3/4/2019** SeqNo: **976579**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropylene	0.823	0.0200	1.000	0	82.3	49.2	149	0.7873	4.47	20	
1,1,2-Trichloroethane	0.847	0.0200	1.000	0	84.7	56.9	147	0.8215	3.10	20	
1,3-Dichloropropane	0.833	0.0250	1.000	0	83.3	56.1	153	0.8261	0.813	20	
Tetrachloroethene (PCE)	0.957	0.0250	1.000	0	95.7	52.7	150	0.9429	1.47	20	
Dibromochloromethane	0.858	0.0250	1.000	0	85.8	70.6	144	0.8528	0.580	20	
1,2-Dibromoethane (EDB)	0.860	0.00500	1.000	0	86.0	50.5	154	0.8391	2.41	20	
Chlorobenzene	0.990	0.0250	1.000	0	99.0	84.9	125	0.9559	3.53	20	
1,1,1,2-Tetrachloroethane	0.950	0.0250	1.000	0	95.0	65.9	141	0.9218	2.99	20	
Ethylbenzene	1.01	0.0250	1.000	0	101	74	129	0.9772	2.89	20	
m,p-Xylene	2.03	0.0500	2.000	0	102	70	124	1.983	2.55	20	
o-Xylene	1.02	0.0250	1.000	0	102	68.1	139	0.9964	1.85	20	
Styrene	1.01	0.0250	1.000	0	101	73.3	146	0.9758	3.62	20	
Isopropylbenzene	1.02	0.0250	1.000	0	102	70	130	0.9924	3.17	20	
Bromoform	0.945	0.0500	1.000	0	94.5	44.3	130	0.9072	4.07	20	
1,1,2,2-Tetrachloroethane	0.845	0.0200	1.000	0	84.5	44.8	165	0.8151	3.58	20	
n-Propylbenzene	1.01	0.0250	1.000	0	101	75.8	139	0.9780	2.92	20	
Bromobenzene	1.03	0.0200	1.000	0	103	49.2	144	0.9719	5.36	20	
1,3,5-Trimethylbenzene	1.01	0.0250	1.000	0	101	76.5	135	0.9721	3.64	20	
2-Chlorotoluene	0.999	0.0250	1.000	0	99.9	76.7	129	0.9753	2.43	20	
4-Chlorotoluene	0.997	0.0250	1.000	0	99.7	77.5	125	0.9561	4.14	20	
tert-Butylbenzene	1.03	0.0250	1.000	0	103	66.2	130	0.9986	3.42	20	
1,2,3-Trichloropropane	0.903	0.0250	1.000	0	90.3	67.9	136	0.8879	1.70	20	
1,2,4-Trichlorobenzene	1.05	0.0250	1.000	0	105	65.5	150	0.9368	11.2	20	
sec-Butylbenzene	1.02	0.0500	1.000	0	102	75.6	133	0.9936	2.76	20	
4-Isopropyltoluene	1.04	0.0500	1.000	0	104	76.8	131	1.000	3.45	20	
1,3-Dichlorobenzene	1.05	0.0200	1.000	0	105	48.6	144	0.9864	6.29	20	
1,4-Dichlorobenzene	1.04	0.0200	1.000	0	104	72.6	126	0.9791	6.11	20	
n-Butylbenzene	1.06	0.0250	1.000	0	106	78.4	140	1.008	4.67	20	
1,2-Dichlorobenzene	1.04	0.0200	1.000	0	104	72.8	126	0.9738	6.96	20	
1,2-Dibromo-3-chloropropane	0.949	0.500	1.000	0	94.9	40.2	155	0.8327	13.1	20	
1,2,4-Trimethylbenzene	0.984	0.0200	1.000	0	98.4	77.5	129	0.9750	0.969	20	

Work Order: 1903006
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCSD-23687**	SampType: **LCSD**			Units: **mg/Kg**		Prep Date: **3/4/2019**		RunNo: **49813**		
Client ID: **LCSS02**	Batch ID: **23687**					Analysis Date: **3/4/2019**		SeqNo: **976579**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	1.13	0.0500	1.000	0	113	42	151	1.040	8.57	20	
Naphthalene	0.996	0.0500	1.000	0	99.6	46.5	167	0.9074	9.31	20	
1,2,3-Trichlorobenzene	1.02	0.0200	1.000	0	102	64.5	149	0.9249	9.91	20	
Surr: Dibromofluoromethane	1.13		1.250		90.2	56.5	129		0		
Surr: Toluene-d8	1.16		1.250		92.6	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.23		1.250		98.2	54.8	168		0		

Sample ID **MB-23687**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **3/4/2019**		RunNo: **49813**		
Client ID: **MBLKS**	Batch ID: **23687**					Analysis Date: **3/4/2019**		SeqNo: **976580**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0200									
Chloromethane	ND	0.0500									
Vinyl chloride	ND	0.0250									
Bromomethane	ND	0.0500									
Trichlorofluoromethane (CFC-11)	ND	0.0200									
Chloroethane	ND	0.0500									
1,1-Dichloroethene	ND	0.0200									
Methylene chloride	ND	0.0200									
trans-1,2-Dichloroethene	ND	0.0200									
Methyl tert-butyl ether (MTBE)	ND	0.0500									Q
1,1-Dichloroethane	ND	0.0200									
2,2-Dichloropropane	ND	0.100									
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0250									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0250									
1,2-Dichloroethane (EDC)	ND	0.0200									
Benzene	ND	0.0200									

Work Order: 1903006
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-23687**	SampType: **MBLK**		Units: **mg/Kg**	Prep Date: **3/4/2019**		RunNo: **49813**	
Client ID: **MBLKS**	Batch ID: **23687**			Analysis Date: **3/4/2019**		SeqNo: **976580**	

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0200									
cis-1,3-Dichloropropene	ND	0.0200									
Toluene	ND	0.0200									
trans-1,3-Dichloropropylene	ND	0.0200									Q
1,1,2-Trichloroethane	ND	0.0200									Q
1,3-Dichloropropane	ND	0.0250									
Tetrachloroethene (PCE)	ND	0.0250									
Dibromochloromethane	ND	0.0250									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0250									
1,1,1,2-Tetrachloroethane	ND	0.0250									
Ethylbenzene	ND	0.0250									
m,p-Xylene	ND	0.0500									
o-Xylene	ND	0.0250									
Styrene	ND	0.0250									
Isopropylbenzene	ND	0.0250									
Bromoform	ND	0.0500									
1,1,2,2-Tetrachloroethane	ND	0.0200									Q
n-Propylbenzene	ND	0.0250									
Bromobenzene	ND	0.0200									
1,3,5-Trimethylbenzene	ND	0.0250									
2-Chlorotoluene	ND	0.0250									
4-Chlorotoluene	ND	0.0250									
tert-Butylbenzene	ND	0.0250									
1,2,3-Trichloropropane	ND	0.0250									
1,2,4-Trichlorobenzene	ND	0.0250									
sec-Butylbenzene	ND	0.0500									
4-Isopropyltoluene	ND	0.0500									

Work Order: 1903006
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-23687** SampType: **MBLK** Units: **mg/Kg** Prep Date: **3/4/2019** RunNo: **49813**
Client ID: **MBLKS** Batch ID: **23687** Analysis Date: **3/4/2019** SeqNo: **976580**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0250									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.500									
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachlorobutadiene	ND	0.0500									
Naphthalene	ND	0.0500									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: Dibromofluoromethane	1.12		1.250		89.5	56.5	129				
Surr: Toluene-d8	1.16		1.250		92.6	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.20		1.250		96.2	54.8	168				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample ID **1903006-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **3/4/2019** RunNo: **49813**
Client ID: **MW-18-10** Batch ID: **23687** Analysis Date: **3/4/2019** SeqNo: **976569**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0251						0		30	
Chloromethane	ND	0.0628						0		30	
Vinyl chloride	ND	0.0314						0		30	
Bromomethane	ND	0.0628						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0251						0		30	
Chloroethane	ND	0.0628						0		30	
1,1-Dichloroethene	ND	0.0251						0		30	
Methylene chloride	ND	0.0251						0		30	
trans-1,2-Dichloroethene	ND	0.0251						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0628						0		30	Q
1,1-Dichloroethane	ND	0.0251						0		30	
2,2-Dichloropropane	ND	0.126						0		30	

Work Order: 1903006
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1903006-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **3/4/2019** RunNo: **49813**
Client ID: **MW-18-10** Batch ID: **23687** Analysis Date: **3/4/2019** SeqNo: **976569**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
cis-1,2-Dichloroethene	ND	0.0251						0		30	
Chloroform	ND	0.0251						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0314						0		30	
1,1-Dichloropropene	ND	0.0251						0		30	
Carbon tetrachloride	ND	0.0314						0		30	
1,2-Dichloroethane (EDC)	ND	0.0251						0		30	
Benzene	ND	0.0251						0		30	
Trichloroethene (TCE)	ND	0.0251						0		30	
1,2-Dichloropropane	ND	0.0251						0		30	
Bromodichloromethane	ND	0.0251						0		30	
Dibromomethane	ND	0.0251						0		30	
cis-1,3-Dichloropropene	ND	0.0251						0		30	
Toluene	ND	0.0251						0		30	
trans-1,3-Dichloropropylene	ND	0.0251						0		30	Q
1,1,2-Trichloroethane	ND	0.0251						0		30	Q
1,3-Dichloropropane	ND	0.0314						0		30	
Tetrachloroethene (PCE)	ND	0.0314						0		30	
Dibromochloromethane	ND	0.0314						0		30	
1,2-Dibromoethane (EDB)	ND	0.00628						0		30	
Chlorobenzene	ND	0.0314						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0314						0		30	
Ethylbenzene	ND	0.0314						0		30	
m,p-Xylene	ND	0.0628						0		30	
o-Xylene	ND	0.0314						0		30	
Styrene	ND	0.0314						0		30	
Isopropylbenzene	ND	0.0314						0		30	
Bromoform	ND	0.0628						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0251						0		30	Q
n-Propylbenzene	ND	0.0314						0		30	
Bromobenzene	ND	0.0251						0		30	
1,3,5-Trimethylbenzene	ND	0.0314						0		30	

Work Order: 1903006
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1903006-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **3/4/2019** RunNo: **49813**
Client ID: **MW-18-10** Batch ID: **23687** Analysis Date: **3/4/2019** SeqNo: **976569**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Chlorotoluene	ND	0.0314						0		30	
4-Chlorotoluene	ND	0.0314						0		30	
tert-Butylbenzene	ND	0.0314						0		30	
1,2,3-Trichloropropane	ND	0.0314						0		30	
1,2,4-Trichlorobenzene	ND	0.0314						0		30	
sec-Butylbenzene	ND	0.0628						0		30	
4-Isopropyltoluene	ND	0.0628						0		30	
1,3-Dichlorobenzene	ND	0.0251						0		30	
1,4-Dichlorobenzene	ND	0.0251						0		30	
n-Butylbenzene	ND	0.0314						0		30	
1,2-Dichlorobenzene	ND	0.0251						0		30	
1,2-Dibromo-3-chloropropane	ND	0.628						0		30	
1,2,4-Trimethylbenzene	ND	0.0251						0		30	
Hexachlorobutadiene	ND	0.0628						0		30	
Naphthalene	ND	0.0628						0		30	
1,2,3-Trichlorobenzene	ND	0.0251						0		30	
Surr: Dibromofluoromethane	1.46		1.570		93.1	56.5	129		0		
Surr: Toluene-d8	1.46		1.570		93.0	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.53		1.570		97.6	54.8	168		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Work Order: 1903006
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID	**1903006-001ADUP**	SampType:	**DUP**		Units: **wt%**		Prep Date:	**3/5/2019**		RunNo:	**49802**
Client ID:	**MW-18-10**	Batch ID:	**R49802**				Analysis Date:	**3/5/2019**		SeqNo:	**976399**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	15.7	0.500						15.78	0.525	20	

Sample Log-In Check List

Client Name:	**PES**	Work Order Number:	**1903006**
Logged by:	**Brianna Barnes**	Date Received:	**3/1/2019 2:34:00 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 ☐
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

Item #	Temp ºC
Cooler	6.4
Sample	4.5
Temp Blank	3.6

* 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

Chain of Custody Record & Laboratory Services Agreement

Date: 3/1/19 Page: 1 of:

Laboratory Project No (internal): 19030016

Special Remarks:

Project Name: MVSC

Project No: 1358.001.01.009

Client: PES ENVIRONMENTAL, INC

Address: 1215 4TH AVE #1350

City, State, Zip: SEATTLE, WA 98161

Telephone: 206 529 3980

Fax: 206 529 3985

Collected by: S. MCKERNAN / B. HECHT

Location: NORMANDY PARK, WA

Report To (PM): MATT DAHL

PM Email: MDAHL@PESENV.COM

Sample Disposal: ☐ Return to client ☒ Disposal by lab (after 30 days)

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	MW-18-10	2/28/19	1055	S	X													
2	MW-18-15		1115															HOLD
3	MW-18-20		1120															HOLD
4	MW-18-25		1135															HOLD
5	MW-18-30		1155		X													
6	MW-18-35		1205		X													
7	MW-18-40		1230															HOLD
8	MW-17-10	3/1/19	0950															HOLD
9	MW-17-15		1000															HOLD
10	MW-17-20		1110															HOLD

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

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.

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

Relinquished	Date/Time	Received	Date/Time
x [signature]	3/1/19 @ 1434	x [signature]	3/1/19 1434
Relinquished x	Date/Time	Received x	Date/Time

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

Chain of Custody Record & Laboratory Services Agreement

Date: 3/1/19 Page: 2 of: 2

Laboratory Project No (internal): 19030006

Project Name: MVSC

Special Remarks:

Client: PES ENVIRONMENTAL

Project No: 1358.001.01.009

Address:

Collected by:

City, State, Zip:

Location:

Telephone:

Report To (PM):

Sample Disposal: ☐ Return to client ☒ Disposal by lab (after 30 days)

Fax:

PM Email:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1 MW-17-25	3/1/19	1025	S	X													
2 MW-17-30	↓	1040	↓	X													
3 MW-17-35		1055		X													
4 MW-17-38		1115															HOLD
5																	
6																	
7																	
8																	
9																	
10																	

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

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	Received	Date/Time
x [signature]	3/1/19 @ 1434	x [signature]	3/1/19 1434
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-around Time:

- ☒ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☐ Next Day
- Same Day _____ (specify)

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: 1903081

March 14, 2019

Attention Matt Dahl:

Fremont Analytical, Inc. received 6 sample(s) on 3/6/2019 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

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

Date: *03/14/2019*

CLIENT: PES Environmental, Inc.
Project: MVSC
Work Order: 1903081

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1903081-001	MW-18-030619	03/06/2019 12:00 PM	03/06/2019 5:30 PM
1903081-002	MW-17-030619	03/06/2019 2:15 PM	03/06/2019 5:30 PM
1903081-003	EQ-030619	03/06/2019 2:45 PM	03/06/2019 5:30 PM
1903081-004	WATER-030619	03/06/2019 3:30 PM	03/06/2019 5:30 PM
1903081-005	COMP-030619	03/06/2019 4:06 PM	03/06/2019 5:30 PM
1903081-006	Trip Blank	03/04/2019 3:09 PM	03/06/2019 5:30 PM

Case Narrative

WO#: **1903081**
Date: **3/14/2019**

CLIENT: PES Environmental, Inc.
Project: MVSC

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. 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 and the MS/MSD 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.

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.
Collection Date: 3/6/2019 12:00:00 PM
Project: MVSC
Lab ID: 1903081-001
Matrix: Groundwater
Client Sample ID: **MW-18-030619**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 23775 Analyst: CR

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
Chloromethane	ND	2.00		µg/L	1	3/12/2019 2:50:46 AM
Vinyl chloride	ND	0.200		µg/L	1	3/12/2019 2:50:46 AM
Bromomethane	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
Trichlorofluoromethane (CFC-11)	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
Chloroethane	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
1,1-Dichloroethene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
Methylene chloride	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
1,1-Dichloroethane	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
2,2-Dichloropropane	ND	2.00		µg/L	1	3/12/2019 2:50:46 AM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
Chloroform	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
1,1,1-Trichloroethane (TCA)	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
1,1-Dichloropropene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
Carbon tetrachloride	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
1,2-Dichloroethane (EDC)	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
Benzene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
Trichloroethene (TCE)	ND	0.500		µg/L	1	3/12/2019 2:50:46 AM
1,2-Dichloropropane	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
Bromodichloromethane	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
Dibromomethane	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
cis-1,3-Dichloropropene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
Toluene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
trans-1,3-Dichloropropylene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
1,1,2-Trichloroethane	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
1,3-Dichloropropane	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
Tetrachloroethene (PCE)	11.4	1.00		µg/L	1	3/12/2019 2:50:46 AM
Dibromochloromethane	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
1,2-Dibromoethane (EDB)	ND	0.250		µg/L	1	3/12/2019 2:50:46 AM
Chlorobenzene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
1,1,1,2-Tetrachloroethane	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
Ethylbenzene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
m,p-Xylene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
o-Xylene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
Styrene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
Isopropylbenzene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
Bromoform	ND	2.00		µg/L	1	3/12/2019 2:50:46 AM

Analytical Report

Work Order: **1903081**
Date Reported: **3/14/2019**

Client: PES Environmental, Inc.
Collection Date: 3/6/2019 12:00:00 PM
Project: MVSC
Lab ID: 1903081-001
Matrix: Groundwater
Client Sample ID: **MW-18-030619**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 23775		Analyst: CR
1,1,2,2-Tetrachloroethane	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
n-Propylbenzene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
Bromobenzene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
2-Chlorotoluene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
4-Chlorotoluene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
tert-Butylbenzene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
1,2,3-Trichloropropane	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
1,2,4-Trichlorobenzene	ND	2.00		µg/L	1	3/12/2019 2:50:46 AM
sec-Butylbenzene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
4-Isopropyltoluene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
n-Butylbenzene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
1,2-Dibromo-3-chloropropane	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
Hexachloro-1,3-butadiene	ND	4.00		µg/L	1	3/12/2019 2:50:46 AM
Naphthalene	ND	1.00		µg/L	1	3/12/2019 2:50:46 AM
1,2,3-Trichlorobenzene	ND	4.00		µg/L	1	3/12/2019 2:50:46 AM
Surr: Dibromofluoromethane	98.8	45.4 - 152		%Rec	1	3/12/2019 2:50:46 AM
Surr: Toluene-d8	104	40.1 - 139		%Rec	1	3/12/2019 2:50:46 AM
Surr: 1-Bromo-4-fluorobenzene	96.7	64.2 - 128		%Rec	1	3/12/2019 2:50:46 AM

Client: PES Environmental, Inc.
Collection Date: 3/6/2019 2:15:00 PM
Project: MVSC
Lab ID: 1903081-002
Matrix: Groundwater
Client Sample ID: **MW-17-030619**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 23775 Analyst: CR

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
Chloromethane	ND	2.00		µg/L	1	3/12/2019 3:20:53 AM
Vinyl chloride	ND	0.200		µg/L	1	3/12/2019 3:20:53 AM
Bromomethane	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
Trichlorofluoromethane (CFC-11)	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
Chloroethane	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
1,1-Dichloroethene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
Methylene chloride	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
1,1-Dichloroethane	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
2,2-Dichloropropane	ND	2.00		µg/L	1	3/12/2019 3:20:53 AM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
Chloroform	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
1,1,1-Trichloroethane (TCA)	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
1,1-Dichloropropene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
Carbon tetrachloride	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
1,2-Dichloroethane (EDC)	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
Benzene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
Trichloroethene (TCE)	ND	0.500		µg/L	1	3/12/2019 3:20:53 AM
1,2-Dichloropropane	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
Bromodichloromethane	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
Dibromomethane	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
cis-1,3-Dichloropropene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
Toluene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
trans-1,3-Dichloropropylene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
1,1,2-Trichloroethane	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
1,3-Dichloropropane	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
Tetrachloroethene (PCE)	6.82	1.00		µg/L	1	3/12/2019 3:20:53 AM
Dibromochloromethane	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
1,2-Dibromoethane (EDB)	ND	0.250		µg/L	1	3/12/2019 3:20:53 AM
Chlorobenzene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
1,1,1,2-Tetrachloroethane	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
Ethylbenzene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
m,p-Xylene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
o-Xylene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
Styrene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
Isopropylbenzene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
Bromoform	ND	2.00		µg/L	1	3/12/2019 3:20:53 AM

Analytical Report

Work Order: **1903081**
Date Reported: **3/14/2019**

Client: PES Environmental, Inc.
Collection Date: 3/6/2019 2:15:00 PM
Project: MVSC
Lab ID: 1903081-002
Matrix: Groundwater
Client Sample ID: **MW-17-030619**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 23775		Analyst: CR
1,1,2,2-Tetrachloroethane	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
n-Propylbenzene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
Bromobenzene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
2-Chlorotoluene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
4-Chlorotoluene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
tert-Butylbenzene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
1,2,3-Trichloropropane	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
1,2,4-Trichlorobenzene	ND	2.00		µg/L	1	3/12/2019 3:20:53 AM
sec-Butylbenzene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
4-Isopropyltoluene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
n-Butylbenzene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
1,2-Dibromo-3-chloropropane	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
Hexachloro-1,3-butadiene	ND	4.00		µg/L	1	3/12/2019 3:20:53 AM
Naphthalene	ND	1.00		µg/L	1	3/12/2019 3:20:53 AM
1,2,3-Trichlorobenzene	ND	4.00		µg/L	1	3/12/2019 3:20:53 AM
Surr: Dibromofluoromethane	98.8	45.4 - 152		%Rec	1	3/12/2019 3:20:53 AM
Surr: Toluene-d8	104	40.1 - 139		%Rec	1	3/12/2019 3:20:53 AM
Surr: 1-Bromo-4-fluorobenzene	97.3	64.2 - 128		%Rec	1	3/12/2019 3:20:53 AM

Client: PES Environmental, Inc.
Collection Date: 3/6/2019 2:45:00 PM
Project: MVSC
Lab ID: 1903081-003
Matrix: Water
Client Sample ID: **EQ-030619**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 23775 Analyst: CR

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
Chloromethane	ND	2.00		µg/L	1	3/12/2019 3:51:10 AM
Vinyl chloride	ND	0.200		µg/L	1	3/12/2019 3:51:10 AM
Bromomethane	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
Trichlorofluoromethane (CFC-11)	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
Chloroethane	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
1,1-Dichloroethene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
Methylene chloride	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
1,1-Dichloroethane	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
2,2-Dichloropropane	ND	2.00		µg/L	1	3/12/2019 3:51:10 AM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
Chloroform	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
1,1,1-Trichloroethane (TCA)	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
1,1-Dichloropropene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
Carbon tetrachloride	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
1,2-Dichloroethane (EDC)	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
Benzene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
Trichloroethene (TCE)	ND	0.500		µg/L	1	3/12/2019 3:51:10 AM
1,2-Dichloropropane	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
Bromodichloromethane	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
Dibromomethane	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
cis-1,3-Dichloropropene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
Toluene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
trans-1,3-Dichloropropylene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
1,1,2-Trichloroethane	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
1,3-Dichloropropane	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
Dibromochloromethane	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
1,2-Dibromoethane (EDB)	ND	0.250		µg/L	1	3/12/2019 3:51:10 AM
Chlorobenzene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
1,1,1,2-Tetrachloroethane	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
Ethylbenzene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
m,p-Xylene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
o-Xylene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
Styrene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
Isopropylbenzene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
Bromoform	ND	2.00		µg/L	1	3/12/2019 3:51:10 AM

Analytical Report

Work Order: **1903081**
Date Reported: **3/14/2019**

Client: PES Environmental, Inc.
Collection Date: 3/6/2019 2:45:00 PM
Project: MVSC
Lab ID: 1903081-003
Matrix: Water
Client Sample ID: **EQ-030619**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 23775		Analyst: CR
1,1,2,2-Tetrachloroethane	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
n-Propylbenzene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
Bromobenzene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
2-Chlorotoluene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
4-Chlorotoluene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
tert-Butylbenzene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
1,2,3-Trichloropropane	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
1,2,4-Trichlorobenzene	ND	2.00		µg/L	1	3/12/2019 3:51:10 AM
sec-Butylbenzene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
4-Isopropyltoluene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
n-Butylbenzene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
1,2-Dibromo-3-chloropropane	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
Hexachloro-1,3-butadiene	ND	4.00		µg/L	1	3/12/2019 3:51:10 AM
Naphthalene	ND	1.00		µg/L	1	3/12/2019 3:51:10 AM
1,2,3-Trichlorobenzene	ND	4.00		µg/L	1	3/12/2019 3:51:10 AM
Surr: Dibromofluoromethane	97.1	45.4 - 152		%Rec	1	3/12/2019 3:51:10 AM
Surr: Toluene-d8	104	40.1 - 139		%Rec	1	3/12/2019 3:51:10 AM
Surr: 1-Bromo-4-fluorobenzene	95.0	64.2 - 128		%Rec	1	3/12/2019 3:51:10 AM

Client: PES Environmental, Inc.
Collection Date: 3/6/2019 3:30:00 PM
Project: MVSC
Lab ID: 1903081-004
Matrix: Water
Client Sample ID: **WATER-030619**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 23775 Analyst: CR

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
Chloromethane	ND	2.00		µg/L	1	3/12/2019 4:21:21 AM
Vinyl chloride	ND	0.200		µg/L	1	3/12/2019 4:21:21 AM
Bromomethane	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
Trichlorofluoromethane (CFC-11)	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
Chloroethane	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
1,1-Dichloroethene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
Methylene chloride	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
1,1-Dichloroethane	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
2,2-Dichloropropane	ND	2.00		µg/L	1	3/12/2019 4:21:21 AM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
Chloroform	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
1,1,1-Trichloroethane (TCA)	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
1,1-Dichloropropene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
Carbon tetrachloride	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
1,2-Dichloroethane (EDC)	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
Benzene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
Trichloroethene (TCE)	ND	0.500		µg/L	1	3/12/2019 4:21:21 AM
1,2-Dichloropropane	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
Bromodichloromethane	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
Dibromomethane	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
cis-1,3-Dichloropropene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
Toluene	2.92	1.00		µg/L	1	3/12/2019 4:21:21 AM
trans-1,3-Dichloropropylene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
1,1,2-Trichloroethane	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
1,3-Dichloropropane	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
Tetrachloroethene (PCE)	7.90	1.00		µg/L	1	3/12/2019 4:21:21 AM
Dibromochloromethane	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
1,2-Dibromoethane (EDB)	ND	0.250		µg/L	1	3/12/2019 4:21:21 AM
Chlorobenzene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
1,1,1,2-Tetrachloroethane	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
Ethylbenzene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
m,p-Xylene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
o-Xylene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
Styrene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
Isopropylbenzene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
Bromoform	ND	2.00		µg/L	1	3/12/2019 4:21:21 AM

Analytical Report

Work Order: **1903081**
Date Reported: **3/14/2019**

Client: PES Environmental, Inc.
Collection Date: 3/6/2019 3:30:00 PM
Project: MVSC
Lab ID: 1903081-004
Matrix: Water
Client Sample ID: **WATER-030619**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 23775		Analyst: CR
1,1,2,2-Tetrachloroethane	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
n-Propylbenzene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
Bromobenzene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
2-Chlorotoluene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
4-Chlorotoluene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
tert-Butylbenzene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
1,2,3-Trichloropropane	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
1,2,4-Trichlorobenzene	ND	2.00		µg/L	1	3/12/2019 4:21:21 AM
sec-Butylbenzene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
4-Isopropyltoluene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
n-Butylbenzene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
1,2-Dibromo-3-chloropropane	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
Hexachloro-1,3-butadiene	ND	4.00		µg/L	1	3/12/2019 4:21:21 AM
Naphthalene	ND	1.00		µg/L	1	3/12/2019 4:21:21 AM
1,2,3-Trichlorobenzene	ND	4.00		µg/L	1	3/12/2019 4:21:21 AM
Surr: Dibromofluoromethane	98.2	45.4 - 152		%Rec	1	3/12/2019 4:21:21 AM
Surr: Toluene-d8	104	40.1 - 139		%Rec	1	3/12/2019 4:21:21 AM
Surr: 1-Bromo-4-fluorobenzene	95.2	64.2 - 128		%Rec	1	3/12/2019 4:21:21 AM

Client: PES Environmental, Inc. **Collection Date:** 3/6/2019 4:06:00 PM
Project: MVSC
Lab ID: 1903081-005 **Matrix:** Water
Client Sample ID: COMP-030619

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 23775 Analyst: CR

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
Chloromethane	ND	20.0	D	µg/L	10	3/12/2019 11:32:29 AM
Vinyl chloride	ND	2.00	D	µg/L	10	3/12/2019 11:32:29 AM
Bromomethane	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
Trichlorofluoromethane (CFC-11)	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
Chloroethane	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
1,1-Dichloroethene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
Methylene chloride	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
trans-1,2-Dichloroethene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
Methyl tert-butyl ether (MTBE)	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
1,1-Dichloroethane	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
2,2-Dichloropropane	ND	20.0	D	µg/L	10	3/12/2019 11:32:29 AM
cis-1,2-Dichloroethene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
Chloroform	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
1,1,1-Trichloroethane (TCA)	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
1,1-Dichloropropene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
Carbon tetrachloride	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
1,2-Dichloroethane (EDC)	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
Benzene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
Trichloroethene (TCE)	ND	5.00	D	µg/L	10	3/12/2019 11:32:29 AM
1,2-Dichloropropane	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
Bromodichloromethane	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
Dibromomethane	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
cis-1,3-Dichloropropene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
Toluene	382	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
trans-1,3-Dichloropropylene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
1,1,2-Trichloroethane	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
1,3-Dichloropropane	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
Tetrachloroethene (PCE)	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
Dibromochloromethane	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
1,2-Dibromoethane (EDB)	ND	2.50	D	µg/L	10	3/12/2019 11:32:29 AM
Chlorobenzene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
1,1,1,2-Tetrachloroethane	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
Ethylbenzene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
m,p-Xylene	13.8	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
o-Xylene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
Styrene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
Isopropylbenzene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
Bromoform	ND	20.0	D	µg/L	10	3/12/2019 11:32:29 AM

Client: PES Environmental, Inc.
Collection Date: 3/6/2019 4:06:00 PM
Project: MVSC
Lab ID: 1903081-005
Matrix: Water
Client Sample ID: **COMP-030619**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 23775		Analyst: CR
1,1,2,2-Tetrachloroethane	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
n-Propylbenzene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
Bromobenzene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
1,3,5-Trimethylbenzene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
2-Chlorotoluene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
4-Chlorotoluene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
tert-Butylbenzene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
1,2,3-Trichloropropane	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
1,2,4-Trichlorobenzene	ND	20.0	D	µg/L	10	3/12/2019 11:32:29 AM
sec-Butylbenzene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
4-Isopropyltoluene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
1,3-Dichlorobenzene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
1,4-Dichlorobenzene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
n-Butylbenzene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
1,2-Dichlorobenzene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
1,2-Dibromo-3-chloropropane	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
1,2,4-Trimethylbenzene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
Hexachloro-1,3-butadiene	ND	40.0	D	µg/L	10	3/12/2019 11:32:29 AM
Naphthalene	ND	10.0	D	µg/L	10	3/12/2019 11:32:29 AM
1,2,3-Trichlorobenzene	ND	40.0	D	µg/L	10	3/12/2019 11:32:29 AM
Surr: Dibromofluoromethane	79.3	45.4 - 152	D	%Rec	10	3/12/2019 11:32:29 AM
Surr: Toluene-d8	103	40.1 - 139	D	%Rec	10	3/12/2019 11:32:29 AM
Surr: 1-Bromo-4-fluorobenzene	96.6	64.2 - 128	D	%Rec	10	3/12/2019 11:32:29 AM

NOTES:
Diluted due to matrix.

Work Order: 1903081
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-23775** SampType: **LCS** Units: **µg/L** Prep Date: **3/11/2019** RunNo: **49981**
Client ID: **LCSW** Batch ID: **23775** Analysis Date: **3/11/2019** SeqNo: **980666**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	27.9	1.00	20.00	0	139	18.7	171				
Chloromethane	23.5	2.00	20.00	0	118	38.5	171				
Vinyl chloride	23.5	0.200	20.00	0	118	48	145				
Bromomethane	21.2	1.00	20.00	0	106	32.5	184				
Trichlorofluoromethane (CFC-11)	22.5	1.00	20.00	0	112	43.5	149				
Chloroethane	22.8	1.00	20.00	0	114	43.8	168				
1,1-Dichloroethene	21.9	1.00	20.00	0	110	57.5	150				
Methylene chloride	21.0	1.00	20.00	0	105	67.1	131				
trans-1,2-Dichloroethene	21.6	1.00	20.00	0	108	71.7	129				
Methyl tert-butyl ether (MTBE)	21.3	1.00	20.00	0	107	58	138				
1,1-Dichloroethane	21.9	1.00	20.00	0	110	67.9	134				
2,2-Dichloropropane	24.4	2.00	20.00	0	122	26.5	185				
cis-1,2-Dichloroethene	21.2	1.00	20.00	0	106	70.2	139				
Chloroform	21.3	1.00	20.00	0	106	66.3	131				
1,1,1-Trichloroethane (TCA)	21.1	1.00	20.00	0	106	63	140				
1,1-Dichloropropene	21.8	1.00	20.00	0	109	69.9	124				
Carbon tetrachloride	21.8	1.00	20.00	0	109	66.2	134				
1,2-Dichloroethane (EDC)	21.0	1.00	20.00	0	105	67	126				
Benzene	21.3	1.00	20.00	0	107	69.3	132				
Trichloroethene (TCE)	22.2	0.500	20.00	0	111	65.2	136				
1,2-Dichloropropane	22.9	1.00	20.00	0	114	70.5	130				
Bromodichloromethane	22.4	1.00	20.00	0	112	67.2	137				
Dibromomethane	22.6	1.00	20.00	0	113	69.3	143				
cis-1,3-Dichloropropene	20.8	1.00	20.00	0	104	62.6	137				
Toluene	20.7	1.00	20.00	0	104	61.3	145				
trans-1,3-Dichloropropylene	19.7	1.00	20.00	0	98.4	56.5	163				
1,1,2-Trichloroethane	19.6	1.00	20.00	0	98.1	71.7	131				
1,3-Dichloropropane	20.1	1.00	20.00	0	100	73.5	127				
Tetrachloroethene (PCE)	21.1	1.00	20.00	0	106	47.5	147				
Dibromochloromethane	19.4	1.00	20.00	0	96.9	67.2	134				
1,2-Dibromoethane (EDB)	20.1	0.250	20.00	0	100	73.6	125				

Work Order: 1903081
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-23775** SampType: **LCS** Units: **µg/L** Prep Date: **3/11/2019** RunNo: **49981**
Client ID: **LCSW** Batch ID: **23775** Analysis Date: **3/11/2019** SeqNo: **980666**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	20.6	1.00	20.00	0	103	73.9	126				
1,1,1,2-Tetrachloroethane	20.4	1.00	20.00	0	102	76.8	124				
Ethylbenzene	20.9	1.00	20.00	0	105	72	130				
m,p-Xylene	40.4	1.00	40.00	0	101	70.3	134				
o-Xylene	20.7	1.00	20.00	0	103	72.1	131				
Styrene	20.5	1.00	20.00	0	102	64.3	140				
Isopropylbenzene	21.3	1.00	20.00	0	106	73.9	128				
Bromoform	22.0	2.00	20.00	0	110	55.3	141				
1,1,2,2-Tetrachloroethane	21.3	1.00	20.00	0	106	62.9	132				
n-Propylbenzene	22.0	1.00	20.00	0	110	74.5	127				
Bromobenzene	21.5	1.00	20.00	0	107	71	131				
1,3,5-Trimethylbenzene	21.3	1.00	20.00	0	107	73.1	128				
2-Chlorotoluene	21.4	1.00	20.00	0	107	70.8	130				
4-Chlorotoluene	21.8	1.00	20.00	0	109	70.1	131				
tert-Butylbenzene	21.7	1.00	20.00	0	109	68.2	131				
1,2,3-Trichloropropane	22.4	1.00	20.00	0	112	67.7	131				
1,2,4-Trichlorobenzene	22.6	2.00	20.00	0	113	41	139				
sec-Butylbenzene	22.0	1.00	20.00	0	110	72	129				
4-Isopropyltoluene	21.4	1.00	20.00	0	107	69.2	130				
1,3-Dichlorobenzene	22.1	1.00	20.00	0	110	69.5	128				
1,4-Dichlorobenzene	21.6	1.00	20.00	0	108	66.8	119				
n-Butylbenzene	22.5	1.00	20.00	0	113	73.8	127				
1,2-Dichlorobenzene	21.8	1.00	20.00	0	109	69.7	119				
1,2-Dibromo-3-chloropropane	21.4	1.00	20.00	0	107	63.1	136				
1,2,4-Trimethylbenzene	21.3	1.00	20.00	0	106	73.4	127				
Hexachloro-1,3-butadiene	23.8	4.00	20.00	0	119	58.6	138				
Naphthalene	20.5	1.00	20.00	0	103	41.8	165				
1,2,3-Trichlorobenzene	22.6	4.00	20.00	0	113	35.8	155				
Surr: Dibromofluoromethane	25.5		25.00		102	45.4	152				
Surr: Toluene-d8	22.9		25.00		91.5	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	25.6		25.00		102	64.2	128				

Work Order: 1903081
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID	**LCS-23775**	SampType:	**LCS**		Units:	**µg/L**	Prep Date:	**3/11/2019**	RunNo:	**49981**
Client ID:	**LCSW**	Batch ID:	**23775**				Analysis Date:	**3/11/2019**	SeqNo:	**980666**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID	**MB-23775**	SampType:	**MBLK**		Units:	**µg/L**	Prep Date:	**3/11/2019**	RunNo:	**49981**
Client ID:	**MBLKW**	Batch ID:	**23775**				Analysis Date:	**3/11/2019**	SeqNo:	**980667**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	1.00									
Chloromethane	ND	2.00									
Vinyl chloride	ND	0.200									
Bromomethane	ND	1.00									
Trichlorofluoromethane (CFC-11)	ND	1.00									
Chloroethane	ND	1.00									
1,1-Dichloroethene	ND	1.00									
Methylene chloride	ND	1.00									
trans-1,2-Dichloroethene	ND	1.00									
Methyl tert-butyl ether (MTBE)	ND	1.00									
1,1-Dichloroethane	ND	1.00									
2,2-Dichloropropane	ND	2.00									
cis-1,2-Dichloroethene	ND	1.00									
Chloroform	ND	1.00									
1,1,1-Trichloroethane (TCA)	ND	1.00									
1,1-Dichloropropene	ND	1.00									
Carbon tetrachloride	ND	1.00									
1,2-Dichloroethane (EDC)	ND	1.00									
Benzene	ND	1.00									
Trichloroethene (TCE)	ND	0.500									
1,2-Dichloropropane	ND	1.00									
Bromodichloromethane	ND	1.00									
Dibromomethane	ND	1.00									
cis-1,3-Dichloropropene	ND	1.00									
Toluene	ND	1.00									

Work Order: 1903081
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID	**MB-23775**	SampType:	**MBLK**	Units:	**µg/L**	Prep Date:	**3/11/2019**	RunNo:	**49981**
Client ID:	**MBLKW**	Batch ID:	**23775**			Analysis Date:	**3/11/2019**	SeqNo:	**980667**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropylene	ND	1.00									
1,1,2-Trichloroethane	ND	1.00									
1,3-Dichloropropane	ND	1.00									
Tetrachloroethene (PCE)	ND	1.00									
Dibromochloromethane	ND	1.00									
1,2-Dibromoethane (EDB)	ND	0.250									
Chlorobenzene	ND	1.00									
1,1,1,2-Tetrachloroethane	ND	1.00									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	1.00									
o-Xylene	ND	1.00									
Styrene	ND	1.00									
Isopropylbenzene	ND	1.00									
Bromoform	ND	2.00									Q
1,1,2,2-Tetrachloroethane	ND	1.00									Q
n-Propylbenzene	ND	1.00									
Bromobenzene	ND	1.00									Q
1,3,5-Trimethylbenzene	ND	1.00									
2-Chlorotoluene	ND	1.00									Q
4-Chlorotoluene	ND	1.00									Q
tert-Butylbenzene	ND	1.00									
1,2,3-Trichloropropane	ND	1.00									Q
1,2,4-Trichlorobenzene	ND	2.00									
sec-Butylbenzene	ND	1.00									
4-Isopropyltoluene	ND	1.00									
1,3-Dichlorobenzene	ND	1.00									
1,4-Dichlorobenzene	ND	1.00									
n-Butylbenzene	ND	1.00									
1,2-Dichlorobenzene	ND	1.00									
1,2-Dibromo-3-chloropropane	ND	1.00									Q
1,2,4-Trimethylbenzene	ND	1.00									Q

Work Order: 1903081
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-23775** SampType: **MBLK** Units: **µg/L** Prep Date: **3/11/2019** RunNo: **49981**
Client ID: **MBLKW** Batch ID: **23775** Analysis Date: **3/11/2019** SeqNo: **980667**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachloro-1,3-butadiene	ND	4.00									
Naphthalene	ND	1.00									
1,2,3-Trichlorobenzene	ND	4.00									
Surr: Dibromofluoromethane	24.2		25.00		96.8	45.4	152				
Surr: Toluene-d8	24.6		25.00		98.2	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	24.1		25.00		96.5	64.2	128				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample ID **1903063-002ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/11/2019** RunNo: **49981**
Client ID: **BATCH** Batch ID: **23775** Analysis Date: **3/11/2019** SeqNo: **980640**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	1.00						0		30	
Chloromethane	ND	2.00						0		30	
Vinyl chloride	ND	0.200						0		30	
Bromomethane	ND	1.00						0		30	
Trichlorofluoromethane (CFC-11)	ND	1.00						0		30	
Chloroethane	ND	1.00						0		30	
1,1-Dichloroethene	ND	1.00						0		30	
Methylene chloride	ND	1.00						0		30	
trans-1,2-Dichloroethene	ND	1.00						0		30	
Methyl tert-butyl ether (MTBE)	ND	1.00						0		30	
1,1-Dichloroethane	ND	1.00						0		30	
2,2-Dichloropropane	ND	2.00						0		30	
cis-1,2-Dichloroethene	ND	1.00						0		30	
Chloroform	ND	1.00						0		30	
1,1,1-Trichloroethane (TCA)	ND	1.00						0		30	
1,1-Dichloropropene	ND	1.00						0		30	
Carbon tetrachloride	ND	1.00						0		30	
1,2-Dichloroethane (EDC)	ND	1.00						0		30	

Work Order: 1903081
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1903063-002ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/11/2019** RunNo: **49981**
Client ID: **BATCH** Batch ID: **23775** Analysis Date: **3/11/2019** SeqNo: **980640**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00						0		30	
Trichloroethene (TCE)	ND	0.500						0		30	
1,2-Dichloropropane	ND	1.00						0		30	
Bromodichloromethane	ND	1.00						0		30	
Dibromomethane	ND	1.00						0		30	
cis-1,3-Dichloropropene	ND	1.00						0		30	
Toluene	ND	1.00						0		30	
trans-1,3-Dichloropropylene	ND	1.00						0		30	
1,1,2-Trichloroethane	ND	1.00						0		30	
1,3-Dichloropropane	ND	1.00						0		30	
Tetrachloroethene (PCE)	ND	1.00						0		30	
Dibromochloromethane	ND	1.00						0		30	
1,2-Dibromoethane (EDB)	ND	0.250						0		30	
Chlorobenzene	ND	1.00						0		30	
1,1,1,2-Tetrachloroethane	ND	1.00						0		30	
Ethylbenzene	ND	1.00						0		30	
m,p-Xylene	ND	1.00						0		30	
o-Xylene	ND	1.00						0		30	
Styrene	ND	1.00						0		30	
Isopropylbenzene	ND	1.00						0		30	
Bromoform	ND	2.00						0		30	Q
1,1,2,2-Tetrachloroethane	ND	1.00						0		30	Q
n-Propylbenzene	ND	1.00						0		30	
Bromobenzene	ND	1.00						0		30	Q
1,3,5-Trimethylbenzene	ND	1.00						0		30	
2-Chlorotoluene	ND	1.00						0		30	Q
4-Chlorotoluene	ND	1.00						0		30	Q
tert-Butylbenzene	ND	1.00						0		30	
1,2,3-Trichloropropane	ND	1.00						0		30	Q
1,2,4-Trichlorobenzene	ND	2.00						0		30	
sec-Butylbenzene	ND	1.00						0		30	

Work Order: 1903081
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1903063-002ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/11/2019** RunNo: **49981**
Client ID: **BATCH** Batch ID: **23775** Analysis Date: **3/11/2019** SeqNo: **980640**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Isopropyltoluene	ND	1.00						0		30	
1,3-Dichlorobenzene	ND	1.00						0		30	
1,4-Dichlorobenzene	ND	1.00						0		30	
n-Butylbenzene	ND	1.00						0		30	
1,2-Dichlorobenzene	ND	1.00						0		30	
1,2-Dibromo-3-chloropropane	ND	1.00						0		30	Q
1,2,4-Trimethylbenzene	ND	1.00						0		30	Q
Hexachloro-1,3-butadiene	ND	4.00						0		30	
Naphthalene	ND	1.00						0		30	
1,2,3-Trichlorobenzene	ND	4.00						0		30	
Surr: Dibromofluoromethane	24.5		25.00		97.8	45.4	152		0		
Surr: Toluene-d8	23.7		25.00		94.8	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	24.7		25.00		98.7	64.2	128		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample ID **1903069-008ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/11/2019** RunNo: **49981**
Client ID: **BATCH** Batch ID: **23775** Analysis Date: **3/11/2019** SeqNo: **980650**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	1.00						0		30	
Chloromethane	ND	2.00						0		30	
Vinyl chloride	ND	0.200						0		30	
Bromomethane	ND	1.00						0		30	
Trichlorofluoromethane (CFC-11)	ND	1.00						0		30	
Chloroethane	ND	1.00						0		30	
1,1-Dichloroethene	ND	1.00						0		30	
Methylene chloride	ND	1.00						0		30	
trans-1,2-Dichloroethene	ND	1.00						0		30	
Methyl tert-butyl ether (MTBE)	ND	1.00						0		30	
1,1-Dichloroethane	ND	1.00						0		30	

Work Order: 1903081
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1903069-008ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/11/2019** RunNo: **49981**
Client ID: **BATCH** Batch ID: **23775** Analysis Date: **3/11/2019** SeqNo: **980650**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,2-Dichloropropane	ND	2.00						0		30	
cis-1,2-Dichloroethene	ND	1.00						0		30	
Chloroform	ND	1.00						0		30	
1,1,1-Trichloroethane (TCA)	ND	1.00						0		30	
1,1-Dichloropropene	ND	1.00						0		30	
Carbon tetrachloride	ND	1.00						0		30	
1,2-Dichloroethane (EDC)	ND	1.00						0		30	
Benzene	ND	1.00						0		30	
Trichloroethene (TCE)	ND	0.500						0		30	
1,2-Dichloropropane	ND	1.00						0		30	
Bromodichloromethane	ND	1.00						0		30	
Dibromomethane	ND	1.00						0		30	
cis-1,3-Dichloropropene	ND	1.00						0		30	
Toluene	ND	1.00						0		30	
trans-1,3-Dichloropropylene	ND	1.00						0		30	
1,1,2-Trichloroethane	ND	1.00						0		30	
1,3-Dichloropropane	ND	1.00						0		30	
Tetrachloroethene (PCE)	ND	1.00						0		30	
Dibromochloromethane	ND	1.00						0		30	
1,2-Dibromoethane (EDB)	ND	0.250						0		30	
Chlorobenzene	ND	1.00						0		30	
1,1,1,2-Tetrachloroethane	ND	1.00						0		30	
Ethylbenzene	ND	1.00						0		30	
m,p-Xylene	ND	1.00						0		30	
o-Xylene	ND	1.00						0		30	
Styrene	ND	1.00						0		30	
Isopropylbenzene	ND	1.00						0		30	
Bromoform	ND	2.00						0		30	Q
1,1,2,2-Tetrachloroethane	ND	1.00						0		30	Q
n-Propylbenzene	ND	1.00						0		30	
Bromobenzene	ND	1.00						0		30	Q

Work Order: 1903081
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1903069-008ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/11/2019** RunNo: **49981**
Client ID: **BATCH** Batch ID: **23775** Analysis Date: **3/11/2019** SeqNo: **980650**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3,5-Trimethylbenzene	ND	1.00						0		30	
2-Chlorotoluene	ND	1.00						0		30	Q
4-Chlorotoluene	ND	1.00						0		30	Q
tert-Butylbenzene	ND	1.00						0		30	
1,2,3-Trichloropropane	ND	1.00						0		30	Q
1,2,4-Trichlorobenzene	ND	2.00						0		30	
sec-Butylbenzene	ND	1.00						0		30	
4-Isopropyltoluene	ND	1.00						0		30	
1,3-Dichlorobenzene	ND	1.00						0		30	
1,4-Dichlorobenzene	ND	1.00						0		30	
n-Butylbenzene	ND	1.00						0		30	
1,2-Dichlorobenzene	ND	1.00						0		30	
1,2-Dibromo-3-chloropropane	ND	1.00						0		30	Q
1,2,4-Trimethylbenzene	ND	1.00						0		30	Q
Hexachloro-1,3-butadiene	ND	4.00						0		30	
Naphthalene	ND	1.00						0		30	
1,2,3-Trichlorobenzene	ND	4.00						0		30	
Surr: Dibromofluoromethane	24.8		25.00		99.2	45.4	152		0		
Surr: Toluene-d8	25.8		25.00		103	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	23.8		25.00		95.1	64.2	128		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample ID **1903063-006AMS** SampType: **MS** Units: **µg/L** Prep Date: **3/11/2019** RunNo: **49981**
Client ID: **BATCH** Batch ID: **23775** Analysis Date: **3/11/2019** SeqNo: **980645**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	25.7	1.00	20.00	0	129	33.3	122				S
Chloromethane	24.0	2.00	20.00	0	120	39.7	143				
Vinyl chloride	24.7	0.200	20.00	0	124	41	165				
Bromomethane	17.1	1.00	20.00	0	85.3	31.5	135				

Work Order: 1903081
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1903063-006AMS** SampType: **MS** Units: **µg/L** Prep Date: **3/11/2019** RunNo: **49981**
Client ID: **BATCH** Batch ID: **23775** Analysis Date: **3/11/2019** SeqNo: **980645**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichlorofluoromethane (CFC-11)	23.3	1.00	20.00	0	117	54.7	138				
Chloroethane	23.0	1.00	20.00	0	115	49.9	143				
1,1-Dichloroethene	22.8	1.00	20.00	0	114	51.6	164				
Methylene chloride	21.3	1.00	20.00	0	107	61.6	135				
trans-1,2-Dichloroethene	22.1	1.00	20.00	0	111	63.5	138				
Methyl tert-butyl ether (MTBE)	20.0	1.00	20.00	0	99.8	60.9	132				
1,1-Dichloroethane	22.3	1.00	20.00	0	111	55.7	151				
2,2-Dichloropropane	18.7	2.00	20.00	0	93.3	37.7	150				
cis-1,2-Dichloroethene	21.8	1.00	20.00	0	109	60	154				
Chloroform	22.1	1.00	20.00	0	110	48.1	140				
1,1,1-Trichloroethane (TCA)	22.1	1.00	20.00	0	111	64.2	146				
1,1-Dichloropropene	22.2	1.00	20.00	0	111	73.8	136				
Carbon tetrachloride	22.7	1.00	20.00	0	113	62.7	146				
1,2-Dichloroethane (EDC)	21.0	1.00	20.00	0	105	63.4	137				
Benzene	20.4	1.00	20.00	0	102	65.4	138				
Trichloroethene (TCE)	22.2	0.500	20.00	0	111	60.4	134				
1,2-Dichloropropane	23.5	1.00	20.00	0	117	62.6	138				
Bromodichloromethane	23.2	1.00	20.00	0	116	59.4	139				
Dibromomethane	21.8	1.00	20.00	0	109	58.7	148				
cis-1,3-Dichloropropene	21.8	1.00	20.00	0	109	63.8	132				
Toluene	23.7	1.00	20.00	0	119	52	147				
trans-1,3-Dichloropropylene	20.5	1.00	20.00	0	103	57.7	125				
1,1,2-Trichloroethane	25.8	1.00	20.00	0	129	57.5	153				
1,3-Dichloropropane	22.4	1.00	20.00	0	112	54.1	157				
Tetrachloroethene (PCE)	23.5	1.00	20.00	0	118	50.3	133				
Dibromochloromethane	22.0	1.00	20.00	0	110	61.6	139				
1,2-Dibromoethane (EDB)	22.1	0.250	20.00	0	111	63.2	134				
Chlorobenzene	21.3	1.00	20.00	0	107	65.8	134				
1,1,1,2-Tetrachloroethane	21.2	1.00	20.00	0	106	65.4	135				
Ethylbenzene	25.5	1.00	20.00	3.334	111	64.5	136				
m,p-Xylene	44.5	1.00	40.00	1.281	108	63.3	135				

Work Order: 1903081
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1903063-006AMS** SampType: **MS** Units: **µg/L** Prep Date: **3/11/2019** RunNo: **49981**
Client ID: **BATCH** Batch ID: **23775** Analysis Date: **3/11/2019** SeqNo: **980645**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	24.2	1.00	20.00	2.198	110	64.8	150				
Styrene	20.5	1.00	20.00	0	103	52.9	163				
Isopropylbenzene	25.7	1.00	20.00	3.157	113	56	147				
Bromoform	21.8	2.00	20.00	0	109	57.7	139				
1,1,2,2-Tetrachloroethane	21.3	1.00	20.00	0	107	59.8	146				
n-Propylbenzene	35.7	1.00	20.00	12.01	118	57.6	142				
Bromobenzene	21.3	1.00	20.00	0	107	69.3	157				
1,3,5-Trimethylbenzene	45.1	1.00	20.00	21.29	119	59.9	136				
2-Chlorotoluene	23.6	1.00	20.00	0	118	61.7	134				
4-Chlorotoluene	24.4	1.00	20.00	0	122	58.4	134				
tert-Butylbenzene	23.4	1.00	20.00	0	117	66.8	141				
1,2,3-Trichloropropane	20.8	1.00	20.00	0	104	62.4	129				
1,2,4-Trichlorobenzene	20.3	2.00	20.00	0	102	50.9	133				
sec-Butylbenzene	25.2	1.00	20.00	1.800	117	56	146				
4-Isopropyltoluene	24.1	1.00	20.00	0	120	56.4	136				
1,3-Dichlorobenzene	21.9	1.00	20.00	0	110	58.2	128				
1,4-Dichlorobenzene	21.2	1.00	20.00	0	106	60.1	123				
n-Butylbenzene	30.0	1.00	20.00	0	150	54.6	135				S
1,2-Dichlorobenzene	22.0	1.00	20.00	0	110	65.4	133				
1,2-Dibromo-3-chloropropane	24.5	1.00	20.00	0	123	51.8	142				
1,2,4-Trimethylbenzene	66.1	1.00	20.00	42.24	119	63.7	132				
Hexachloro-1,3-butadiene	22.3	4.00	20.00	0	112	58.1	130				
Naphthalene	19.0	1.00	20.00	4.283	73.6	50.7	154				
1,2,3-Trichlorobenzene	19.2	4.00	20.00	0	96.1	57	131				
Surr: Dibromofluoromethane	25.2		25.00		101	45.4	152				
Surr: Toluene-d8	26.2		25.00		105	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	26.8		25.00		107	64.2	128				

NOTES:
S - Outlying spike recovery observed.

Work Order: 1903081
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1903063-006AMSD** SampType: **MSD** Units: **µg/L** Prep Date: **3/11/2019** RunNo: **49981**
Client ID: **BATCH** Batch ID: **23775** Analysis Date: **3/11/2019** SeqNo: **980646**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	27.3	1.00	20.00	0	137	33.3	122	25.75	5.95	30	S
Chloromethane	25.1	2.00	20.00	0	126	39.7	143	24.04	4.38	30	
Vinyl chloride	25.6	0.200	20.00	0	128	41	165	24.71	3.64	30	
Bromomethane	23.9	1.00	20.00	0	119	31.5	135	17.05	33.3	30	R
Trichlorofluoromethane (CFC-11)	24.2	1.00	20.00	0	121	54.7	138	23.31	3.60	30	
Chloroethane	24.4	1.00	20.00	0	122	49.9	143	23.04	5.66	30	
1,1-Dichloroethene	23.8	1.00	20.00	0	119	51.6	164	22.85	4.22	30	
Methylene chloride	22.0	1.00	20.00	0	110	61.6	135	21.33	2.87	30	
trans-1,2-Dichloroethene	22.4	1.00	20.00	0	112	63.5	138	22.12	1.29	30	
Methyl tert-butyl ether (MTBE)	21.6	1.00	20.00	0	108	60.9	132	19.96	8.09	30	
1,1-Dichloroethane	23.1	1.00	20.00	0	116	55.7	151	22.26	3.85	30	
2,2-Dichloropropane	22.6	2.00	20.00	0	113	37.7	150	18.66	19.0	30	
cis-1,2-Dichloroethene	22.3	1.00	20.00	0	111	60	154	21.76	2.41	30	
Chloroform	22.6	1.00	20.00	0	113	48.1	140	22.07	2.37	30	
1,1,1-Trichloroethane (TCA)	23.0	1.00	20.00	0	115	64.2	146	22.11	4.04	30	
1,1-Dichloropropene	23.9	1.00	20.00	0	119	73.8	136	22.16	7.53	30	
Carbon tetrachloride	23.4	1.00	20.00	0	117	62.7	146	22.67	3.33	30	
1,2-Dichloroethane (EDC)	22.1	1.00	20.00	0	110	63.4	137	21.03	4.86	30	
Benzene	22.7	1.00	20.00	0	114	65.4	138	20.41	10.8	30	
Trichloroethene (TCE)	23.4	0.500	20.00	0	117	60.4	134	22.17	5.36	30	
1,2-Dichloropropane	24.0	1.00	20.00	0	120	62.6	138	23.49	2.34	30	
Bromodichloromethane	23.5	1.00	20.00	0	118	59.4	139	23.21	1.43	30	
Dibromomethane	22.9	1.00	20.00	0	114	58.7	148	21.79	4.89	30	
cis-1,3-Dichloropropene	23.6	1.00	20.00	0	118	63.8	132	21.80	7.90	30	
Toluene	24.5	1.00	20.00	0	122	52	147	23.74	2.99	30	
trans-1,3-Dichloropropylene	23.3	1.00	20.00	0	117	57.7	125	20.53	12.8	30	
1,1,2-Trichloroethane	27.5	1.00	20.00	0	137	57.5	153	25.76	6.44	30	
1,3-Dichloropropane	23.8	1.00	20.00	0	119	54.1	157	22.39	6.00	30	
Tetrachloroethene (PCE)	24.2	1.00	20.00	0	121	50.3	133	23.50	2.78	30	
Dibromochloromethane	22.5	1.00	20.00	0	113	61.6	139	22.04	2.16	30	
1,2-Dibromoethane (EDB)	23.8	0.250	20.00	0	119	63.2	134	22.13	7.33	30	

Work Order: 1903081
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1903063-006AMSD** SampType: **MSD** Units: **µg/L** Prep Date: **3/11/2019** RunNo: **49981**
Client ID: **BATCH** Batch ID: **23775** Analysis Date: **3/11/2019** SeqNo: **980646**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	21.7	1.00	20.00	0	108	65.8	134	21.34	1.54	30	
1,1,1,2-Tetrachloroethane	21.3	1.00	20.00	0	106	65.4	135	21.16	0.640	30	
Ethylbenzene	25.9	1.00	20.00	3.334	113	64.5	136	25.53	1.44	30	
m,p-Xylene	44.0	1.00	40.00	1.281	107	63.3	135	44.54	1.23	30	
o-Xylene	23.7	1.00	20.00	2.198	107	64.8	150	24.16	1.94	30	
Styrene	20.4	1.00	20.00	0	102	52.9	163	20.53	0.595	30	
Isopropylbenzene	26.4	1.00	20.00	3.157	116	56	147	25.70	2.73	30	
Bromoform	21.2	2.00	20.00	0	106	57.7	139	21.78	2.79	30	
1,1,2,2-Tetrachloroethane	21.2	1.00	20.00	0	106	59.8	146	21.33	0.503	30	
n-Propylbenzene	36.1	1.00	20.00	12.01	120	57.6	142	35.66	1.11	30	
Bromobenzene	21.0	1.00	20.00	0	105	69.3	157	21.33	1.48	30	
1,3,5-Trimethylbenzene	43.4	1.00	20.00	21.29	111	59.9	136	45.05	3.68	30	
2-Chlorotoluene	23.4	1.00	20.00	0	117	61.7	134	23.65	0.911	30	
4-Chlorotoluene	23.9	1.00	20.00	0	120	58.4	134	24.40	1.91	30	
tert-Butylbenzene	22.6	1.00	20.00	0	113	66.8	141	23.45	3.58	30	
1,2,3-Trichloropropane	21.7	1.00	20.00	0	108	62.4	129	20.83	3.92	30	
1,2,4-Trichlorobenzene	24.0	2.00	20.00	0	120	50.9	133	20.34	16.3	30	
sec-Butylbenzene	24.7	1.00	20.00	1.800	115	56	146	25.24	2.09	30	
4-Isopropyltoluene	23.7	1.00	20.00	0	119	56.4	136	24.07	1.40	30	
1,3-Dichlorobenzene	22.4	1.00	20.00	0	112	58.2	128	21.94	2.29	30	
1,4-Dichlorobenzene	22.1	1.00	20.00	0	110	60.1	123	21.18	4.20	30	
n-Butylbenzene	30.9	1.00	20.00	0	154	54.6	135	30.04	2.81	30	S
1,2-Dichlorobenzene	22.3	1.00	20.00	0	112	65.4	133	21.99	1.43	30	
1,2-Dibromo-3-chloropropane	25.9	1.00	20.00	0	130	51.8	142	24.54	5.43	30	
1,2,4-Trimethylbenzene	62.7	1.00	20.00	42.24	102	63.7	132	66.11	5.30	30	
Hexachloro-1,3-butadiene	23.8	4.00	20.00	0	119	58.1	130	22.31	6.42	30	
Naphthalene	22.5	1.00	20.00	4.283	90.9	50.7	154	19.01	16.6	30	
1,2,3-Trichlorobenzene	23.7	4.00	20.00	0	118	57	131	19.22	20.8	30	
Surr: Dibromofluoromethane	25.6		25.00		102	45.4	152		0		
Surr: Toluene-d8	25.9		25.00		103	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	25.4		25.00		102	64.2	128		0		

Work Order: 1903081
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1903063-006AMSD** SampType: **MSD** Units: **µg/L** Prep Date: **3/11/2019** RunNo: **49981**
Client ID: **BATCH** Batch ID: **23775** Analysis Date: **3/11/2019** SeqNo: **980646**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recovery observed.
R - High RPD observed, spike recovery is within range.

Sample Log-In Check List

Client Name:	**PES**	Work Order Number:	**1903081**
Logged by:	**Brianna Barnes**	Date Received:	**3/6/2019 5:30:00 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 ☐
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

Item #	Temp ºC
Cooler	3.6
Sample	5.8
Temp Blank	4.8

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

Chain of Custody Record & Laboratory Services Agreement

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

Date: 6 March 2019 | Page: | of:

Laboratory Project No (internal): 1903091

Project Name: MVSC

Special Remarks:

Project No: 1358.001.01.009

Collected by: Ben Hecht

Location: Normandy Park, WA

Sample Disposal: ☐ Return to client ☑ Disposal by lab (after 30 days)

Report To (PM): Matt Dahl

PM Email: MDAHL@PESENV.COM

Client: PES Environmental

Address: 1215 4th Ave, Suite 1350

City, State, Zip: Seattle, WA 98125

Telephone: (206) 529-3980

Fax: (206) 529-3985

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	MW-18-020619	2-6-19	1200	GW	X													
2	MW-17-020619		1415	GW	X													
3	EQ-030619		1445	W	X													
4	WATER-030619		1530	W	X													
5	COMP-030619		1606	W	X													
6																		
7																		
8																		
9																		
10																		

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Turn-ground Time:

- ☑ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☐ Next Day
- Same Day _____ (specify)

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	Received	Date/Time
x [signature]	3-6-19 @ 1730	x [signature]	3/6/19 1730
Relinquished x	Date/Time	Received x	Date/Time

Chain of Custody Record & Laboratory Services Agreement

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

Date: 6 March 2019 | Page: | of:

Laboratory Project No (internal): 1903091

Project Name: MVSC

Special Remarks:

Project No: 1358.001.01.009

Collected by: Ben Hecht

Location: Normandy Park, WA

edits per BH 3/7/19 BM

Report To (PM): Matt Dahl

Sample Disposal: ☐ Return to client ☑ Disposal by lab (after 30 days)

PM Email: MDAHL@PESENV.COM

Client: PES Environmental

Address: 1215 4th Ave, Suite 1358

City, State, Zip: Seattle, WA 98125

Telephone: (206) 529-3980

Fax: (206) 529-3985

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1 MW-18-030619	~~3-6-19~~ 3/6/19	1200	GW	X													
2 MW-17-030619		1415	GW	X													
3 EQ-030619		1445	W	X													
4 WATER-030619		1530	W	X													
5 COMP-030619	↓	1606	W	X													
6																	
7																	
8																	
9																	
10																	

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

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 x [signature] Date/Time 3-6-19 @ 1730

Relinquished x Date/Time

Received x [signature] Date/Time 3/6/19 1730

Received x Date/Time

Turn-ground Time:

☑ Standard

☐ 3 Day

☐ 2 Day

☐ Next Day

Same Day ____ (specify)

MEMORANDUM

TO: Project File **DATE:** April 2, 2019

FROM: Jessie Compeau

SUBJECT: Laboratory Data Validation Review

PROJECT: Manhattan Village Shopping Center

PROJECT #: 1358.001.01.009

TASK: EIM Data Validation Level EPA2A – February 28, March 1 and 6, 2019 Groundwater, Water, and Soil Samples

LAB: Fremont Work Order Numbers 1903006 and 1903081

Two (2) groundwater samples, one equipment blank, two waste water profile samples, fourteen (14) soil samples were collected as part of an ongoing remedial actions at the Manhattan Village Shopping Center in Normandy Park, Washington on February 28**,** March 1, and March 6, 2019. Laboratory analytical services were provided by Fremont Analytical (Fremont) of Seattle, Washington. Eight of the fourteen soil samples were placed on hold. Samples were analyzed for volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method 8260C. Total solids were assessed using EPA Method 8000D.

The quality assurance review of the laboratory data for Fremont Work Orders 1903006 and 1903081 are summarized below.

DATA QUALIFICATIONS

Guidelines established by USEPA for a limited data validation 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 discussions:

- Per PES's request the chain of custody date of collection **2**/6/19 and sample identifications MW-18-0**2**0619 and MW-17-0**2**0619 were corrected to read **3**/6/19 (MW-18-0**3**0619 and MW-17-0**3**0619).

Sample Collection and Preservation

The samples were stored on ice in coolers and delivered in good condition to the laboratory. Sample temperatures at the time of receipt were slightly below EPA's recommended temperature preservation range of less than 6.0 °Centigrade. No data qualifications are warranted.

Holding Times

USEPA Method 8260C:
All samples were analyzed for VOCs within the EPA recommended holding time of 14 days for preserved water and soil samples. All holding time criteria were met.

USEPA Method 8000D:
Samples were analyzed within the USEPA recommended holding time of seven days for total solids.

Initial and Continuing Calibration

Calibration data for this project are not required for this deliverable however Fremont's notes indicate the following:

- Work Order 1903006 - *USEPA Method 8260C:* Continuing calibration verification (CCV) issue is noted by Fremont for methyl tert-butyl ether (MTBE), trans-1,3-dichloropropylene, 1,1,2-trichloroethane, and 1,1,2,2-tetrachloroethane associated with analytical batch 23687 (analyzed on March 4, 2019). These results are qualified by the laboratory "Q" to indicate that percent difference CCVs are outside of laboratory acceptance criteria**. All associated compound results with laboratory qualified (Q) results are estimated and qualified (J/UJ).**

Method Blank Results

USEPA Method 8260C:
Laboratory method blanks were included with the analytical batches per method requirement. The target analytes (VOCs) were not detected in the method blanks at a concentration at or above the reporting detection limits (RLs).

Trip Blank Results

Trip blanks were not collected. No action is taken other than to note this.

Equipment Blank Results

An equipment blank (EQ-030619) associated with groundwater samples collected on March 6, 2019 (Fremont Work Order 1903081) was collected and submitted for VOC analysis. The target analytes (VOCs) were not detected in the equipment blank at a concentration at or above the RLs.

Field Duplicate Analyses

Field duplicate samples were not collected. Field duplicates are collected on per 20 samples per the project quality assurance plan. Refer to client or non-client laboratory duplicate results for precision data.

Laboratory Duplicate Analyses

USEPA Method 8260C:
Laboratory duplicate analysis were performed on client soil sample MW-18-10 and on a non-client water sample. Laboratory duplicate relative percent differences (RPDs) are within laboratory control limits. Refer to laboratory control sample or matrix spike results for additional precision data.

USEPA Method 8000D:
Laboratory duplicate sample analyses were performed on client soil sample MW-18-10. The primary/duplicate RPDs for total solids analyses are within the laboratory control limit of 20%.

Surrogate Recoveries

USEPA Method 8260C:
The surrogate percent recovery (%R) results for the samples, method blanks, and laboratory duplicates, matrix spike samples, and laboratory control samples are within the laboratory surrogate control limits. No data qualifications were warranted.

Laboratory Control Samples

USEPA Method 8260C:
The laboratory control sample and laboratory control sample duplicate (LCS/LCSD) %R's and RPDs for analytical batch (23687) associated with soils (Fremont Work Order 1903006) are within the laboratory control limits. Refer to matrix spike results for additional accuracy data.

Matrix Spike/Matrix Spike Duplicates

USEPA Method 8260C:
Matrix spike/matrix spike duplicate (MS/MSD) analyses were performed on a non-client sample associated with groundwater (Fremont Work Order 1903081). Several matrix spike compound recoveries are outside of the laboratory acceptance criteria however no action is taken in these cases since the spike was performed on a non-client sample. Refer to LCS or LCS/LCSD and laboratory duplicate results for accuracy and precision data.

Other Quality Control Issues

No laboratory quality control issues were identified in the laboratory reports with the following discussion:

- Electronic data deliverables (EDDs) for these SDGs were provided by the laboratory and data validator qualifiers were entered where needed.

Quantitation Limits

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

Data Assessment

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

Analytical Report

Work Order: **1903006**
Date Reported: **3/5/2019**

Client: PES Environmental, Inc.
Collection Date: 2/28/2019 10:55:00 AM
Project: MVSC
Lab ID: 1903006-001
Matrix: Soil
Client Sample ID: **MW-18-10**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 23687 Analyst: CR

Analyses	Result		PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND		0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Chloromethane	ND		0.0628		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Vinyl chloride	ND		0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Bromomethane	ND		0.0628		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Trichlorofluoromethane (CFC-11)	ND		0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Chloroethane	ND		0.0628		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,1-Dichloroethene	ND		0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Methylene chloride	ND		0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
trans-1,2-Dichloroethene	ND		0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Methyl tert-butyl ether (MTBE)	ND	UJ	0.0628	Q	mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,1-Dichloroethane	ND		0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
2,2-Dichloropropane	ND		0.126		mg/Kg-dry	1	3/4/2019 7:55:35 PM
cis-1,2-Dichloroethene	ND		0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Chloroform	ND		0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,1,1-Trichloroethane (TCA)	ND		0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,1-Dichloropropene	ND		0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Carbon tetrachloride	ND		0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,2-Dichloroethane (EDC)	ND		0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Benzene	ND		0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Trichloroethene (TCE)	ND		0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,2-Dichloropropane	ND		0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Bromodichloromethane	ND		0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Dibromomethane	ND		0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
cis-1,3-Dichloropropene	ND		0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Toluene	ND		0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
trans-1,3-Dichloropropylene	ND	UJ	0.0251	Q	mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,1,2-Trichloroethane	ND	UJ	0.0251	Q	mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,3-Dichloropropane	ND		0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Tetrachloroethene (PCE)	ND		0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Dibromochloromethane	ND		0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,2-Dibromoethane (EDB)	ND		0.00628		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Chlorobenzene	ND		0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,1,1,2-Tetrachloroethane	ND		0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Ethylbenzene	ND		0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
m,p-Xylene	ND		0.0628		mg/Kg-dry	1	3/4/2019 7:55:35 PM
o-Xylene	ND		0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Styrene	ND		0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Isopropylbenzene	ND		0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Bromoform	ND		0.0628		mg/Kg-dry	1	3/4/2019 7:55:35 PM

Analytical Report

Work Order: **1903006**
Date Reported: **3/5/2019**

Client: PES Environmental, Inc.
Collection Date: 2/28/2019 10:55:00 AM
Project: MVSC
Lab ID: 1903006-001
Matrix: Soil
Client Sample ID: **MW-18-10**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 23687		Analyst: CR
1,1,2,2-Tetrachloroethane	ND	UJ 0.0251	Q	mg/Kg-dry	1	3/4/2019 7:55:35 PM
n-Propylbenzene	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Bromobenzene	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,3,5-Trimethylbenzene	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
2-Chlorotoluene	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
4-Chlorotoluene	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
tert-Butylbenzene	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,2,3-Trichloropropane	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,2,4-Trichlorobenzene	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
sec-Butylbenzene	ND	0.0628		mg/Kg-dry	1	3/4/2019 7:55:35 PM
4-Isopropyltoluene	ND	0.0628		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,3-Dichlorobenzene	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,4-Dichlorobenzene	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
n-Butylbenzene	ND	0.0314		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,2-Dichlorobenzene	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,2-Dibromo-3-chloropropane	ND	0.628		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,2,4-Trimethylbenzene	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Hexachlorobutadiene	ND	0.0628		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Naphthalene	ND	0.0628		mg/Kg-dry	1	3/4/2019 7:55:35 PM
1,2,3-Trichlorobenzene	ND	0.0251		mg/Kg-dry	1	3/4/2019 7:55:35 PM
Surr: Dibromofluoromethane	90.1	56.5 - 129		%Rec	1	3/4/2019 7:55:35 PM
Surr: Toluene-d8	92.0	64.5 - 151		%Rec	1	3/4/2019 7:55:35 PM
Surr: 1-Bromo-4-fluorobenzene	97.8	54.8 - 168		%Rec	1	3/4/2019 7:55:35 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)				Batch ID: R49802		Analyst: SS
Percent Moisture	15.8	0.500		wt%	1	3/5/2019 9:15:10 AM

JC 4/2/19

Analytical Report

Work Order: **1903006**
Date Reported: **3/5/2019**

Client: PES Environmental, Inc.
Collection Date: 2/28/2019 11:55:00 AM
Project: MVSC
Lab ID: 1903006-005
Matrix: Soil
Client Sample ID: **MW-18-30**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 23687 Analyst: CR

Analyses	Result		PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Chloromethane	ND		0.0550		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Vinyl chloride	ND		0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Bromomethane	ND		0.0550		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Trichlorofluoromethane (CFC-11)	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Chloroethane	ND		0.0550		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,1-Dichloroethene	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Methylene chloride	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
trans-1,2-Dichloroethene	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Methyl tert-butyl ether (MTBE)	ND	UJ	0.0550	Q	mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,1-Dichloroethane	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
2,2-Dichloropropane	ND		0.110		mg/Kg-dry	1	3/4/2019 8:55:50 PM
cis-1,2-Dichloroethene	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Chloroform	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,1,1-Trichloroethane (TCA)	ND		0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,1-Dichloropropene	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Carbon tetrachloride	ND		0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,2-Dichloroethane (EDC)	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Benzene	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Trichloroethene (TCE)	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,2-Dichloropropane	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Bromodichloromethane	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Dibromomethane	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
cis-1,3-Dichloropropene	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Toluene	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
trans-1,3-Dichloropropylene	ND	UJ	0.0220	Q	mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,1,2-Trichloroethane	ND	UJ	0.0220	Q	mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,3-Dichloropropane	ND		0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Tetrachloroethene (PCE)	0.0288		0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Dibromochloromethane	ND		0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,2-Dibromoethane (EDB)	ND		0.00550		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Chlorobenzene	ND		0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,1,1,2-Tetrachloroethane	ND		0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Ethylbenzene	ND		0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
m,p-Xylene	ND		0.0550		mg/Kg-dry	1	3/4/2019 8:55:50 PM
o-Xylene	ND		0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Styrene	ND		0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Isopropylbenzene	ND		0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Bromoform	ND		0.0550		mg/Kg-dry	1	3/4/2019 8:55:50 PM

Analytical Report

Work Order: **1903006**
Date Reported: **3/5/2019**

Client: PES Environmental, Inc.
Collection Date: 2/28/2019 11:55:00 AM
Project: MVSC
Lab ID: 1903006-005
Matrix: Soil
Client Sample ID: **MW-18-30**

Analyses	Result		PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C					Batch ID: 23687		Analyst: CR
1,1,2,2-Tetrachloroethane	ND	UJ	0.0220	Q	mg/Kg-dry	1	3/4/2019 8:55:50 PM
n-Propylbenzene	ND		0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Bromobenzene	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,3,5-Trimethylbenzene	ND		0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
2-Chlorotoluene	ND		0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
4-Chlorotoluene	ND		0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
tert-Butylbenzene	ND		0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,2,3-Trichloropropane	ND		0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,2,4-Trichlorobenzene	ND		0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
sec-Butylbenzene	ND		0.0550		mg/Kg-dry	1	3/4/2019 8:55:50 PM
4-Isopropyltoluene	ND		0.0550		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,3-Dichlorobenzene	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,4-Dichlorobenzene	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
n-Butylbenzene	ND		0.0275		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,2-Dichlorobenzene	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,2-Dibromo-3-chloropropane	ND		0.550		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,2,4-Trimethylbenzene	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Hexachlorobutadiene	ND		0.0550		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Naphthalene	ND		0.0550		mg/Kg-dry	1	3/4/2019 8:55:50 PM
1,2,3-Trichlorobenzene	ND		0.0220		mg/Kg-dry	1	3/4/2019 8:55:50 PM
Surr: Dibromofluoromethane	92.8		56.5 - 129		%Rec	1	3/4/2019 8:55:50 PM
Surr: Toluene-d8	92.8		64.5 - 151		%Rec	1	3/4/2019 8:55:50 PM
Surr: 1-Bromo-4-fluorobenzene	99.5		54.8 - 168		%Rec	1	3/4/2019 8:55:50 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)					Batch ID: R49802		Analyst: SS
Percent Moisture	5.24		0.500		wt%	1	3/5/2019 9:15:10 AM

JC 4/2/19

Analytical Report

Work Order: **1903006**
Date Reported: **3/5/2019**

Client: PES Environmental, Inc.
Collection Date: 2/28/2019 12:05:00 PM
Project: MVSC
Lab ID: 1903006-006
Matrix: Soil
Client Sample ID: **MW-18-35**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 23687 Analyst: CR

Analyses	Result		PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Chloromethane	ND		0.0538		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Vinyl chloride	ND		0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Bromomethane	ND		0.0538		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Trichlorofluoromethane (CFC-11)	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Chloroethane	ND		0.0538		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,1-Dichloroethene	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Methylene chloride	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
trans-1,2-Dichloroethene	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Methyl tert-butyl ether (MTBE)	ND	UJ	0.0538	Q	mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,1-Dichloroethane	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
2,2-Dichloropropane	ND		0.108		mg/Kg-dry	1	3/4/2019 9:25:57 PM
cis-1,2-Dichloroethene	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Chloroform	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,1,1-Trichloroethane (TCA)	ND		0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,1-Dichloropropene	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Carbon tetrachloride	ND		0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,2-Dichloroethane (EDC)	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Benzene	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Trichloroethene (TCE)	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,2-Dichloropropane	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Bromodichloromethane	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Dibromomethane	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
cis-1,3-Dichloropropene	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Toluene	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
trans-1,3-Dichloropropylene	ND	UJ	0.0215	Q	mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,1,2-Trichloroethane	ND	UJ	0.0215	Q	mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,3-Dichloropropane	ND		0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Tetrachloroethene (PCE)	0.0358		0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Dibromochloromethane	ND		0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,2-Dibromoethane (EDB)	ND		0.00538		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Chlorobenzene	ND		0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,1,1,2-Tetrachloroethane	ND		0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Ethylbenzene	ND		0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
m,p-Xylene	ND		0.0538		mg/Kg-dry	1	3/4/2019 9:25:57 PM
o-Xylene	ND		0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Styrene	ND		0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Isopropylbenzene	ND		0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Bromoform	ND		0.0538		mg/Kg-dry	1	3/4/2019 9:25:57 PM

Analytical Report

Work Order: **1903006**
Date Reported: **3/5/2019**

Client: PES Environmental, Inc.
Collection Date: 2/28/2019 12:05:00 PM
Project: MVSC
Lab ID: 1903006-006
Matrix: Soil
Client Sample ID: **MW-18-35**

Analyses	Result		PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C					Batch ID: 23687		Analyst: CR
1,1,2,2-Tetrachloroethane	ND	UJ	0.0215	Q	mg/Kg-dry	1	3/4/2019 9:25:57 PM
n-Propylbenzene	ND		0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Bromobenzene	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,3,5-Trimethylbenzene	ND		0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
2-Chlorotoluene	ND		0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
4-Chlorotoluene	ND		0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
tert-Butylbenzene	ND		0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,2,3-Trichloropropane	ND		0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,2,4-Trichlorobenzene	ND		0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
sec-Butylbenzene	ND		0.0538		mg/Kg-dry	1	3/4/2019 9:25:57 PM
4-Isopropyltoluene	ND		0.0538		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,3-Dichlorobenzene	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,4-Dichlorobenzene	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
n-Butylbenzene	ND		0.0269		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,2-Dichlorobenzene	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,2-Dibromo-3-chloropropane	ND		0.538		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,2,4-Trimethylbenzene	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Hexachlorobutadiene	ND		0.0538		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Naphthalene	ND		0.0538		mg/Kg-dry	1	3/4/2019 9:25:57 PM
1,2,3-Trichlorobenzene	ND		0.0215		mg/Kg-dry	1	3/4/2019 9:25:57 PM
Surr: Dibromofluoromethane	92.7		56.5 - 129		%Rec	1	3/4/2019 9:25:57 PM
Surr: Toluene-d8	93.5		64.5 - 151		%Rec	1	3/4/2019 9:25:57 PM
Surr: 1-Bromo-4-fluorobenzene	96.4		54.8 - 168		%Rec	1	3/4/2019 9:25:57 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)					Batch ID: R49802		Analyst: SS
Percent Moisture	13.8		0.500		wt%	1	3/5/2019 9:15:10 AM

JC 4/2/19

Analytical Report

Work Order: **1903006**
Date Reported: **3/5/2019**

Client: PES Environmental, Inc.
Collection Date: 3/1/2019 10:25:00 AM
Project: MVSC
Lab ID: 1903006-011
Matrix: Soil
Client Sample ID: **MW-17-25**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 23687 Analyst: CR

Analyses	Result		PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Chloromethane	ND		0.0487		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Vinyl chloride	ND		0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Bromomethane	ND		0.0487		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Trichlorofluoromethane (CFC-11)	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Chloroethane	ND		0.0487		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,1-Dichloroethene	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Methylene chloride	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
trans-1,2-Dichloroethene	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Methyl tert-butyl ether (MTBE)	ND	UJ	0.0487	Q	mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,1-Dichloroethane	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
2,2-Dichloropropane	ND		0.0975		mg/Kg-dry	1	3/4/2019 9:56:03 PM
cis-1,2-Dichloroethene	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Chloroform	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,1,1-Trichloroethane (TCA)	ND		0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,1-Dichloropropene	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Carbon tetrachloride	ND		0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,2-Dichloroethane (EDC)	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Benzene	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Trichloroethene (TCE)	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,2-Dichloropropane	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Bromodichloromethane	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Dibromomethane	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
cis-1,3-Dichloropropene	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Toluene	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
trans-1,3-Dichloropropylene	ND	UJ	0.0195	Q	mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,1,2-Trichloroethane	ND	UJ	0.0195	Q	mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,3-Dichloropropane	ND		0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Tetrachloroethene (PCE)	ND		0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Dibromochloromethane	ND		0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,2-Dibromoethane (EDB)	ND		0.00487		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Chlorobenzene	ND		0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,1,1,2-Tetrachloroethane	ND		0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Ethylbenzene	ND		0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
m,p-Xylene	ND		0.0487		mg/Kg-dry	1	3/4/2019 9:56:03 PM
o-Xylene	ND		0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Styrene	ND		0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Isopropylbenzene	ND		0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Bromoform	ND		0.0487		mg/Kg-dry	1	3/4/2019 9:56:03 PM

Analytical Report

Work Order: **1903006**
Date Reported: **3/5/2019**

Client: PES Environmental, Inc.
Collection Date: 3/1/2019 10:25:00 AM
Project: MVSC
Lab ID: 1903006-011
Matrix: Soil
Client Sample ID: **MW-17-25**

Analyses	Result		PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C					Batch ID: 23687		Analyst: CR
1,1,2,2-Tetrachloroethane	ND	UJ	0.0195	Q	mg/Kg-dry	1	3/4/2019 9:56:03 PM
n-Propylbenzene	ND		0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Bromobenzene	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,3,5-Trimethylbenzene	ND		0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
2-Chlorotoluene	ND		0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
4-Chlorotoluene	ND		0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
tert-Butylbenzene	ND		0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,2,3-Trichloropropane	ND		0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,2,4-Trichlorobenzene	ND		0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
sec-Butylbenzene	ND		0.0487		mg/Kg-dry	1	3/4/2019 9:56:03 PM
4-Isopropyltoluene	ND		0.0487		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,3-Dichlorobenzene	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,4-Dichlorobenzene	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
n-Butylbenzene	ND		0.0244		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,2-Dichlorobenzene	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,2-Dibromo-3-chloropropane	ND		0.487		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,2,4-Trimethylbenzene	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Hexachlorobutadiene	ND		0.0487		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Naphthalene	ND		0.0487		mg/Kg-dry	1	3/4/2019 9:56:03 PM
1,2,3-Trichlorobenzene	ND		0.0195		mg/Kg-dry	1	3/4/2019 9:56:03 PM
Surr: Dibromofluoromethane	92.3		56.5 - 129		%Rec	1	3/4/2019 9:56:03 PM
Surr: Toluene-d8	92.8		64.5 - 151		%Rec	1	3/4/2019 9:56:03 PM
Surr: 1-Bromo-4-fluorobenzene	98.2		54.8 - 168		%Rec	1	3/4/2019 9:56:03 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)					Batch ID: R49802		Analyst: SS
Percent Moisture	2.79		0.500		wt%	1	3/5/2019 9:15:10 AM

JC 4/2/19

Analytical Report

Work Order: **1903006**
Date Reported: **3/5/2019**

Client: PES Environmental, Inc.
Collection Date: 3/1/2019 10:40:00 AM
Project: MVSC
Lab ID: 1903006-012
Matrix: Soil
Client Sample ID: **MW-17-30**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 23687 Analyst: CR

Analyses	Result		PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND		0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Chloromethane	ND		0.0534		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Vinyl chloride	ND		0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Bromomethane	ND		0.0534		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Trichlorofluoromethane (CFC-11)	ND		0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Chloroethane	ND		0.0534		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,1-Dichloroethene	ND		0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Methylene chloride	ND		0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
trans-1,2-Dichloroethene	ND		0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Methyl tert-butyl ether (MTBE)	ND	UJ	0.0534	Q	mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,1-Dichloroethane	ND		0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
2,2-Dichloropropane	ND		0.107		mg/Kg-dry	1	3/4/2019 10:26:12 PM
cis-1,2-Dichloroethene	ND		0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Chloroform	ND		0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,1,1-Trichloroethane (TCA)	ND		0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,1-Dichloropropene	ND		0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Carbon tetrachloride	ND		0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,2-Dichloroethane (EDC)	ND		0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Benzene	ND		0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Trichloroethene (TCE)	ND		0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,2-Dichloropropane	ND		0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Bromodichloromethane	ND		0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Dibromomethane	ND		0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
cis-1,3-Dichloropropene	ND		0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Toluene	ND		0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
trans-1,3-Dichloropropylene	ND	UJ	0.0214	Q	mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,1,2-Trichloroethane	ND	UJ	0.0214	Q	mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,3-Dichloropropane	ND		0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Tetrachloroethene (PCE)	ND		0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Dibromochloromethane	ND		0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,2-Dibromoethane (EDB)	ND		0.00534		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Chlorobenzene	ND		0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,1,1,2-Tetrachloroethane	ND		0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Ethylbenzene	ND		0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
m,p-Xylene	ND		0.0534		mg/Kg-dry	1	3/4/2019 10:26:12 PM
o-Xylene	ND		0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Styrene	ND		0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Isopropylbenzene	ND		0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Bromoform	ND		0.0534		mg/Kg-dry	1	3/4/2019 10:26:12 PM

JC 4/2/19

Analytical Report

Work Order: **1903006**
Date Reported: **3/5/2019**

Client: PES Environmental, Inc.
Collection Date: 3/1/2019 10:40:00 AM
Project: MVSC
Lab ID: 1903006-012
Matrix: Soil
Client Sample ID: **MW-17-30**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 23687		Analyst: CR
1,1,2,2-Tetrachloroethane	ND	UJ 0.0214	Q	mg/Kg-dry	1	3/4/2019 10:26:12 PM
n-Propylbenzene	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Bromobenzene	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,3,5-Trimethylbenzene	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
2-Chlorotoluene	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
4-Chlorotoluene	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
tert-Butylbenzene	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,2,3-Trichloropropane	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,2,4-Trichlorobenzene	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
sec-Butylbenzene	ND	0.0534		mg/Kg-dry	1	3/4/2019 10:26:12 PM
4-Isopropyltoluene	ND	0.0534		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,3-Dichlorobenzene	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,4-Dichlorobenzene	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
n-Butylbenzene	ND	0.0267		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,2-Dichlorobenzene	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,2-Dibromo-3-chloropropane	ND	0.534		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,2,4-Trimethylbenzene	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Hexachlorobutadiene	ND	0.0534		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Naphthalene	ND	0.0534		mg/Kg-dry	1	3/4/2019 10:26:12 PM
1,2,3-Trichlorobenzene	ND	0.0214		mg/Kg-dry	1	3/4/2019 10:26:12 PM
Surr: Dibromofluoromethane	91.3	56.5 - 129		%Rec	1	3/4/2019 10:26:12 PM
Surr: Toluene-d8	93.1	64.5 - 151		%Rec	1	3/4/2019 10:26:12 PM
Surr: 1-Bromo-4-fluorobenzene	96.2	54.8 - 168		%Rec	1	3/4/2019 10:26:12 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)				Batch ID: R49802		Analyst: SS
Percent Moisture	5.52	0.500		wt%	1	3/5/2019 9:15:10 AM

JC 4/2/19

Analytical Report

Work Order: **1903006**
Date Reported: **3/5/2019**

Client: PES Environmental, Inc.
Collection Date: 3/1/2019 10:55:00 AM
Project: MVSC
Lab ID: 1903006-013
Matrix: Soil
Client Sample ID: **MW-17-35**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 23687 Analyst: CR

Analyses	Result		PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Chloromethane	ND		0.0577		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Vinyl chloride	ND		0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Bromomethane	ND		0.0577		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Trichlorofluoromethane (CFC-11)	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Chloroethane	ND		0.0577		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,1-Dichloroethene	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Methylene chloride	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
trans-1,2-Dichloroethene	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Methyl tert-butyl ether (MTBE)	ND	UJ	0.0577	Q	mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,1-Dichloroethane	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
2,2-Dichloropropane	ND		0.115		mg/Kg-dry	1	3/4/2019 10:56:21 PM
cis-1,2-Dichloroethene	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Chloroform	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,1,1-Trichloroethane (TCA)	ND		0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,1-Dichloropropene	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Carbon tetrachloride	ND		0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,2-Dichloroethane (EDC)	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Benzene	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Trichloroethene (TCE)	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,2-Dichloropropane	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Bromodichloromethane	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Dibromomethane	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
cis-1,3-Dichloropropene	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Toluene	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
trans-1,3-Dichloropropylene	ND	UJ	0.0231	Q	mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,1,2-Trichloroethane	ND	UJ	0.0231	Q	mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,3-Dichloropropane	ND		0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Tetrachloroethene (PCE)	0.0543		0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Dibromochloromethane	ND		0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,2-Dibromoethane (EDB)	ND		0.00577		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Chlorobenzene	ND		0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,1,1,2-Tetrachloroethane	ND		0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Ethylbenzene	ND		0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
m,p-Xylene	ND		0.0577		mg/Kg-dry	1	3/4/2019 10:56:21 PM
o-Xylene	ND		0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Styrene	ND		0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Isopropylbenzene	ND		0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Bromoform	ND		0.0577		mg/Kg-dry	1	3/4/2019 10:56:21 PM

Original

JC 4/2/19

Analytical Report

Work Order: **1903006**
Date Reported: **3/5/2019**

Client: PES Environmental, Inc.
Collection Date: 3/1/2019 10:55:00 AM
Project: MVSC
Lab ID: 1903006-013
Matrix: Soil
Client Sample ID: **MW-17-35**

Analyses	Result		PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C					Batch ID: 23687		Analyst: CR
1,1,2,2-Tetrachloroethane	ND	UJ	0.0231	Q	mg/Kg-dry	1	3/4/2019 10:56:21 PM
n-Propylbenzene	ND		0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Bromobenzene	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,3,5-Trimethylbenzene	ND		0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
2-Chlorotoluene	ND		0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
4-Chlorotoluene	ND		0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
tert-Butylbenzene	ND		0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,2,3-Trichloropropane	ND		0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,2,4-Trichlorobenzene	ND		0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
sec-Butylbenzene	ND		0.0577		mg/Kg-dry	1	3/4/2019 10:56:21 PM
4-Isopropyltoluene	ND		0.0577		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,3-Dichlorobenzene	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,4-Dichlorobenzene	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
n-Butylbenzene	ND		0.0288		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,2-Dichlorobenzene	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,2-Dibromo-3-chloropropane	ND		0.577		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,2,4-Trimethylbenzene	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Hexachlorobutadiene	ND		0.0577		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Naphthalene	ND		0.0577		mg/Kg-dry	1	3/4/2019 10:56:21 PM
1,2,3-Trichlorobenzene	ND		0.0231		mg/Kg-dry	1	3/4/2019 10:56:21 PM
Surr: Dibromofluoromethane	90.4		56.5 - 129		%Rec	1	3/4/2019 10:56:21 PM
Surr: Toluene-d8	92.8		64.5 - 151		%Rec	1	3/4/2019 10:56:21 PM
Surr: 1-Bromo-4-fluorobenzene	96.8		54.8 - 168		%Rec	1	3/4/2019 10:56:21 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)					Batch ID: R49802		Analyst: SS
Percent Moisture	16.1		0.500		wt%	1	3/5/2019 9:15:10 AM

JC 4/2/19

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: 1910311

October 23, 2019

Attention Matt Dahl:

Fremont Analytical, Inc. received 16 sample(s) on 10/17/2019 for the analyses presented in the following report.

Sample Moisture (Percent Moisture)
Volatile Organic Compounds by EPA Method 8260D

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,



Brianna Barnes
Project Manager

Date: *10/23/2019*

CLIENT: PES Environmental, Inc.
Project: MVSC
Work Order: 1910311

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1910311-001	MW-19-10	10/16/2019 12:50 PM	10/17/2019 6:02 PM
1910311-002	MW-19-15	10/16/2019 1:10 PM	10/17/2019 6:02 PM
1910311-003	MW-19-20	10/16/2019 1:25 PM	10/17/2019 6:02 PM
1910311-004	MW-19-25	10/17/2019 8:40 AM	10/17/2019 6:02 PM
1910311-005	MW-19-30.5	10/17/2019 8:35 AM	10/17/2019 6:02 PM
1910311-006	MW-19-35	10/17/2019 9:05 AM	10/17/2019 6:02 PM
1910311-007	MW-19-38	10/17/2019 8:33 AM	10/17/2019 6:02 PM
1910311-008	MW-19-44	10/17/2019 9:40 AM	10/17/2019 6:02 PM
1910311-009	MW-19-50	10/17/2019 9:45 AM	10/17/2019 6:02 PM
1910311-010	MW-19-55.5	10/17/2019 10:13 AM	10/17/2019 6:02 PM
1910311-011	MW-20-30	10/17/2019 2:10 PM	10/17/2019 6:02 PM
1910311-012	MW-20-35	10/17/2019 2:12 PM	10/17/2019 6:02 PM
1910311-013	MW-20-37.5	10/17/2019 2:15 PM	10/17/2019 6:02 PM
1910311-014	MW-20-40.5	10/17/2019 2:20 PM	10/17/2019 6:02 PM
1910311-015	MW-20-45	10/17/2019 2:25 PM	10/17/2019 6:02 PM
1910311-016	TB-101119	10/11/2019 4:34 PM	10/17/2019 6:02 PM

Case Narrative

WO#: **1910311**
Date: **10/23/2019**

CLIENT: PES Environmental, Inc.
Project: MVSC

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. 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 and the MS/MSD 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.

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. **Collection Date:** 10/17/2019 8:35:00 AM
Project: MVSC
Lab ID: 1910311-005 **Matrix:** Soil
Client Sample ID: **MW-19-30.5**

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 26220 Analyst: KT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Chloromethane	ND	0.0543		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Vinyl chloride	ND	0.0271		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Bromomethane	ND	0.0543		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Trichlorofluoromethane (CFC-11)	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Chloroethane	ND	0.0543		mg/Kg-dry	1	10/22/2019 7:53:46 PM
1,1-Dichloroethene	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Methylene chloride	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
trans-1,2-Dichloroethene	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Methyl tert-butyl ether (MTBE)	ND	0.0543		mg/Kg-dry	1	10/22/2019 7:53:46 PM
1,1-Dichloroethane	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
cis-1,2-Dichloroethene	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Chloroform	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
1,1,1-Trichloroethane (TCA)	ND	0.0271		mg/Kg-dry	1	10/22/2019 7:53:46 PM
1,1-Dichloropropene	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Carbon tetrachloride	ND	0.0543		mg/Kg-dry	1	10/22/2019 7:53:46 PM
1,2-Dichloroethane (EDC)	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Benzene	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Trichloroethene (TCE)	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
1,2-Dichloropropane	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Bromodichloromethane	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Dibromomethane	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
cis-1,3-Dichloropropene	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Toluene	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
trans-1,3-Dichloropropylene	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
1,1,2-Trichloroethane	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
1,3-Dichloropropane	ND	0.0271		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Tetrachloroethene (PCE)	ND	0.0271		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Dibromochloromethane	ND	0.0271		mg/Kg-dry	1	10/22/2019 7:53:46 PM
1,2-Dibromoethane (EDB)	ND	0.00543		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Chlorobenzene	ND	0.0271		mg/Kg-dry	1	10/22/2019 7:53:46 PM
1,1,1,2-Tetrachloroethane	ND	0.0271		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Ethylbenzene	ND	0.0271		mg/Kg-dry	1	10/22/2019 7:53:46 PM
m,p-Xylene	ND	0.0543		mg/Kg-dry	1	10/22/2019 7:53:46 PM
o-Xylene	ND	0.0271		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Styrene	ND	0.0271		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Isopropylbenzene	ND	0.0271		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Bromoform	ND	0.0543		mg/Kg-dry	1	10/22/2019 7:53:46 PM
1,1,2,2-Tetrachloroethane	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM

Analytical Report

Work Order: **1910311**
Date Reported: **10/23/2019**

Client: PES Environmental, Inc.
Collection Date: 10/17/2019 8:35:00 AM
Project: MVSC
Lab ID: 1910311-005
Matrix: Soil
Client Sample ID: **MW-19-30.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260D				Batch ID: 26220		Analyst: KT
n-Propylbenzene	ND	0.0271		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Bromobenzene	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
1,3,5-Trimethylbenzene	ND	0.0271		mg/Kg-dry	1	10/22/2019 7:53:46 PM
2-Chlorotoluene	ND	0.0271		mg/Kg-dry	1	10/22/2019 7:53:46 PM
4-Chlorotoluene	ND	0.0271		mg/Kg-dry	1	10/22/2019 7:53:46 PM
tert-Butylbenzene	ND	0.0271		mg/Kg-dry	1	10/22/2019 7:53:46 PM
1,2,3-Trichloropropane	ND	0.0271		mg/Kg-dry	1	10/22/2019 7:53:46 PM
1,2,4-Trichlorobenzene	ND	0.0271		mg/Kg-dry	1	10/22/2019 7:53:46 PM
sec-Butylbenzene	ND	0.0543		mg/Kg-dry	1	10/22/2019 7:53:46 PM
4-Isopropyltoluene	ND	0.0543		mg/Kg-dry	1	10/22/2019 7:53:46 PM
1,3-Dichlorobenzene	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
1,4-Dichlorobenzene	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
n-Butylbenzene	ND	0.0271		mg/Kg-dry	1	10/22/2019 7:53:46 PM
1,2-Dichlorobenzene	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
1,2-Dibromo-3-chloropropane	ND	0.543		mg/Kg-dry	1	10/22/2019 7:53:46 PM
1,2,4-Trimethylbenzene	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Hexachloro-1,3-butadiene	ND	0.0543		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Naphthalene	ND	0.0543		mg/Kg-dry	1	10/22/2019 7:53:46 PM
1,2,3-Trichlorobenzene	ND	0.0217		mg/Kg-dry	1	10/22/2019 7:53:46 PM
Surr: Dibromofluoromethane	97.7	78.3 - 116		%Rec	1	10/22/2019 7:53:46 PM
Surr: Toluene-d8	95.4	84.2 - 114		%Rec	1	10/22/2019 7:53:46 PM
Surr: 1-Bromo-4-fluorobenzene	104	81.9 - 115		%Rec	1	10/22/2019 7:53:46 PM
Sample Moisture (Percent Moisture)				Batch ID: R54738		Analyst: CJ
Percent Moisture	20.7	0.500		wt%	1	10/22/2019 8:10:21 AM

Analytical Report

Work Order: **1910311**
Date Reported: **10/23/2019**

Client: PES Environmental, Inc.
Collection Date: 10/17/2019 9:05:00 AM
Project: MVSC
Lab ID: 1910311-006
Matrix: Soil
Client Sample ID: **MW-19-35**

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 26220 Analyst: KT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Chloromethane	ND	0.0563		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Vinyl chloride	ND	0.0281		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Bromomethane	ND	0.0563		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Trichlorofluoromethane (CFC-11)	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Chloroethane	ND	0.0563		mg/Kg-dry	1	10/22/2019 8:26:52 PM
1,1-Dichloroethene	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Methylene chloride	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
trans-1,2-Dichloroethene	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Methyl tert-butyl ether (MTBE)	ND	0.0563		mg/Kg-dry	1	10/22/2019 8:26:52 PM
1,1-Dichloroethane	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
cis-1,2-Dichloroethene	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Chloroform	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
1,1,1-Trichloroethane (TCA)	ND	0.0281		mg/Kg-dry	1	10/22/2019 8:26:52 PM
1,1-Dichloropropene	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Carbon tetrachloride	ND	0.0563		mg/Kg-dry	1	10/22/2019 8:26:52 PM
1,2-Dichloroethane (EDC)	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Benzene	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Trichloroethene (TCE)	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
1,2-Dichloropropane	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Bromodichloromethane	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Dibromomethane	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
cis-1,3-Dichloropropene	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Toluene	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
trans-1,3-Dichloropropylene	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
1,1,2-Trichloroethane	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
1,3-Dichloropropane	ND	0.0281		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Tetrachloroethene (PCE)	0.0717	0.0281		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Dibromochloromethane	ND	0.0281		mg/Kg-dry	1	10/22/2019 8:26:52 PM
1,2-Dibromoethane (EDB)	ND	0.00563		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Chlorobenzene	ND	0.0281		mg/Kg-dry	1	10/22/2019 8:26:52 PM
1,1,1,2-Tetrachloroethane	ND	0.0281		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Ethylbenzene	ND	0.0281		mg/Kg-dry	1	10/22/2019 8:26:52 PM
m,p-Xylene	ND	0.0563		mg/Kg-dry	1	10/22/2019 8:26:52 PM
o-Xylene	ND	0.0281		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Styrene	ND	0.0281		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Isopropylbenzene	ND	0.0281		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Bromoform	ND	0.0563		mg/Kg-dry	1	10/22/2019 8:26:52 PM
1,1,2,2-Tetrachloroethane	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM

Client: PES Environmental, Inc. **Collection Date:** 10/17/2019 9:05:00 AM
Project: MVSC
Lab ID: 1910311-006 **Matrix:** Soil
Client Sample ID: **MW-19-35**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260D				Batch ID: 26220		Analyst: KT
n-Propylbenzene	ND	0.0281		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Bromobenzene	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
1,3,5-Trimethylbenzene	ND	0.0281		mg/Kg-dry	1	10/22/2019 8:26:52 PM
2-Chlorotoluene	ND	0.0281		mg/Kg-dry	1	10/22/2019 8:26:52 PM
4-Chlorotoluene	ND	0.0281		mg/Kg-dry	1	10/22/2019 8:26:52 PM
tert-Butylbenzene	ND	0.0281		mg/Kg-dry	1	10/22/2019 8:26:52 PM
1,2,3-Trichloropropane	ND	0.0281		mg/Kg-dry	1	10/22/2019 8:26:52 PM
1,2,4-Trichlorobenzene	ND	0.0281		mg/Kg-dry	1	10/22/2019 8:26:52 PM
sec-Butylbenzene	ND	0.0563		mg/Kg-dry	1	10/22/2019 8:26:52 PM
4-Isopropyltoluene	ND	0.0563		mg/Kg-dry	1	10/22/2019 8:26:52 PM
1,3-Dichlorobenzene	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
1,4-Dichlorobenzene	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
n-Butylbenzene	ND	0.0281		mg/Kg-dry	1	10/22/2019 8:26:52 PM
1,2-Dichlorobenzene	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
1,2-Dibromo-3-chloropropane	ND	0.563		mg/Kg-dry	1	10/22/2019 8:26:52 PM
1,2,4-Trimethylbenzene	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Hexachloro-1,3-butadiene	ND	0.0563		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Naphthalene	ND	0.0563		mg/Kg-dry	1	10/22/2019 8:26:52 PM
1,2,3-Trichlorobenzene	ND	0.0225		mg/Kg-dry	1	10/22/2019 8:26:52 PM
Surr: Dibromofluoromethane	97.6	78.3 - 116		%Rec	1	10/22/2019 8:26:52 PM
Surr: Toluene-d8	97.0	84.2 - 114		%Rec	1	10/22/2019 8:26:52 PM
Surr: 1-Bromo-4-fluorobenzene	102	81.9 - 115		%Rec	1	10/22/2019 8:26:52 PM
Sample Moisture (Percent Moisture)				Batch ID: R54738		Analyst: CJ
Percent Moisture	6.84	0.500		wt%	1	10/22/2019 8:10:21 AM

Client: PES Environmental, Inc. **Collection Date:** 10/17/2019 8:33:00 AM
Project: MVSC
Lab ID: 1910311-007 **Matrix:** Soil
Client Sample ID: **MW-19-38**

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 26220 Analyst: KT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Chloromethane	ND	0.0595		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Vinyl chloride	ND	0.0298		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Bromomethane	ND	0.0595		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Trichlorofluoromethane (CFC-11)	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Chloroethane	ND	0.0595		mg/Kg-dry	1	10/22/2019 9:00:05 PM
1,1-Dichloroethene	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Methylene chloride	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
trans-1,2-Dichloroethene	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Methyl tert-butyl ether (MTBE)	ND	0.0595		mg/Kg-dry	1	10/22/2019 9:00:05 PM
1,1-Dichloroethane	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
cis-1,2-Dichloroethene	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Chloroform	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
1,1,1-Trichloroethane (TCA)	ND	0.0298		mg/Kg-dry	1	10/22/2019 9:00:05 PM
1,1-Dichloropropene	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Carbon tetrachloride	ND	0.0595		mg/Kg-dry	1	10/22/2019 9:00:05 PM
1,2-Dichloroethane (EDC)	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Benzene	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Trichloroethene (TCE)	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
1,2-Dichloropropane	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Bromodichloromethane	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Dibromomethane	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
cis-1,3-Dichloropropene	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Toluene	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
trans-1,3-Dichloropropylene	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
1,1,2-Trichloroethane	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
1,3-Dichloropropane	ND	0.0298		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Tetrachloroethene (PCE)	0.107	0.0298		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Dibromochloromethane	ND	0.0298		mg/Kg-dry	1	10/22/2019 9:00:05 PM
1,2-Dibromoethane (EDB)	ND	0.00595		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Chlorobenzene	ND	0.0298		mg/Kg-dry	1	10/22/2019 9:00:05 PM
1,1,1,2-Tetrachloroethane	ND	0.0298		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Ethylbenzene	ND	0.0298		mg/Kg-dry	1	10/22/2019 9:00:05 PM
m,p-Xylene	ND	0.0595		mg/Kg-dry	1	10/22/2019 9:00:05 PM
o-Xylene	ND	0.0298		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Styrene	ND	0.0298		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Isopropylbenzene	ND	0.0298		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Bromoform	ND	0.0595		mg/Kg-dry	1	10/22/2019 9:00:05 PM
1,1,2,2-Tetrachloroethane	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM

Client: PES Environmental, Inc. **Collection Date:** 10/17/2019 8:33:00 AM
Project: MVSC
Lab ID: 1910311-007 **Matrix:** Soil
Client Sample ID: MW-19-38

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260D				Batch ID: 26220		Analyst: KT
n-Propylbenzene	ND	0.0298		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Bromobenzene	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
1,3,5-Trimethylbenzene	ND	0.0298		mg/Kg-dry	1	10/22/2019 9:00:05 PM
2-Chlorotoluene	ND	0.0298		mg/Kg-dry	1	10/22/2019 9:00:05 PM
4-Chlorotoluene	ND	0.0298		mg/Kg-dry	1	10/22/2019 9:00:05 PM
tert-Butylbenzene	ND	0.0298		mg/Kg-dry	1	10/22/2019 9:00:05 PM
1,2,3-Trichloropropane	ND	0.0298		mg/Kg-dry	1	10/22/2019 9:00:05 PM
1,2,4-Trichlorobenzene	ND	0.0298		mg/Kg-dry	1	10/22/2019 9:00:05 PM
sec-Butylbenzene	ND	0.0595		mg/Kg-dry	1	10/22/2019 9:00:05 PM
4-Isopropyltoluene	ND	0.0595		mg/Kg-dry	1	10/22/2019 9:00:05 PM
1,3-Dichlorobenzene	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
1,4-Dichlorobenzene	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
n-Butylbenzene	ND	0.0298		mg/Kg-dry	1	10/22/2019 9:00:05 PM
1,2-Dichlorobenzene	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
1,2-Dibromo-3-chloropropane	ND	0.595		mg/Kg-dry	1	10/22/2019 9:00:05 PM
1,2,4-Trimethylbenzene	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Hexachloro-1,3-butadiene	ND	0.0595		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Naphthalene	ND	0.0595		mg/Kg-dry	1	10/22/2019 9:00:05 PM
1,2,3-Trichlorobenzene	ND	0.0238		mg/Kg-dry	1	10/22/2019 9:00:05 PM
Surr: Dibromofluoromethane	97.9	78.3 - 116		%Rec	1	10/22/2019 9:00:05 PM
Surr: Toluene-d8	96.4	84.2 - 114		%Rec	1	10/22/2019 9:00:05 PM
Surr: 1-Bromo-4-fluorobenzene	95.4	81.9 - 115		%Rec	1	10/22/2019 9:00:05 PM
Sample Moisture (Percent Moisture)				Batch ID: R54766		Analyst: CJ
Percent Moisture	19.2	0.500		wt%	1	10/23/2019 8:13:03 AM

Client: PES Environmental, Inc. **Collection Date:** 10/17/2019 9:40:00 AM
Project: MVSC
Lab ID: 1910311-008 **Matrix:** Soil
Client Sample ID: **MW-19-44**

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 26220 Analyst: KT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Chloromethane	ND	0.0536		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Vinyl chloride	ND	0.0268		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Bromomethane	ND	0.0536		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Trichlorofluoromethane (CFC-11)	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Chloroethane	ND	0.0536		mg/Kg-dry	1	10/22/2019 10:06:10 PM
1,1-Dichloroethene	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Methylene chloride	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
trans-1,2-Dichloroethene	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Methyl tert-butyl ether (MTBE)	ND	0.0536		mg/Kg-dry	1	10/22/2019 10:06:10 PM
1,1-Dichloroethane	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
cis-1,2-Dichloroethene	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Chloroform	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
1,1,1-Trichloroethane (TCA)	ND	0.0268		mg/Kg-dry	1	10/22/2019 10:06:10 PM
1,1-Dichloropropene	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Carbon tetrachloride	ND	0.0536		mg/Kg-dry	1	10/22/2019 10:06:10 PM
1,2-Dichloroethane (EDC)	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Benzene	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Trichloroethene (TCE)	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
1,2-Dichloropropane	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Bromodichloromethane	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Dibromomethane	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
cis-1,3-Dichloropropene	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Toluene	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
trans-1,3-Dichloropropylene	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
1,1,2-Trichloroethane	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
1,3-Dichloropropane	ND	0.0268		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Tetrachloroethene (PCE)	ND	0.0268		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Dibromochloromethane	ND	0.0268		mg/Kg-dry	1	10/22/2019 10:06:10 PM
1,2-Dibromoethane (EDB)	ND	0.00536		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Chlorobenzene	ND	0.0268		mg/Kg-dry	1	10/22/2019 10:06:10 PM
1,1,1,2-Tetrachloroethane	ND	0.0268		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Ethylbenzene	ND	0.0268		mg/Kg-dry	1	10/22/2019 10:06:10 PM
m,p-Xylene	ND	0.0536		mg/Kg-dry	1	10/22/2019 10:06:10 PM
o-Xylene	ND	0.0268		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Styrene	ND	0.0268		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Isopropylbenzene	ND	0.0268		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Bromoform	ND	0.0536		mg/Kg-dry	1	10/22/2019 10:06:10 PM
1,1,2,2-Tetrachloroethane	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM

Client: PES Environmental, Inc. **Collection Date:** 10/17/2019 9:40:00 AM
Project: MVSC
Lab ID: 1910311-008 **Matrix:** Soil
Client Sample ID: **MW-19-44**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260D				Batch ID: 26220		Analyst: KT
n-Propylbenzene	ND	0.0268		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Bromobenzene	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
1,3,5-Trimethylbenzene	ND	0.0268		mg/Kg-dry	1	10/22/2019 10:06:10 PM
2-Chlorotoluene	ND	0.0268		mg/Kg-dry	1	10/22/2019 10:06:10 PM
4-Chlorotoluene	ND	0.0268		mg/Kg-dry	1	10/22/2019 10:06:10 PM
tert-Butylbenzene	ND	0.0268		mg/Kg-dry	1	10/22/2019 10:06:10 PM
1,2,3-Trichloropropane	ND	0.0268		mg/Kg-dry	1	10/22/2019 10:06:10 PM
1,2,4-Trichlorobenzene	ND	0.0268		mg/Kg-dry	1	10/22/2019 10:06:10 PM
sec-Butylbenzene	ND	0.0536		mg/Kg-dry	1	10/22/2019 10:06:10 PM
4-Isopropyltoluene	ND	0.0536		mg/Kg-dry	1	10/22/2019 10:06:10 PM
1,3-Dichlorobenzene	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
1,4-Dichlorobenzene	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
n-Butylbenzene	ND	0.0268		mg/Kg-dry	1	10/22/2019 10:06:10 PM
1,2-Dichlorobenzene	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
1,2-Dibromo-3-chloropropane	ND	0.536		mg/Kg-dry	1	10/22/2019 10:06:10 PM
1,2,4-Trimethylbenzene	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Hexachloro-1,3-butadiene	ND	0.0536		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Naphthalene	ND	0.0536		mg/Kg-dry	1	10/22/2019 10:06:10 PM
1,2,3-Trichlorobenzene	ND	0.0215		mg/Kg-dry	1	10/22/2019 10:06:10 PM
Surr: Dibromofluoromethane	97.8	78.3 - 116		%Rec	1	10/22/2019 10:06:10 PM
Surr: Toluene-d8	96.8	84.2 - 114		%Rec	1	10/22/2019 10:06:10 PM
Surr: 1-Bromo-4-fluorobenzene	93.3	81.9 - 115		%Rec	1	10/22/2019 10:06:10 PM
Sample Moisture (Percent Moisture)				Batch ID: R54766		Analyst: CJ
Percent Moisture	15.1	0.500		wt%	1	10/23/2019 8:13:03 AM

Client: PES Environmental, Inc. **Collection Date:** 10/17/2019 2:10:00 PM
Project: MVSC
Lab ID: 1910311-011 **Matrix:** Soil
Client Sample ID: **MW-20-30**

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 26220 Analyst: KT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Chloromethane	ND	0.0560		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Vinyl chloride	ND	0.0280		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Bromomethane	ND	0.0560		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Trichlorofluoromethane (CFC-11)	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Chloroethane	ND	0.0560		mg/Kg-dry	1	10/22/2019 10:39:11 PM
1,1-Dichloroethene	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Methylene chloride	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
trans-1,2-Dichloroethene	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Methyl tert-butyl ether (MTBE)	ND	0.0560		mg/Kg-dry	1	10/22/2019 10:39:11 PM
1,1-Dichloroethane	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
cis-1,2-Dichloroethene	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Chloroform	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
1,1,1-Trichloroethane (TCA)	ND	0.0280		mg/Kg-dry	1	10/22/2019 10:39:11 PM
1,1-Dichloropropene	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Carbon tetrachloride	ND	0.0560		mg/Kg-dry	1	10/22/2019 10:39:11 PM
1,2-Dichloroethane (EDC)	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Benzene	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Trichloroethene (TCE)	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
1,2-Dichloropropane	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Bromodichloromethane	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Dibromomethane	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
cis-1,3-Dichloropropene	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Toluene	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
trans-1,3-Dichloropropylene	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
1,1,2-Trichloroethane	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
1,3-Dichloropropane	ND	0.0280		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Tetrachloroethene (PCE)	ND	0.0280		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Dibromochloromethane	ND	0.0280		mg/Kg-dry	1	10/22/2019 10:39:11 PM
1,2-Dibromoethane (EDB)	ND	0.00560		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Chlorobenzene	ND	0.0280		mg/Kg-dry	1	10/22/2019 10:39:11 PM
1,1,1,2-Tetrachloroethane	ND	0.0280		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Ethylbenzene	ND	0.0280		mg/Kg-dry	1	10/22/2019 10:39:11 PM
m,p-Xylene	ND	0.0560		mg/Kg-dry	1	10/22/2019 10:39:11 PM
o-Xylene	ND	0.0280		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Styrene	ND	0.0280		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Isopropylbenzene	ND	0.0280		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Bromoform	ND	0.0560		mg/Kg-dry	1	10/22/2019 10:39:11 PM
1,1,2,2-Tetrachloroethane	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM

Client: PES Environmental, Inc. **Collection Date:** 10/17/2019 2:10:00 PM
Project: MVSC
Lab ID: 1910311-011 **Matrix:** Soil
Client Sample ID: **MW-20-30**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260D				Batch ID: 26220		Analyst: KT
n-Propylbenzene	ND	0.0280		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Bromobenzene	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
1,3,5-Trimethylbenzene	ND	0.0280		mg/Kg-dry	1	10/22/2019 10:39:11 PM
2-Chlorotoluene	ND	0.0280		mg/Kg-dry	1	10/22/2019 10:39:11 PM
4-Chlorotoluene	ND	0.0280		mg/Kg-dry	1	10/22/2019 10:39:11 PM
tert-Butylbenzene	ND	0.0280		mg/Kg-dry	1	10/22/2019 10:39:11 PM
1,2,3-Trichloropropane	ND	0.0280		mg/Kg-dry	1	10/22/2019 10:39:11 PM
1,2,4-Trichlorobenzene	ND	0.0280		mg/Kg-dry	1	10/22/2019 10:39:11 PM
sec-Butylbenzene	ND	0.0560		mg/Kg-dry	1	10/22/2019 10:39:11 PM
4-Isopropyltoluene	ND	0.0560		mg/Kg-dry	1	10/22/2019 10:39:11 PM
1,3-Dichlorobenzene	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
1,4-Dichlorobenzene	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
n-Butylbenzene	ND	0.0280		mg/Kg-dry	1	10/22/2019 10:39:11 PM
1,2-Dichlorobenzene	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
1,2-Dibromo-3-chloropropane	ND	0.560		mg/Kg-dry	1	10/22/2019 10:39:11 PM
1,2,4-Trimethylbenzene	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Hexachloro-1,3-butadiene	ND	0.0560		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Naphthalene	ND	0.0560		mg/Kg-dry	1	10/22/2019 10:39:11 PM
1,2,3-Trichlorobenzene	ND	0.0224		mg/Kg-dry	1	10/22/2019 10:39:11 PM
Surr: Dibromofluoromethane	101	78.3 - 116		%Rec	1	10/22/2019 10:39:11 PM
Surr: Toluene-d8	98.0	84.2 - 114		%Rec	1	10/22/2019 10:39:11 PM
Surr: 1-Bromo-4-fluorobenzene	98.9	81.9 - 115		%Rec	1	10/22/2019 10:39:11 PM
Sample Moisture (Percent Moisture)				Batch ID: R54766		Analyst: CJ
Percent Moisture	19.0	0.500		wt%	1	10/23/2019 8:13:03 AM

Client: PES Environmental, Inc. **Collection Date:** 10/17/2019 2:12:00 PM
Project: MVSC
Lab ID: 1910311-012 **Matrix:** Soil
Client Sample ID: **MW-20-35**

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 26220 Analyst: KT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Chloromethane	ND	0.0509		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Vinyl chloride	ND	0.0255		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Bromomethane	ND	0.0509		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Trichlorofluoromethane (CFC-11)	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Chloroethane	ND	0.0509		mg/Kg-dry	1	10/22/2019 11:12:24 PM
1,1-Dichloroethene	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Methylene chloride	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
trans-1,2-Dichloroethene	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Methyl tert-butyl ether (MTBE)	ND	0.0509		mg/Kg-dry	1	10/22/2019 11:12:24 PM
1,1-Dichloroethane	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
cis-1,2-Dichloroethene	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Chloroform	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
1,1,1-Trichloroethane (TCA)	ND	0.0255		mg/Kg-dry	1	10/22/2019 11:12:24 PM
1,1-Dichloropropene	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Carbon tetrachloride	ND	0.0509		mg/Kg-dry	1	10/22/2019 11:12:24 PM
1,2-Dichloroethane (EDC)	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Benzene	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Trichloroethene (TCE)	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
1,2-Dichloropropane	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Bromodichloromethane	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Dibromomethane	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
cis-1,3-Dichloropropene	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Toluene	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
trans-1,3-Dichloropropylene	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
1,1,2-Trichloroethane	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
1,3-Dichloropropane	ND	0.0255		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Tetrachloroethene (PCE)	0.0299	0.0255		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Dibromochloromethane	ND	0.0255		mg/Kg-dry	1	10/22/2019 11:12:24 PM
1,2-Dibromoethane (EDB)	ND	0.00509		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Chlorobenzene	ND	0.0255		mg/Kg-dry	1	10/22/2019 11:12:24 PM
1,1,1,2-Tetrachloroethane	ND	0.0255		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Ethylbenzene	ND	0.0255		mg/Kg-dry	1	10/22/2019 11:12:24 PM
m,p-Xylene	ND	0.0509		mg/Kg-dry	1	10/22/2019 11:12:24 PM
o-Xylene	ND	0.0255		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Styrene	ND	0.0255		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Isopropylbenzene	ND	0.0255		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Bromoform	ND	0.0509		mg/Kg-dry	1	10/22/2019 11:12:24 PM
1,1,2,2-Tetrachloroethane	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM

Analytical Report

Work Order: **1910311**
Date Reported: **10/23/2019**

Client: PES Environmental, Inc.
Collection Date: 10/17/2019 2:12:00 PM
Project: MVSC
Lab ID: 1910311-012
Matrix: Soil
Client Sample ID: **MW-20-35**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260D				Batch ID: 26220		Analyst: KT
n-Propylbenzene	ND	0.0255		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Bromobenzene	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
1,3,5-Trimethylbenzene	ND	0.0255		mg/Kg-dry	1	10/22/2019 11:12:24 PM
2-Chlorotoluene	ND	0.0255		mg/Kg-dry	1	10/22/2019 11:12:24 PM
4-Chlorotoluene	ND	0.0255		mg/Kg-dry	1	10/22/2019 11:12:24 PM
tert-Butylbenzene	ND	0.0255		mg/Kg-dry	1	10/22/2019 11:12:24 PM
1,2,3-Trichloropropane	ND	0.0255		mg/Kg-dry	1	10/22/2019 11:12:24 PM
1,2,4-Trichlorobenzene	ND	0.0255		mg/Kg-dry	1	10/22/2019 11:12:24 PM
sec-Butylbenzene	ND	0.0509		mg/Kg-dry	1	10/22/2019 11:12:24 PM
4-Isopropyltoluene	ND	0.0509		mg/Kg-dry	1	10/22/2019 11:12:24 PM
1,3-Dichlorobenzene	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
1,4-Dichlorobenzene	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
n-Butylbenzene	ND	0.0255		mg/Kg-dry	1	10/22/2019 11:12:24 PM
1,2-Dichlorobenzene	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
1,2-Dibromo-3-chloropropane	ND	0.509		mg/Kg-dry	1	10/22/2019 11:12:24 PM
1,2,4-Trimethylbenzene	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Hexachloro-1,3-butadiene	ND	0.0509		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Naphthalene	ND	0.0509		mg/Kg-dry	1	10/22/2019 11:12:24 PM
1,2,3-Trichlorobenzene	ND	0.0204		mg/Kg-dry	1	10/22/2019 11:12:24 PM
Surr: Dibromofluoromethane	97.7	78.3 - 116		%Rec	1	10/22/2019 11:12:24 PM
Surr: Toluene-d8	96.2	84.2 - 114		%Rec	1	10/22/2019 11:12:24 PM
Surr: 1-Bromo-4-fluorobenzene	99.4	81.9 - 115		%Rec	1	10/22/2019 11:12:24 PM
Sample Moisture (Percent Moisture)				Batch ID: R54766		Analyst: CJ
Percent Moisture	3.72	0.500		wt%	1	10/23/2019 8:13:03 AM

Client: PES Environmental, Inc. **Collection Date:** 10/11/2019 4:34:00 PM
Project: MVSC
Lab ID: 1910311-016 **Matrix:** Soil
Client Sample ID: **TB-101119**

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 26220 Analyst: KT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
Chloromethane	ND	0.0500		mg/Kg	1	10/22/2019 7:20:49 PM
Vinyl chloride	ND	0.0250		mg/Kg	1	10/22/2019 7:20:49 PM
Bromomethane	ND	0.0500		mg/Kg	1	10/22/2019 7:20:49 PM
Trichlorofluoromethane (CFC-11)	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
Chloroethane	ND	0.0500		mg/Kg	1	10/22/2019 7:20:49 PM
1,1-Dichloroethene	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
Methylene chloride	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
trans-1,2-Dichloroethene	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
Methyl tert-butyl ether (MTBE)	ND	0.0500		mg/Kg	1	10/22/2019 7:20:49 PM
1,1-Dichloroethane	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
cis-1,2-Dichloroethene	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
Chloroform	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
1,1,1-Trichloroethane (TCA)	ND	0.0250		mg/Kg	1	10/22/2019 7:20:49 PM
1,1-Dichloropropene	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
Carbon tetrachloride	ND	0.0500		mg/Kg	1	10/22/2019 7:20:49 PM
1,2-Dichloroethane (EDC)	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
Benzene	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
Trichloroethene (TCE)	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
1,2-Dichloropropane	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
Bromodichloromethane	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
Dibromomethane	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
cis-1,3-Dichloropropene	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
Toluene	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
trans-1,3-Dichloropropylene	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
1,1,2-Trichloroethane	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
1,3-Dichloropropane	ND	0.0250		mg/Kg	1	10/22/2019 7:20:49 PM
Tetrachloroethene (PCE)	ND	0.0250		mg/Kg	1	10/22/2019 7:20:49 PM
Dibromochloromethane	ND	0.0250		mg/Kg	1	10/22/2019 7:20:49 PM
1,2-Dibromoethane (EDB)	ND	0.00500		mg/Kg	1	10/22/2019 7:20:49 PM
Chlorobenzene	ND	0.0250		mg/Kg	1	10/22/2019 7:20:49 PM
1,1,1,2-Tetrachloroethane	ND	0.0250		mg/Kg	1	10/22/2019 7:20:49 PM
Ethylbenzene	ND	0.0250		mg/Kg	1	10/22/2019 7:20:49 PM
m,p-Xylene	ND	0.0500		mg/Kg	1	10/22/2019 7:20:49 PM
o-Xylene	ND	0.0250		mg/Kg	1	10/22/2019 7:20:49 PM
Styrene	ND	0.0250		mg/Kg	1	10/22/2019 7:20:49 PM
Isopropylbenzene	ND	0.0250		mg/Kg	1	10/22/2019 7:20:49 PM
Bromoform	ND	0.0500		mg/Kg	1	10/22/2019 7:20:49 PM
1,1,2,2-Tetrachloroethane	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM

Client: PES Environmental, Inc. **Collection Date:** 10/11/2019 4:34:00 PM
Project: MVSC
Lab ID: 1910311-016 **Matrix:** Soil
Client Sample ID: **TB-101119**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260D				Batch ID: 26220		Analyst: KT
n-Propylbenzene	ND	0.0250		mg/Kg	1	10/22/2019 7:20:49 PM
Bromobenzene	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
1,3,5-Trimethylbenzene	ND	0.0250		mg/Kg	1	10/22/2019 7:20:49 PM
2-Chlorotoluene	ND	0.0250		mg/Kg	1	10/22/2019 7:20:49 PM
4-Chlorotoluene	ND	0.0250		mg/Kg	1	10/22/2019 7:20:49 PM
tert-Butylbenzene	ND	0.0250		mg/Kg	1	10/22/2019 7:20:49 PM
1,2,3-Trichloropropane	ND	0.0250		mg/Kg	1	10/22/2019 7:20:49 PM
1,2,4-Trichlorobenzene	ND	0.0250		mg/Kg	1	10/22/2019 7:20:49 PM
sec-Butylbenzene	ND	0.0500		mg/Kg	1	10/22/2019 7:20:49 PM
4-Isopropyltoluene	ND	0.0500		mg/Kg	1	10/22/2019 7:20:49 PM
1,3-Dichlorobenzene	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
1,4-Dichlorobenzene	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
n-Butylbenzene	ND	0.0250		mg/Kg	1	10/22/2019 7:20:49 PM
1,2-Dichlorobenzene	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
1,2-Dibromo-3-chloropropane	ND	0.500		mg/Kg	1	10/22/2019 7:20:49 PM
1,2,4-Trimethylbenzene	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
Hexachloro-1,3-butadiene	ND	0.0500		mg/Kg	1	10/22/2019 7:20:49 PM
Naphthalene	ND	0.0500		mg/Kg	1	10/22/2019 7:20:49 PM
1,2,3-Trichlorobenzene	ND	0.0200		mg/Kg	1	10/22/2019 7:20:49 PM
Surr: Dibromofluoromethane	96.1	78.3 - 116		%Rec	1	10/22/2019 7:20:49 PM
Surr: Toluene-d8	95.7	84.2 - 114		%Rec	1	10/22/2019 7:20:49 PM
Surr: 1-Bromo-4-fluorobenzene	105	81.9 - 115		%Rec	1	10/22/2019 7:20:49 PM

Work Order: 1910311
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **LCS-26220** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/22/2019** RunNo: **54769**
Client ID: **LCSS** Batch ID: **26220** Analysis Date: **10/22/2019** SeqNo: **1086405**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.888	0.0200	1.000	0	88.8	16.3	186				
Chloromethane	0.867	0.0500	1.000	0	86.7	49.5	153				
Vinyl chloride	0.897	0.0250	1.000	0	89.7	60	139				
Bromomethane	0.984	0.0500	1.000	0	98.4	62.3	157				
Trichlorofluoromethane (CFC-11)	0.940	0.0200	1.000	0	94.0	66.2	137				
Chloroethane	0.741	0.0500	1.000	0	74.1	63.9	138				
1,1-Dichloroethene	0.946	0.0200	1.000	0	94.6	66	130				
Methylene chloride	0.863	0.0200	1.000	0	86.3	74.5	123				
trans-1,2-Dichloroethene	0.944	0.0200	1.000	0	94.4	78.2	120				
Methyl tert-butyl ether (MTBE)	0.986	0.0500	1.000	0	98.6	67.5	130				
1,1-Dichloroethane	0.926	0.0200	1.000	0	92.6	76.4	121				
cis-1,2-Dichloroethene	0.964	0.0200	1.000	0	96.4	78.4	120				
Chloroform	0.938	0.0200	1.000	0	93.8	77.9	121				
1,1,1-Trichloroethane (TCA)	0.961	0.0250	1.000	0	96.1	78	121				
1,1-Dichloropropene	0.967	0.0200	1.000	0	96.7	78.9	120				
Carbon tetrachloride	0.973	0.0500	1.000	0	97.3	78.4	122				
1,2-Dichloroethane (EDC)	0.929	0.0200	1.000	0	92.9	76.2	124				
Benzene	0.948	0.0200	1.000	0	94.8	76.4	122				
Trichloroethene (TCE)	0.971	0.0200	1.000	0	97.1	76.6	123				
1,2-Dichloropropane	0.924	0.0200	1.000	0	92.4	74.1	124				
Bromodichloromethane	0.929	0.0200	1.000	0	92.9	76.7	124				
Dibromomethane	0.932	0.0200	1.000	0	93.2	76.6	123				
cis-1,3-Dichloropropene	0.944	0.0200	1.000	0	94.4	72.8	124				
Toluene	0.967	0.0200	1.000	0	96.7	76.9	125				
trans-1,3-Dichloropropylene	0.938	0.0200	1.000	0	93.8	74	123				
1,1,2-Trichloroethane	0.933	0.0200	1.000	0	93.3	73.8	126				
1,3-Dichloropropane	0.929	0.0250	1.000	0	92.9	73	126				
Tetrachloroethene (PCE)	0.989	0.0250	1.000	0	98.9	78.7	123				
Dibromochloromethane	0.929	0.0250	1.000	0	92.9	76	123				
1,2-Dibromoethane (EDB)	0.928	0.00500	1.000	0	92.8	75	125				
Chlorobenzene	1.00	0.0250	1.000	0	100	81.3	118				

Work Order: 1910311
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **LCS-26220** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/22/2019** RunNo: **54769**
Client ID: **LCSS** Batch ID: **26220** Analysis Date: **10/22/2019** SeqNo: **1086405**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	1.01	0.0250	1.000	0	101	77.9	121				
Ethylbenzene	1.03	0.0250	1.000	0	103	80	122				
m,p-Xylene	2.05	0.0500	2.000	0	102	80.3	122				
o-Xylene	0.994	0.0250	1.000	0	99.4	79.7	121				
Styrene	0.981	0.0250	1.000	0	98.1	80.5	120				
Isopropylbenzene	1.01	0.0250	1.000	0	101	79.8	121				
Bromoform	0.973	0.0500	1.000	0	97.3	73.1	124				
1,1,2,2-Tetrachloroethane	0.989	0.0200	1.000	0	98.9	71.3	125				
n-Propylbenzene	0.995	0.0250	1.000	0	99.5	80.6	122				
Bromobenzene	1.04	0.0200	1.000	0	104	80	120				
1,3,5-Trimethylbenzene	0.992	0.0250	1.000	0	99.2	81.4	120				
2-Chlorotoluene	1.01	0.0250	1.000	0	101	77.9	125				
4-Chlorotoluene	0.998	0.0250	1.000	0	99.8	80.7	121				
tert-Butylbenzene	1.01	0.0250	1.000	0	101	79.7	121				
1,2,3-Trichloropropane	0.995	0.0250	1.000	0	99.5	70.6	130				
1,2,4-Trichlorobenzene	1.12	0.0250	1.000	0	112	78.8	127				
sec-Butylbenzene	0.987	0.0500	1.000	0	98.7	80.5	121				
4-Isopropyltoluene	0.993	0.0500	1.000	0	99.3	80.3	121				
1,3-Dichlorobenzene	1.06	0.0200	1.000	0	106	84.8	121				
1,4-Dichlorobenzene	1.05	0.0200	1.000	0	105	84.7	121				
n-Butylbenzene	1.09	0.0250	1.000	0	109	84	123				
1,2-Dichlorobenzene	1.07	0.0200	1.000	0	107	84.6	121				
1,2-Dibromo-3-chloropropane	1.02	0.500	1.000	0	102	73	132				
1,2,4-Trimethylbenzene	0.990	0.0200	1.000	0	99.0	80.7	121				
Hexachloro-1,3-butadiene	1.13	0.0500	1.000	0	113	81.6	125				
Naphthalene	1.09	0.0500	1.000	0	109	73	131				
1,2,3-Trichlorobenzene	1.08	0.0200	1.000	0	108	77	128				
Surr: Dibromofluoromethane	1.32		1.250		106	78.3	116				
Surr: Toluene-d8	1.20		1.250		96.0	84.2	114				
Surr: 1-Bromo-4-fluorobenzene	1.36		1.250		109	81.9	115				

Work Order: 1910311
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **MB-26220** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/22/2019** RunNo: **54769**
Client ID: **MBLKS** Batch ID: **26220** Analysis Date: **10/22/2019** SeqNo: **1086406**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0200									
Chloromethane	ND	0.0500									
Vinyl chloride	ND	0.0250									
Bromomethane	ND	0.0500									
Trichlorofluoromethane (CFC-11)	ND	0.0200									
Chloroethane	ND	0.0500									
1,1-Dichloroethene	ND	0.0200									
Methylene chloride	ND	0.0200									
trans-1,2-Dichloroethene	ND	0.0200									
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,1-Dichloroethane	ND	0.0200									
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0250									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0500									
1,2-Dichloroethane (EDC)	ND	0.0200									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0200									
cis-1,3-Dichloropropene	ND	0.0200									
Toluene	ND	0.0200									
trans-1,3-Dichloropropylene	ND	0.0200									
1,1,2-Trichloroethane	ND	0.0200									
1,3-Dichloropropane	ND	0.0250									
Tetrachloroethene (PCE)	ND	0.0250									
Dibromochloromethane	ND	0.0250									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0250									

Work Order: 1910311
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **MB-26220**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/22/2019**	RunNo: **54769**	
Client ID: **MBLKS**	Batch ID: **26220**		Analysis Date: **10/22/2019**	SeqNo: **1086406**	

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	0.0250									
Ethylbenzene	ND	0.0250									
m,p-Xylene	ND	0.0500									
o-Xylene	ND	0.0250									
Styrene	ND	0.0250									
Isopropylbenzene	ND	0.0250									
Bromoform	ND	0.0500									
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0250									
Bromobenzene	ND	0.0200									
1,3,5-Trimethylbenzene	ND	0.0250									
2-Chlorotoluene	ND	0.0250									
4-Chlorotoluene	ND	0.0250									
tert-Butylbenzene	ND	0.0250									
1,2,3-Trichloropropane	ND	0.0250									
1,2,4-Trichlorobenzene	ND	0.0250									
sec-Butylbenzene	ND	0.0500									
4-Isopropyltoluene	ND	0.0500									
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0250									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.500									
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachloro-1,3-butadiene	ND	0.0500									
Naphthalene	ND	0.0500									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: Dibromofluoromethane	1.23		1.250		98.1	78.3	116				
Surr: Toluene-d8	1.18		1.250		94.7	84.2	114				
Surr: 1-Bromo-4-fluorobenzene	1.22		1.250		97.3	81.9	115				

Work Order: 1910311
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **1910311-007BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/22/2019** RunNo: **54769**
Client ID: **MW-19-38** Batch ID: **26220** Analysis Date: **10/22/2019** SeqNo: **1086394**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0238						0		30	
Chloromethane	ND	0.0595						0		30	
Vinyl chloride	ND	0.0298						0		30	
Bromomethane	ND	0.0595						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0238						0		30	
Chloroethane	ND	0.0595						0		30	
1,1-Dichloroethene	ND	0.0238						0		30	
Methylene chloride	ND	0.0238						0		30	
trans-1,2-Dichloroethene	ND	0.0238						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0595						0		30	
1,1-Dichloroethane	ND	0.0238						0		30	
cis-1,2-Dichloroethene	ND	0.0238						0		30	
Chloroform	ND	0.0238						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0298						0		30	
1,1-Dichloropropene	ND	0.0238						0		30	
Carbon tetrachloride	ND	0.0595						0		30	
1,2-Dichloroethane (EDC)	ND	0.0238						0		30	
Benzene	ND	0.0238						0		30	
Trichloroethene (TCE)	ND	0.0238						0		30	
1,2-Dichloropropane	ND	0.0238						0		30	
Bromodichloromethane	ND	0.0238						0		30	
Dibromomethane	ND	0.0238						0		30	
cis-1,3-Dichloropropene	ND	0.0238						0		30	
Toluene	ND	0.0238						0		30	
trans-1,3-Dichloropropylene	ND	0.0238						0		30	
1,1,2-Trichloroethane	ND	0.0238						0		30	
1,3-Dichloropropane	ND	0.0298						0		30	
Tetrachloroethene (PCE)	0.112	0.0298						0.1070	4.56	30	
Dibromochloromethane	ND	0.0298						0		30	
1,2-Dibromoethane (EDB)	ND	0.00595						0		30	
Chlorobenzene	ND	0.0298						0		30	

Work Order: 1910311
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **1910311-007BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/22/2019** RunNo: **54769**
Client ID: **MW-19-38** Batch ID: **26220** Analysis Date: **10/22/2019** SeqNo: **1086394**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	0.0298						0		30	
Ethylbenzene	ND	0.0298						0		30	
m,p-Xylene	ND	0.0595						0		30	
o-Xylene	ND	0.0298						0		30	
Styrene	ND	0.0298						0		30	
Isopropylbenzene	ND	0.0298						0		30	
Bromoform	ND	0.0595						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0238						0		30	
n-Propylbenzene	ND	0.0298						0		30	
Bromobenzene	ND	0.0238						0		30	
1,3,5-Trimethylbenzene	ND	0.0298						0		30	
2-Chlorotoluene	ND	0.0298						0		30	
4-Chlorotoluene	ND	0.0298						0		30	
tert-Butylbenzene	ND	0.0298						0		30	
1,2,3-Trichloropropane	ND	0.0298						0		30	
1,2,4-Trichlorobenzene	ND	0.0298						0		30	
sec-Butylbenzene	ND	0.0595						0		30	
4-Isopropyltoluene	ND	0.0595						0		30	
1,3-Dichlorobenzene	ND	0.0238						0		30	
1,4-Dichlorobenzene	ND	0.0238						0		30	
n-Butylbenzene	ND	0.0298						0		30	
1,2-Dichlorobenzene	ND	0.0238						0		30	
1,2-Dibromo-3-chloropropane	ND	0.595						0		30	
1,2,4-Trimethylbenzene	ND	0.0238						0		30	
Hexachloro-1,3-butadiene	ND	0.0595						0		30	
Naphthalene	ND	0.0595						0		30	
1,2,3-Trichlorobenzene	ND	0.0238						0		30	
Surr: Dibromofluoromethane	1.47		1.489		98.9	78.3	116		0		
Surr: Toluene-d8	1.44		1.489		96.8	84.2	114		0		
Surr: 1-Bromo-4-fluorobenzene	1.45		1.489		97.7	81.9	115		0		

Work Order: 1910311
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **1910311-011BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/22/2019** RunNo: **54769**
Client ID: **MW-20-30** Batch ID: **26220** Analysis Date: **10/23/2019** SeqNo: **1086397**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.837	0.0224	1.121	0	74.7	15.2	191				
Chloromethane	0.958	0.0560	1.121	0	85.4	46.6	158				
Vinyl chloride	0.937	0.0280	1.121	0	83.5	54.6	148				
Bromomethane	1.17	0.0560	1.121	0	104	57.4	166				
Trichlorofluoromethane (CFC-11)	0.905	0.0224	1.121	0	80.7	59.5	144				
Chloroethane	0.985	0.0560	1.121	0	87.8	50.5	167				
1,1-Dichloroethene	1.00	0.0224	1.121	0	89.3	62.1	142				
Methylene chloride	0.992	0.0224	1.121	0	88.5	61.4	136				
trans-1,2-Dichloroethene	1.04	0.0224	1.121	0	92.6	59.3	139				
Methyl tert-butyl ether (MTBE)	1.04	0.0560	1.121	0	92.6	60.4	129				
1,1-Dichloroethane	1.03	0.0224	1.121	0	92.1	66.2	134				
cis-1,2-Dichloroethene	1.04	0.0224	1.121	0	92.4	65.4	133				
Chloroform	1.03	0.0224	1.121	0	91.9	67.8	132				
1,1,1-Trichloroethane (TCA)	1.01	0.0280	1.121	0	89.9	68	134				
1,1-Dichloropropene	1.01	0.0224	1.121	0	90.3	68.3	130				
Carbon tetrachloride	0.988	0.0560	1.121	0	88.2	66	135				
1,2-Dichloroethane (EDC)	1.03	0.0224	1.121	0	91.5	67.2	129				
Benzene	1.02	0.0224	1.121	0	91.0	65.9	129				
Trichloroethene (TCE)	1.02	0.0224	1.121	0	91.1	52.2	147				
1,2-Dichloropropane	1.00	0.0224	1.121	0	89.2	62.6	130				
Bromodichloromethane	1.01	0.0224	1.121	0	89.7	65.8	129				
Dibromomethane	1.01	0.0224	1.121	0	90.4	68.4	130				
cis-1,3-Dichloropropene	0.974	0.0224	1.121	0	86.9	64.6	122				
Toluene	1.03	0.0224	1.121	0	91.4	71	129				
trans-1,3-Dichloropropylene	0.968	0.0224	1.121	0	86.3	55.7	128				
1,1,2-Trichloroethane	1.00	0.0224	1.121	0	89.2	63.5	129				
1,3-Dichloropropane	1.00	0.0280	1.121	0	89.4	60.9	130				
Tetrachloroethene (PCE)	1.01	0.0280	1.121	0	90.2	70.2	130				
Dibromochloromethane	0.981	0.0280	1.121	0	87.5	62.4	129				
1,2-Dibromoethane (EDB)	1.00	0.00560	1.121	0	89.2	61.5	131				
Chlorobenzene	1.05	0.0280	1.121	0	93.3	75.1	125				

Work Order: 1910311
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **1910311-011BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/22/2019** RunNo: **54769**
Client ID: **MW-20-30** Batch ID: **26220** Analysis Date: **10/23/2019** SeqNo: **1086397**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	1.04	0.0280	1.121	0	92.5	65.6	128				
Ethylbenzene	1.05	0.0280	1.121	0	93.3	75.4	127				
m,p-Xylene	2.11	0.0560	2.242	0	93.9	74.1	129				
o-Xylene	1.02	0.0280	1.121	0	91.3	74	128				
Styrene	1.04	0.0280	1.121	0	92.6	74.6	127				
Isopropylbenzene	1.04	0.0280	1.121	0	92.4	71.9	132				
Bromoform	0.965	0.0560	1.121	0	86.0	63.1	129				
1,1,2,2-Tetrachloroethane	1.01	0.0224	1.121	0	89.9	47.8	139				
n-Propylbenzene	1.04	0.0280	1.121	0	93.0	72.6	131				
Bromobenzene	1.09	0.0224	1.121	0	97.0	74.8	126				
1,3,5-Trimethylbenzene	1.06	0.0280	1.121	0	94.2	73.4	129				
2-Chlorotoluene	1.08	0.0280	1.121	0	96.0	73.7	130				
4-Chlorotoluene	1.06	0.0280	1.121	0	94.7	74	128				
tert-Butylbenzene	1.07	0.0280	1.121	0	95.6	73.4	130				
1,2,3-Trichloropropane	1.02	0.0280	1.121	0	90.8	59.7	145				
1,2,4-Trichlorobenzene	1.23	0.0280	1.121	0	109	71.2	131				
sec-Butylbenzene	1.03	0.0560	1.121	0	91.7	73.7	131				
4-Isopropyltoluene	1.03	0.0560	1.121	0	92.1	72.9	131				
1,3-Dichlorobenzene	1.10	0.0224	1.121	0	98.4	77.8	126				
1,4-Dichlorobenzene	1.10	0.0224	1.121	0	98.1	78.1	126				
n-Butylbenzene	1.14	0.0280	1.121	0	101	76.4	128				
1,2-Dichlorobenzene	1.11	0.0224	1.121	0	99.0	78.3	126				
1,2-Dibromo-3-chloropropane	1.12	0.560	1.121	0	99.8	68.1	132				
1,2,4-Trimethylbenzene	1.04	0.0224	1.121	0	92.7	72.2	129				
Hexachloro-1,3-butadiene	1.16	0.0560	1.121	0	103	70.6	136				
Naphthalene	1.22	0.0560	1.121	0	109	70.7	135				
1,2,3-Trichlorobenzene	1.20	0.0224	1.121	0	107	72.2	132				
Surr: Dibromofluoromethane	1.56		1.401		111	78.3	116				
Surr: Toluene-d8	1.39		1.401		99.4	84.2	114				
Surr: 1-Bromo-4-fluorobenzene	1.54		1.401		110	81.9	115				

Work Order: 1910311
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **1910311-011BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/22/2019** RunNo: **54769**
Client ID: **MW-20-30** Batch ID: **26220** Analysis Date: **10/23/2019** SeqNo: **1086398**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.860	0.0224	1.121	0	76.8	15.2	191	0.8372	2.74	30	
Chloromethane	1.05	0.0560	1.121	0	93.5	46.6	158	0.9578	9.00	30	
Vinyl chloride	0.976	0.0280	1.121	0	87.0	54.6	148	0.9365	4.09	30	
Bromomethane	1.22	0.0560	1.121	0	109	57.4	166	1.169	4.64	30	
Trichlorofluoromethane (CFC-11)	0.942	0.0224	1.121	0	84.0	59.5	144	0.9045	4.03	30	
Chloroethane	1.01	0.0560	1.121	0	90.0	50.5	167	0.9846	2.41	30	
1,1-Dichloroethene	1.06	0.0224	1.121	0	94.9	62.1	142	1.002	6.02	30	
Methylene chloride	1.06	0.0224	1.121	0	94.7	61.4	136	0.9919	6.79	30	
trans-1,2-Dichloroethene	1.10	0.0224	1.121	0	98.0	59.3	139	1.038	5.74	30	
Methyl tert-butyl ether (MTBE)	1.16	0.0560	1.121	0	103	60.4	129	1.038	10.8	30	
1,1-Dichloroethane	1.10	0.0224	1.121	0	98.3	66.2	134	1.032	6.59	30	
cis-1,2-Dichloroethene	1.10	0.0224	1.121	0	98.0	65.4	133	1.036	5.91	30	
Chloroform	1.10	0.0224	1.121	0	98.4	67.8	132	1.030	6.88	30	
1,1,1-Trichloroethane (TCA)	1.06	0.0280	1.121	0	94.4	68	134	1.007	4.95	30	
1,1-Dichloropropene	1.05	0.0224	1.121	0	94.1	68.3	130	1.012	4.12	30	
Carbon tetrachloride	1.03	0.0560	1.121	0	92.0	66	135	0.9882	4.27	30	
1,2-Dichloroethane (EDC)	1.10	0.0224	1.121	0	97.8	67.2	129	1.025	6.69	30	
Benzene	1.10	0.0224	1.121	0	97.7	65.9	129	1.021	7.05	30	
Trichloroethene (TCE)	1.09	0.0224	1.121	0	97.0	52.2	147	1.021	6.37	30	
1,2-Dichloropropane	1.08	0.0224	1.121	0	96.3	62.6	130	0.9997	7.68	30	
Bromodichloromethane	1.07	0.0224	1.121	0	95.4	65.8	129	1.006	6.13	30	
Dibromomethane	1.08	0.0224	1.121	0	96.7	68.4	130	1.013	6.78	30	
cis-1,3-Dichloropropene	1.04	0.0224	1.121	0	92.6	64.6	122	0.9743	6.38	30	
Toluene	1.09	0.0224	1.121	0	97.5	71	129	1.025	6.44	30	
trans-1,3-Dichloropropylene	1.04	0.0224	1.121	0	92.7	55.7	128	0.9676	7.17	30	
1,1,2-Trichloroethane	1.06	0.0224	1.121	0	94.9	63.5	129	1.000	6.13	30	
1,3-Dichloropropane	1.07	0.0280	1.121	0	95.2	60.9	130	1.002	6.23	30	
Tetrachloroethene (PCE)	1.05	0.0280	1.121	0	93.5	70.2	130	1.011	3.66	30	
Dibromochloromethane	1.06	0.0280	1.121	0	94.7	62.4	129	0.9808	7.88	30	
1,2-Dibromoethane (EDB)	1.08	0.00560	1.121	0	96.1	61.5	131	1.000	7.43	30	
Chlorobenzene	1.14	0.0280	1.121	0	102	75.1	125	1.046	8.59	30	

Work Order: 1910311
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **1910311-011BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/22/2019** RunNo: **54769**
Client ID: **MW-20-30** Batch ID: **26220** Analysis Date: **10/23/2019** SeqNo: **1086398**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	1.13	0.0280	1.121	0	101	65.6	128	1.037	8.89	30	
Ethylbenzene	1.13	0.0280	1.121	0	101	75.4	127	1.046	8.05	30	
m,p-Xylene	2.26	0.0560	2.242	0	101	74.1	129	2.106	6.86	30	
o-Xylene	1.09	0.0280	1.121	0	97.5	74	128	1.023	6.61	30	
Styrene	1.13	0.0280	1.121	0	101	74.6	127	1.038	8.17	30	
Isopropylbenzene	1.08	0.0280	1.121	0	96.5	71.9	132	1.036	4.28	30	
Bromoform	1.06	0.0560	1.121	0	94.4	63.1	129	0.9646	9.23	30	
1,1,2,2-Tetrachloroethane	1.10	0.0224	1.121	0	98.0	47.8	139	1.007	8.62	30	
n-Propylbenzene	1.11	0.0280	1.121	0	98.7	72.6	131	1.043	5.89	30	
Bromobenzene	1.18	0.0224	1.121	0	105	74.8	126	1.087	8.42	30	
1,3,5-Trimethylbenzene	1.11	0.0280	1.121	0	99.3	73.4	129	1.055	5.33	30	
2-Chlorotoluene	1.16	0.0280	1.121	0	103	73.7	130	1.077	7.32	30	
4-Chlorotoluene	1.15	0.0280	1.121	0	103	74	128	1.062	8.29	30	
tert-Butylbenzene	1.11	0.0280	1.121	0	99.0	73.4	130	1.072	3.45	30	
1,2,3-Trichloropropane	1.12	0.0280	1.121	0	99.6	59.7	145	1.018	9.20	30	
1,2,4-Trichlorobenzene	1.25	0.0280	1.121	0	112	71.2	131	1.227	2.23	30	
sec-Butylbenzene	1.06	0.0560	1.121	0	94.5	73.7	131	1.027	3.04	30	
4-Isopropyltoluene	1.07	0.0560	1.121	0	95.8	72.9	131	1.032	4.03	30	
1,3-Dichlorobenzene	1.19	0.0224	1.121	0	106	77.8	126	1.103	7.47	30	
1,4-Dichlorobenzene	1.18	0.0224	1.121	0	106	78.1	126	1.100	7.40	30	
n-Butylbenzene	1.16	0.0280	1.121	0	103	76.4	128	1.135	1.86	30	
1,2-Dichlorobenzene	1.18	0.0224	1.121	0	106	78.3	126	1.109	6.50	30	
1,2-Dibromo-3-chloropropane	1.19	0.560	1.121	0	106	68.1	132	1.119	6.07	30	
1,2,4-Trimethylbenzene	1.11	0.0224	1.121	0	99.1	72.2	129	1.039	6.61	30	
Hexachloro-1,3-butadiene	1.20	0.0560	1.121	0	107	70.6	136	1.159	3.56	30	
Naphthalene	1.25	0.0560	1.121	0	111	70.7	135	1.220	2.15	30	
1,2,3-Trichlorobenzene	1.24	0.0224	1.121	0	110	72.2	132	1.203	2.73	30	
Surr: Dibromofluoromethane	1.55		1.401		111	78.3	116		0		
Surr: Toluene-d8	1.37		1.401		98.1	84.2	114		0		
Surr: 1-Bromo-4-fluorobenzene	1.54		1.401		110	81.9	115		0		

Work Order: 1910311
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID: **1910284-027ADUP**	SampType: **DUP**			Units: **wt%**		Prep Date: **10/22/2019**		RunNo: **54738**		
Client ID: **BATCH**	Batch ID: **R54738**					Analysis Date: **10/22/2019**		SeqNo: **1085547**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	16.2	0.500						16.15	0.0723	20	

Sample ID: **1910294-003ADUP**	SampType: **DUP**			Units: **wt%**		Prep Date: **10/22/2019**		RunNo: **54738**		
Client ID: **BATCH**	Batch ID: **R54738**					Analysis Date: **10/22/2019**		SeqNo: **1085554**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	9.75	0.500						9.040	7.59	20	

Sample ID: **1910311-011ADUP**	SampType: **DUP**			Units: **wt%**		Prep Date: **10/23/2019**		RunNo: **54766**		
Client ID: **MW-20-30**	Batch ID: **R54766**					Analysis Date: **10/23/2019**		SeqNo: **1086277**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	19.5	0.500						19.03	2.29	20	

Sample ID: **1910381-005ADUP**	SampType: **DUP**			Units: **wt%**		Prep Date: **10/23/2019**		RunNo: **54766**		
Client ID: **BATCH**	Batch ID: **R54766**					Analysis Date: **10/23/2019**		SeqNo: **1086289**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	12.8	0.500						14.32	11.5	20	

Sample Log-In Check List

Client Name:	**PES**	Work Order Number:	**1910311**
Logged by:	**Clare Griggs**	Date Received:	**10/17/2019 6:02:00 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 ☐
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

Item #	Temp ºC
Cooler	5.6
Sample	4.3
Temp Blank	6.3

* 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

Chain of Custody Record & Laboratory Services Agreement

Date: 10/17/19 Page: 1 of: 2

Laboratory Project No (internal): 1910311

Special Remarks:

Project Name: MVSC

Project No: 1358-001-02-012

Collected by: R. MCLAUGHLIN / H. COHEN

Location: NORMANDY PARK, WA

Report To (PM): MATT DAHL

PM Email: MDAHL@PESENV.COM

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Client: PES ENVIRONMENTAL

Address: 1215 4th AVE STE 1350

City, State, Zip: SEATTLE WA 98161

Telephone: 206 529 3980

Fax: 206 529 3985

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	MW-19-10	10/16/19	1250	S	X													HOLD
2	MW-19-15		1310		X (RW)													HOLD
3	MW-19-20		1325		X													HOLD
4	MW-19-25	10/17/19	0840		X													HOLD
5	MW-19-30.5		0835		X													RUN VOC's
6	MW-19-35		0905		X													
7	MW-19-38		0833		X													
8	MW-19-44		0940		X													
9	MW-19-50		0945		X (RW)													HOLD
10	MW-19-55.5		1013	S	X (RW)													HOLD

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

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	Received	Date/Time
x [signature]	10-17-19 1802	x [signature]	10/17/19 1802
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-around Time:

- ☒ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☐ Next Day
- Same Day _____ (specify)

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

Chain of Custody Record & Laboratory Services Agreement

Date: 10/17/19 Page: 2 of: 2

Project Name: MVSC

Project No: 1358.001.02.012

Collected by: SEE

Location: PG

Report To (PM): J

PM Email:

Laboratory Project No (internal):

Special Remarks:

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Client: PES ENVIRONMENTAL

Address: SEE PG 1

City, State, Zip:

Telephone:

Fax:

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	MW-20-30	10/17/19	1410	S	X												
2	MW-20-35		1412		X												
3	MW-20-37.5		1415														HOLD
4	MW-20-40.5		1420														HOLD
5	MW-20-45		1425														HOLD
6	TB-101119	10/11/19	1634	O	X												
7																	
8																	
9																	
10																	

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Turn-around Time:

- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day ____ (specify)

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	Received	Date/Time
x [signature]	10-17-19 1802	[signature]	10/17/19 1802
Relinquished	Date/Time	Received	Date/Time
x		x	

MEMORANDUM

TO: Project File **DATE:** November 1, 2018

FROM: Jessie Compeau

SUBJECT: Laboratory Data Validation Review

PROJECT: Manhattan Village Shopping Center

PROJECT #: 1358.001.02.012

TASK: EIM Data Validation Level EPA2A – October 2019 Soil Samples

LAB: Fremont Work Order Number 1910311

Fifteen (15) soil samples and one (1) trip blank were collected at the Manhattan Village Shopping Centre site in Normandy Park, Washington on October 16-17, 2019. Nine of the fifteen soil samples were placed on hold. Selected samples associated with Work Order 1910311 were analyzed for the following:

- Volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method 8260D; and
- Total Solids by USEPA Method 8000D.

The quality assurance review of the laboratory data associated with Fremont Work Order 1910311 is summarized below.

DATA QUALIFICATIONS

Guidelines established by USEPA for a limited data validation 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

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 4.3 degrees Centigrade (°C). The cooler and sample temperatures were within EPA's recommended temperature preservation range of less than 6.0 °C. No data qualifications are 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

Initial and continuing calibration data for this project are retained by the laboratory and available for review if necessary. These data were not provided nor requested for this project. Case narrative notes and qualifiers do not issue any issues with calibration data.

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 reporting limits (RLs).

Trip Blank Results

A trip blank was collected and submitted for analysis. The target analytes (VOCs) were not detected in the trip blank at a concentration at or above the RLs.

Equipment Blank Results

An equipment blank was not collected.

Field Duplicate Analyses

Field duplicate samples were not collected. Refer to laboratory duplicate data or matrix spike sample results associated with this SDG for precision data.

Laboratory Duplicate Analyses

Laboratory duplicate analysis were performed on client sample MW-19-38. Relative percent differences (RPDs) are within laboratory control limit criteria of 30%.

Surrogate Recoveries

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

Laboratory Control Samples

The laboratory control sample (LCS) % Rs are within the laboratory control limits. Refer to matrix spike results for additional accuracy data.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) analyses were performed on sample MW-20-30. MS/MSD %Rs and RPDs are within laboratory QC criteria.

Other Quality Control Issues

No laboratory quality control issues were identified in the laboratory reports with the following discussion:

- Electronic data deliverables (EDDs) for these SDGs were provided by the laboratory and data validator qualifiers were entered (as needed) into the EDDs.

Quantitation Limits

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

Data Assessment

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

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

March 19, 2019

PES Environmental, Inc.- WA

Sample Delivery Group:	L1077796
Samples Received:	03/12/2019
Project Number:	1358.001.01.003
Description:	MVSC

Report To: Karsten Springstead
1215 Fourth Ave., Suite 1350
Seattle, WA 98161

Entire Report Reviewed By:

Brian Ford
Project Manager

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 Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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SVS-17-031119 L1077796-01 Air

Collected by: S. McKernan
Collected date/time: 03/11/19 12:15
Received date/time: 03/12/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1249216	2	03/13/19 19:48	03/13/19 19:48	AMC	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG1249912	80	03/14/19 18:20	03/14/19 18:20	AMC	Mt. Juliet, TN

SVS-11-031119 L1077796-02 Air

Collected by: S. McKernan
Collected date/time: 03/11/19 12:50
Received date/time: 03/12/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1249216	2	03/13/19 20:26	03/13/19 20:26	AMC	Mt. Juliet, TN

SVS-10-031119 L1077796-03 Air

Collected by: S. McKernan
Collected date/time: 03/11/19 13:40
Received date/time: 03/12/19 08:45

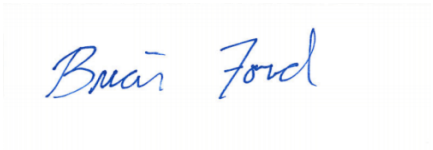
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1249216	2	03/13/19 21:03	03/13/19 21:03	AMC	Mt. Juliet, TN

SVS-14-031119 L1077796-04 Air

Collected by: S. McKernan
Collected date/time: 03/11/19 14:25
Received date/time: 03/12/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1249216	2	03/13/19 21:40	03/13/19 21:40	AMC	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, 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
Project Manager

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	4.74	11.3		2	WG1249216
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1249216
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1249216
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1249216
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1249216
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1249216
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1249216
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1249216
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1249216
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1249216
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1249216
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1249216
Chloroform	67-66-3	119	0.400	1.95	0.877	4.27		2	WG1249216
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1249216
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1249216
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1249216
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1249216
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1249216
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1249216
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1249216
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1249216
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1249216
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1249216
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1249216
cis-1,2-Dichloroethene	156-59-2	96.90	16.0	63.4	311	1230		80	WG1249912
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	10.9	43.4		2	WG1249216
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1249216
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1249216
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1249216
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1249216
Ethanol	64-17-5	46.10	1.26	2.38	19.8	37.3		2	WG1249216
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1249216
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1249216
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1249216
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	0.446	2.21		2	WG1249216
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1249216
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1249216
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1249216
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1249216
n-Hexane	110-54-3	86.20	0.400	1.41	1.65	5.83		2	WG1249216
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1249216
Methylene Chloride	75-09-2	84.90	0.400	1.39	3.61	12.5		2	WG1249216
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1249216
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	5.95	17.5		2	WG1249216
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1249216
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1249216
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1249216
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1249216
2-Propanol	67-63-0	60.10	2.50	6.15	4.63	11.4		2	WG1249216
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1249216
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1249216
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1249216
Tetrachloroethylene	127-18-4	166	16.0	109	3960	26900		80	WG1249912
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1249216
Toluene	108-88-3	92.10	0.400	1.51	1.47	5.56		2	WG1249216
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1249216

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1249216
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1249216
Trichloroethylene	79-01-6	131	0.400	2.14	59.6	319		2	WG1249216
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1249216
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1249216
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1249216
Vinyl chloride	75-01-4	62.50	0.400	1.02	17.5	44.7		2	WG1249216
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1249216
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1249216
m&p-Xylene	1330-20-7	106	0.800	3.47	0.843	3.66		2	WG1249216
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG1249216
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*93.6*				WG1249216
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*85.2*				WG1249912

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	3.19	7.59		2	WG1249216
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1249216
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1249216
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1249216
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1249216
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1249216
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1249216
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1249216
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1249216
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1249216
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1249216
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1249216
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG1249216
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1249216
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1249216
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1249216
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1249216
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1249216
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1249216
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1249216
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1249216
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1249216
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1249216
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1249216
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1249216
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1249216
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1249216
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1249216
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1249216
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1249216
Ethanol	64-17-5	46.10	1.26	2.38	4.41	8.32		2	WG1249216
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1249216
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1249216
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1249216
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	0.440	2.18		2	WG1249216
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1249216
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1249216
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1249216
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1249216
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG1249216
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1249216
Methylene Chloride	75-09-2	84.90	0.400	1.39	0.507	1.76		2	WG1249216
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1249216
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	5.50	16.2		2	WG1249216
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1249216
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1249216
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1249216
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1249216
2-Propanol	67-63-0	60.10	2.50	6.15	ND	ND		2	WG1249216
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1249216
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1249216
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1249216
Tetrachloroethylene	127-18-4	166	0.400	2.72	15.9	108		2	WG1249216
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1249216
Toluene	108-88-3	92.10	0.400	1.51	ND	ND		2	WG1249216
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1249216

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1249216
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1249216
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1249216
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1249216
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1249216
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1249216
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1249216
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1249216
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1249216
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG1249216
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG1249216
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*89.3*				WG1249216

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	4.15	9.86		2	WG1249216
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1249216
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1249216
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1249216
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1249216
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1249216
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1249216
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1249216
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1249216
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1249216
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1249216
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1249216
Chloroform	67-66-3	119	0.400	1.95	0.492	2.39		2	WG1249216
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1249216
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1249216
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1249216
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1249216
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1249216
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1249216
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1249216
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1249216
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1249216
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1249216
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1249216
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1249216
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1249216
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1249216
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1249216
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1249216
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1249216
Ethanol	64-17-5	46.10	1.26	2.38	25.7	48.5		2	WG1249216
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1249216
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1249216
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1249216
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	0.423	2.09		2	WG1249216
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1249216
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1249216
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1249216
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1249216
n-Hexane	110-54-3	86.20	0.400	1.41	1.70	5.98		2	WG1249216
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1249216
Methylene Chloride	75-09-2	84.90	0.400	1.39	3.72	12.9		2	WG1249216
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1249216
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG1249216
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1249216
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1249216
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1249216
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1249216
2-Propanol	67-63-0	60.10	2.50	6.15	5.08	12.5		2	WG1249216
Propene	115-07-1	42.10	0.800	1.38	0.883	1.52		2	WG1249216
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1249216
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1249216
Tetrachloroethylene	127-18-4	166	0.400	2.72	15.5	105		2	WG1249216
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1249216
Toluene	108-88-3	92.10	0.400	1.51	0.715	2.69		2	WG1249216
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1249216

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1249216
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1249216
Trichloroethylene	79-01-6	131	0.400	2.14	0.470	2.52		2	WG1249216
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1249216
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1249216
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1249216
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1249216
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1249216
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1249216
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG1249216
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG1249216
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*88.8*				WG1249216

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	4.17	9.90		2	WG1249216
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1249216
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1249216
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1249216
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1249216
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1249216
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1249216
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1249216
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1249216
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1249216
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1249216
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1249216
Chloroform	67-66-3	119	0.400	1.95	0.647	3.15		2	WG1249216
Chloromethane	74-87-3	50.50	0.400	0.826	0.457	0.943		2	WG1249216
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1249216
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1249216
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1249216
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1249216
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1249216
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1249216
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1249216
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1249216
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1249216
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1249216
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1249216
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1249216
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1249216
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1249216
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1249216
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1249216
Ethanol	64-17-5	46.10	1.26	2.38	22.9	43.1		2	WG1249216
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1249216
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1249216
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1249216
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	0.655	3.24		2	WG1249216
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1249216
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1249216
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1249216
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1249216
n-Hexane	110-54-3	86.20	0.400	1.41	1.32	4.67		2	WG1249216
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1249216
Methylene Chloride	75-09-2	84.90	0.400	1.39	2.49	8.63		2	WG1249216
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1249216
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG1249216
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1249216
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1249216
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1249216
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1249216
2-Propanol	67-63-0	60.10	2.50	6.15	3.63	8.92		2	WG1249216
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1249216
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1249216
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1249216
Tetrachloroethylene	127-18-4	166	0.400	2.72	1.46	9.93		2	WG1249216
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1249216
Toluene	108-88-3	92.10	0.400	1.51	0.732	2.76		2	WG1249216
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1249216

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1249216
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1249216
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1249216
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1249216
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1249216
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1249216
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1249216
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1249216
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1249216
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG1249216
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG1249216
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*88.0*				WG1249216

Method Blank (MB)

(MB) R3391159-2 03/13/19 10:07

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.0569	1.25
Allyl Chloride	U		0.0546	0.200
Benzene	U		0.0460	0.200
Benzyl Chloride	U		0.0598	0.200
Bromodichloromethane	U		0.0436	0.200
Bromoform	U		0.0786	0.600
Bromomethane	U		0.0609	0.200
1,3-Butadiene	U		0.0563	2.00
Carbon disulfide	U		0.0544	0.200
Carbon tetrachloride	U		0.0585	0.200
Chlorobenzene	U		0.0601	0.200
Chloroethane	U		0.0489	0.200
Chloroform	U		0.0574	0.200
Chloromethane	U		0.0544	0.200
2-Chlorotoluene	U		0.0605	0.200
Cyclohexane	U		0.0534	0.200
Dibromochloromethane	U		0.0494	0.200
1,2-Dibromoethane	U		0.0185	0.200
1,2-Dichlorobenzene	U		0.0603	0.200
1,3-Dichlorobenzene	U		0.0597	0.200
1,4-Dichlorobenzene	U		0.0557	0.200
1,2-Dichloroethane	U		0.0616	0.200
1,1-Dichloroethane	U		0.0514	0.200
1,1-Dichloroethene	U		0.0490	0.200
cis-1,2-Dichloroethene	U		0.0389	0.200
trans-1,2-Dichloroethene	U		0.0464	0.200
1,2-Dichloropropane	U		0.0599	0.200
cis-1,3-Dichloropropene	U		0.0588	0.200
trans-1,3-Dichloropropene	U		0.0435	0.200
1,4-Dioxane	U		0.0554	0.200
Ethylbenzene	U		0.0506	0.200
4-Ethyltoluene	U		0.0666	0.200
Trichlorofluoromethane	U		0.0673	0.200
Dichlorodifluoromethane	U		0.0601	0.200
1,1,2-Trichlorotrifluoroethane	U		0.0687	0.200
1,2-Dichlorotetrafluoroethane	U		0.0458	0.200
Heptane	U		0.0626	0.200
Hexachloro-1,3-butadiene	U		0.0656	0.630
n-Hexane	U		0.0457	0.200
Isopropylbenzene	U		0.0563	0.200

Method Blank (MB)

(MB) R3391159-2 03/13/19 10:07

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Methylene Chloride	U		0.0465	0.200
Methyl Butyl Ketone	U		0.0682	1.25
2-Butanone (MEK)	U		0.0493	1.25
4-Methyl-2-pentanone (MIBK)	U		0.0650	1.25
Methyl Methacrylate	U		0.0773	0.200
MTBE	U		0.0505	0.200
Naphthalene	U		0.154	0.630
2-Propanol	U		0.0882	1.25
Propene	U		0.0932	0.400
Styrene	U		0.0465	0.200
1,1,2,2-Tetrachloroethane	U		0.0576	0.200
Tetrachloroethylene	U		0.0497	0.200
Tetrahydrofuran	U		0.0508	0.200
Toluene	U		0.0499	0.200
1,2,4-Trichlorobenzene	U		0.148	0.630
1,1,1-Trichloroethane	U		0.0665	0.200
1,1,2-Trichloroethane	U		0.0287	0.200
Trichloroethylene	U		0.0545	0.200
1,2,4-Trimethylbenzene	U		0.0483	0.200
1,3,5-Trimethylbenzene	U		0.0631	0.200
2,2,4-Trimethylpentane	U		0.0456	0.200
Vinyl chloride	U		0.0457	0.200
Vinyl Bromide	U		0.0727	0.200
Vinyl acetate	U		0.0639	0.200
m&p-Xylene	U		0.0946	0.400
o-Xylene	U		0.0633	0.200
Ethanol	U		0.0832	0.630
(S) 1,4-Bromofluorobenzene	*88.9*			*60.0-140*

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

(LCS) R3391159-1 03/13/19 09:29 • (LCSD) R3391159-3 03/13/19 10:47

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethanol	3.75	3.85	3.84	103	102	55.0-148			0.315	25
Propene	3.75	3.51	3.63	93.6	96.8	64.0-144			3.39	25
Dichlorodifluoromethane	3.75	3.63	3.67	96.9	97.9	64.0-139			1.02	25
1,2-Dichlorotetrafluoroethane	3.75	3.57	3.62	95.2	96.5	70.0-130			1.36	25
Chloromethane	3.75	3.50	3.59	93.5	95.8	70.0-130			2.46	25

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

(LCS) R3391159-1 03/13/19 09:29 • (LCSD) R3391159-3 03/13/19 10:47

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Vinyl chloride	3.75	3.55	3.53	94.6	94.0	70.0-130			0.642	25
1,3-Butadiene	3.75	3.48	3.48	92.8	92.8	70.0-130			0.0567	25
Bromomethane	3.75	3.50	3.33	93.2	88.9	70.0-130			4.78	25
Chloroethane	3.75	3.50	3.33	93.2	88.7	70.0-130			4.94	25
Trichlorofluoromethane	3.75	3.52	3.60	94.0	96.0	70.0-130			2.10	25
1,1,2-Trichlorotrifluoroethane	3.75	3.61	3.62	96.3	96.5	70.0-130			0.196	25
1,1-Dichloroethene	3.75	3.61	3.62	96.2	96.7	70.0-130			0.519	25
1,1-Dichloroethane	3.75	3.61	3.65	96.3	97.2	70.0-130			0.987	25
Acetone	3.75	3.57	3.63	95.1	96.8	70.0-130			1.75	25
2-Propanol	3.75	3.70	3.68	98.7	98.2	70.0-139			0.435	25
Carbon disulfide	3.75	3.72	3.74	99.1	99.8	70.0-130			0.714	25
Methylene Chloride	3.75	3.46	3.49	92.3	93.1	70.0-130			0.796	25
MTBE	3.75	3.62	3.60	96.5	96.0	70.0-130			0.482	25
trans-1,2-Dichloroethene	3.75	3.61	3.60	96.4	96.1	70.0-130			0.277	25
n-Hexane	3.75	3.64	3.66	97.0	97.7	70.0-130			0.681	25
Vinyl acetate	3.75	3.67	3.71	97.8	99.0	70.0-130			1.24	25
Methyl Ethyl Ketone	3.75	3.79	3.70	101	98.8	70.0-130			2.21	25
cis-1,2-Dichloroethene	3.75	3.63	3.67	96.7	97.7	70.0-130			1.03	25
Chloroform	3.75	3.59	3.61	95.6	96.3	70.0-130			0.701	25
Cyclohexane	3.75	3.64	3.65	97.1	97.2	70.0-130			0.0949	25
1,1,1-Trichloroethane	3.75	3.60	3.59	96.0	95.8	70.0-130			0.195	25
Carbon tetrachloride	3.75	3.58	3.58	95.4	95.5	70.0-130			0.104	25
Benzene	3.75	3.67	3.71	98.0	99.0	70.0-130			1.03	25
1,2-Dichloroethane	3.75	3.60	3.64	96.0	97.2	70.0-130			1.22	25
Heptane	3.75	3.65	3.68	97.4	98.1	70.0-130			0.726	25
Trichloroethylene	3.75	3.62	3.69	96.6	98.3	70.0-130			1.75	25
1,2-Dichloropropane	3.75	3.62	3.67	96.6	98.0	70.0-130			1.38	25
1,4-Dioxane	3.75	3.63	3.74	96.9	99.7	70.0-140			2.84	25
Bromodichloromethane	3.75	3.59	3.64	95.7	97.2	70.0-130			1.54	25
cis-1,3-Dichloropropene	3.75	3.66	3.75	97.6	100	70.0-130			2.47	25
4-Methyl-2-pentanone (MIBK)	3.75	3.66	3.73	97.5	99.5	70.0-139			2.00	25
Toluene	3.75	3.66	3.71	97.6	98.9	70.0-130			1.37	25
trans-1,3-Dichloropropene	3.75	3.69	3.75	98.5	100	70.0-130			1.58	25
1,1,2-Trichloroethane	3.75	3.66	3.68	97.6	98.2	70.0-130			0.563	25
Tetrachloroethylene	3.75	3.59	3.63	95.8	96.8	70.0-130			1.07	25
Methyl Butyl Ketone	3.75	3.75	3.84	100	102	70.0-149			2.45	25
Dibromochloromethane	3.75	3.62	3.70	96.6	98.5	70.0-130			2.04	25
1,2-Dibromoethane	3.75	3.66	3.76	97.6	100	70.0-130			2.76	25
Chlorobenzene	3.75	3.64	3.70	97.1	98.8	70.0-130			1.75	25
Ethylbenzene	3.75	3.62	3.65	96.6	97.3	70.0-130			0.689	25

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

(LCS) R3391159-1 03/13/19 09:29 • (LCSD) R3391159-3 03/13/19 10:47

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
m&p-Xylene	7.50	7.24	7.34	96.5	97.9	70.0-130			1.39	25
o-Xylene	3.75	3.56	3.63	95.0	96.7	70.0-130			1.78	25
Styrene	3.75	3.65	3.70	97.4	98.7	70.0-130			1.33	25
Bromoform	3.75	3.61	3.65	96.3	97.3	70.0-130			0.956	25
1,1,2,2-Tetrachloroethane	3.75	3.65	3.71	97.3	98.8	70.0-130			1.52	25
4-Ethyltoluene	3.75	3.71	3.70	99.0	98.7	70.0-130			0.322	25
1,3,5-Trimethylbenzene	3.75	3.63	3.67	96.7	97.9	70.0-130			1.26	25
1,2,4-Trimethylbenzene	3.75	3.67	3.69	97.9	98.4	70.0-130			0.437	25
1,3-Dichlorobenzene	3.75	3.64	3.68	97.1	98.2	70.0-130			1.10	25
1,4-Dichlorobenzene	3.75	3.64	3.67	97.2	98.0	70.0-130			0.819	25
Benzyl Chloride	3.75	3.86	3.89	103	104	70.0-152			0.761	25
1,2-Dichlorobenzene	3.75	3.64	3.69	97.0	98.5	70.0-130			1.54	25
1,2,4-Trichlorobenzene	3.75	4.02	4.09	107	109	70.0-160			1.81	25
Hexachloro-1,3-butadiene	3.75	3.63	3.65	96.8	97.2	70.0-151			0.428	25
Naphthalene	3.75	4.10	4.18	109	111	70.0-159			1.81	25
Allyl Chloride	3.75	3.58	3.64	95.5	97.0	70.0-130			1.57	25
2-Chlorotoluene	3.75	3.59	3.61	95.8	96.2	70.0-130			0.330	25
Methyl Methacrylate	3.75	3.63	3.74	96.8	99.7	70.0-130			2.98	25
Tetrahydrofuran	3.75	3.71	3.68	98.9	98.0	70.0-137			0.868	25
2,2,4-Trimethylpentane	3.75	3.68	3.67	98.2	97.8	70.0-130			0.383	25
Vinyl Bromide	3.75	3.47	3.67	92.5	97.8	70.0-130			5.63	25
Isopropylbenzene	3.75	3.60	3.64	96.0	97.0	70.0-130			0.983	25
(S) 1,4-Bromofluorobenzene				*95.6*	*97.1*	*60.0-140*				

Method Blank (MB)

(MB) R3391855-2 03/14/19 10:58

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
cis-1,2-Dichloroethene	U		0.0389	0.200
Tetrachloroethylene	U		0.0497	0.200
(S) 1,4-Bromofluorobenzene	*79.5*			*60.0-140*

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

(LCS) R3391855-1 03/14/19 10:07 • (LCSD) R3391855-3 03/14/19 11:48

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
cis-1,2-Dichloroethene	3.75	3.20	3.00	85.3	80.1	70.0-130			6.30	25
Tetrachloroethylene	3.75	4.42	4.51	118	120	70.0-130			2.19	25
(S) 1,4-Bromofluorobenzene				*90.7*	*90.0*	*60.0-140*				

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, the sample preparation volume or weight values differ from the standard, 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.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
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
	The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

Pace National 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.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

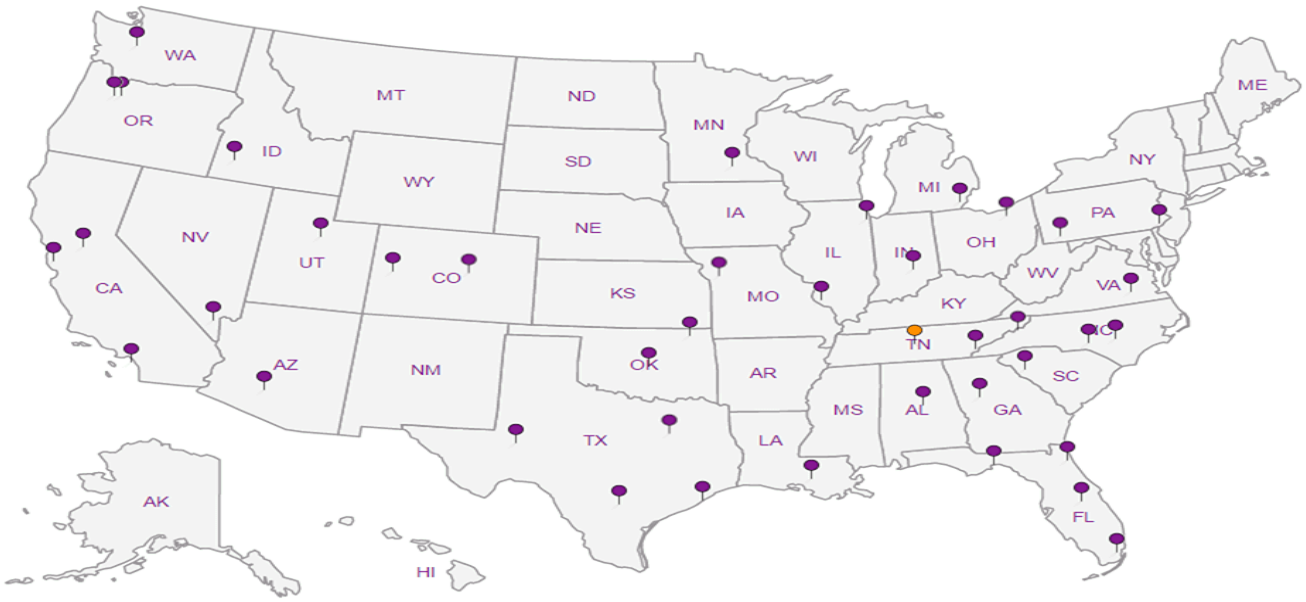
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National 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. Pace National performs all testing at our central laboratory.



Company Name/Address:
PES ENVIRONMENTAL
1215 4TH AVE #1350
SEATTLE, WA 98161

Billing Information:

Report to: MATT DAHL

Email To: MDAHL@PESENV.COM

Project Description: MVSC

City/State Collected: NORMANDY PARK, WA

Phone: 206 529 3980
Fax: 206 529 3985

Client Project # 1358.001.01.003

Lab Project #

Collected by (print): S. MCKERNAN

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No __Yes
FAX? ___No ___Yes

Canister Pressure/Vacuum

Analysis

Chain of Custody Page 1 of 1

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Tal M148

Acctnum: PESENVSWA
Template: T146923
Prelogin: P696353
TSR: Brian Ford
PB: TO 3-1-19
Shipped Via: Saver

Sample ID	Sample Description	Can #	Date	Time	Initial	Final	Rem./Contaminant	Sample # (lab only)
SVS-17-031119	SUB-SLAB AIR	6564	3/11/19	1215	30	4		01
SVS-11-031119	↓	5445	↓	1250	28	4		02
SVS-10-031119	↓	5797	↓	1340	26	4		03
SVS-14-031119	↓	5183	↓	1425	28	4		04

Remarks: 479488324293

Hold #

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	3/11/19	1605	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	3/11/19	1630	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ❑ UPS ❑ FedEx ❑ Courier ❑ _____

Temp: Amb °C Bottles Received: 4

Date: 3/12/19 Time: 0845

Condition: (lab use only)

COC Seal Intact: ___ Y ___ N ✓ NA

pH Checked: NCF:

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client:	ResenSwA	SDG#:	107796
Cooler Received/Opened On: 3 / 12 / 19		Temperature:	Amb
Received By: Eric Struck			
Signature: Eric Struck			

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	✓		
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

March 19, 2019

PES Environmental, Inc.- WA

Sample Delivery Group:	L1078104
Samples Received:	03/13/2019
Project Number:	1358.001.01.003
Description:	MVSC

Report To: Karsten Springstead
1215 Fourth Ave., Suite 1350
Seattle, WA 98161

Entire Report Reviewed By:

Brian Ford
Project Manager

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 Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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SVS-15-031119 L1078104-01 Air

Collected by: S. McKernan
Collected date/time: 03/11/19 14:45
Received date/time: 03/13/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1249323	2	03/13/19 20:26	03/13/19 20:26	AMC	Mt. Juliet, TN

SVS-16-031119 L1078104-02 Air

Collected by: S. McKernan
Collected date/time: 03/11/19 15:05
Received date/time: 03/13/19 08:45

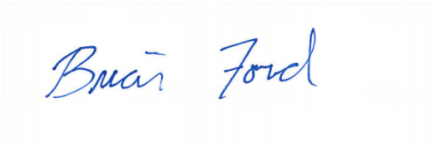
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1249323	2	03/13/19 21:15	03/13/19 21:15	AMC	Mt. Juliet, TN

SVS-13-031119 L1078104-04 Air

Collected by: S. McKernan
Collected date/time: 03/11/19 16:00
Received date/time: 03/13/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1249323	2	03/13/19 22:55	03/13/19 22:55	AMC	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG1249912	20	03/14/19 22:20	03/14/19 22:20	AMC	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, 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
Project Manager

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	4.21	10.0		2	WG1249323
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1249323
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1249323
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1249323
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1249323
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1249323
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1249323
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1249323
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1249323
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1249323
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1249323
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1249323
Chloroform	67-66-3	119	0.400	1.95	16.7	81.5		2	WG1249323
Chloromethane	74-87-3	50.50	0.400	0.826	0.595	1.23		2	WG1249323
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1249323
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1249323
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1249323
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1249323
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1249323
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1249323
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1249323
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1249323
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1249323
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1249323
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1249323
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1249323
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1249323
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1249323
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1249323
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1249323
Ethanol	64-17-5	46.10	1.26	2.38	23.4	44.2		2	WG1249323
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1249323
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1249323
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	0.863	4.85		2	WG1249323
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	1.28	6.33		2	WG1249323
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1249323
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1249323
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1249323
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1249323
n-Hexane	110-54-3	86.20	0.400	1.41	0.786	2.77		2	WG1249323
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1249323
Methylene Chloride	75-09-2	84.90	0.400	1.39	0.756	2.62		2	WG1249323
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1249323
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	6.88	20.3		2	WG1249323
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1249323
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1249323
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1249323
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1249323
2-Propanol	67-63-0	60.10	2.50	6.15	2.61	6.40		2	WG1249323
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1249323
Styrene	100-42-5	104	0.400	1.70	0.414	1.76		2	WG1249323
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1249323
Tetrachloroethylene	127-18-4	166	0.400	2.72	7.43	50.5		2	WG1249323
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1249323
Toluene	108-88-3	92.10	0.400	1.51	0.992	3.74		2	WG1249323
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1249323

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1249323
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1249323
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1249323
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	0.618	3.04		2	WG1249323
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1249323
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1249323
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1249323
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1249323
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1249323
m&p-Xylene	1330-20-7	106	0.800	3.47	0.870	3.77		2	WG1249323
o-Xylene	95-47-6	106	0.400	1.73	0.431	1.87		2	WG1249323
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*95.8*				WG1249323

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	4.09	9.72		2	WG1249323
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1249323
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1249323
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1249323
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1249323
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1249323
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1249323
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1249323
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1249323
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1249323
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1249323
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1249323
Chloroform	67-66-3	119	0.400	1.95	4.77	23.2		2	WG1249323
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1249323
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1249323
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1249323
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1249323
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1249323
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1249323
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1249323
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1249323
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1249323
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1249323
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1249323
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1249323
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1249323
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1249323
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1249323
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1249323
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1249323
Ethanol	64-17-5	46.10	1.26	2.38	14.1	26.5		2	WG1249323
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1249323
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1249323
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	1.37	7.68		2	WG1249323
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	2.02	9.99		2	WG1249323
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1249323
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1249323
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1249323
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1249323
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG1249323
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1249323
Methylene Chloride	75-09-2	84.90	0.400	1.39	1.39	4.81		2	WG1249323
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1249323
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG1249323
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1249323
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1249323
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1249323
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1249323
2-Propanol	67-63-0	60.10	2.50	6.15	ND	ND		2	WG1249323
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1249323
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1249323
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1249323
Tetrachloroethylene	127-18-4	166	0.400	2.72	54.4	369		2	WG1249323
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1249323
Toluene	108-88-3	92.10	0.400	1.51	0.439	1.65		2	WG1249323
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1249323

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1249323
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1249323
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1249323
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1249323
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1249323
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1249323
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1249323
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1249323
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1249323
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG1249323
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG1249323
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*94.6*				WG1249323

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	5.01	11.9		2	WG1249323
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1249323
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1249323
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1249323
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1249323
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1249323
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1249323
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1249323
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1249323
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1249323
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1249323
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1249323
Chloroform	67-66-3	119	0.400	1.95	33.6	163		2	WG1249323
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1249323
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1249323
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1249323
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1249323
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1249323
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1249323
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1249323
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1249323
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1249323
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1249323
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1249323
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1249323
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1249323
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1249323
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1249323
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1249323
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1249323
Ethanol	64-17-5	46.10	1.26	2.38	15.7	29.7		2	WG1249323
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1249323
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1249323
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	2.13	12.0		2	WG1249323
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	3.45	17.0		2	WG1249323
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1249323
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1249323
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1249323
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1249323
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG1249323
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1249323
Methylene Chloride	75-09-2	84.90	0.400	1.39	0.560	1.94		2	WG1249323
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1249323
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG1249323
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1249323
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1249323
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1249323
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1249323
2-Propanol	67-63-0	60.10	2.50	6.15	ND	ND		2	WG1249323
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1249323
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1249323
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1249323
Tetrachloroethylene	127-18-4	166	4.00	27.2	90.0	611		20	WG1249912
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1249323
Toluene	108-88-3	92.10	0.400	1.51	0.505	1.90		2	WG1249323
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1249323

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1249323
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1249323
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1249323
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	0.433	2.13		2	WG1249323
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1249323
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1249323
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1249323
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1249323
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1249323
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG1249323
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG1249323
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*97.3*				WG1249323
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*82.8*				WG1249912

Method Blank (MB)

(MB) R3391479-3 03/13/19 13:34

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.0569	1.25
Allyl Chloride	U		0.0546	0.200
Benzene	U		0.0460	0.200
Benzyl Chloride	U		0.0598	0.200
Bromodichloromethane	U		0.0436	0.200
Bromoform	U		0.0786	0.600
Bromomethane	U		0.0609	0.200
1,3-Butadiene	U		0.0563	2.00
Carbon disulfide	U		0.0544	0.200
Carbon tetrachloride	U		0.0585	0.200
Chlorobenzene	U		0.0601	0.200
Chloroethane	U		0.0489	0.200
Chloroform	U		0.0574	0.200
Chloromethane	U		0.0544	0.200
2-Chlorotoluene	U		0.0605	0.200
Cyclohexane	U		0.0534	0.200
Dibromochloromethane	U		0.0494	0.200
1,2-Dibromoethane	U		0.0185	0.200
1,2-Dichlorobenzene	U		0.0603	0.200
1,3-Dichlorobenzene	U		0.0597	0.200
1,4-Dichlorobenzene	U		0.0557	0.200
1,2-Dichloroethane	U		0.0616	0.200
1,1-Dichloroethane	U		0.0514	0.200
1,1-Dichloroethene	U		0.0490	0.200
cis-1,2-Dichloroethene	U		0.0389	0.200
trans-1,2-Dichloroethene	U		0.0464	0.200
1,2-Dichloropropane	U		0.0599	0.200
cis-1,3-Dichloropropene	U		0.0588	0.200
trans-1,3-Dichloropropene	U		0.0435	0.200
1,4-Dioxane	U		0.0554	0.200
Ethylbenzene	U		0.0506	0.200
4-Ethyltoluene	U		0.0666	0.200
Trichlorofluoromethane	U		0.0673	0.200
Dichlorodifluoromethane	U		0.0601	0.200
1,1,2-Trichlorotrifluoroethane	U		0.0687	0.200
1,2-Dichlorotetrafluoroethane	U		0.0458	0.200
Heptane	U		0.0626	0.200
Hexachloro-1,3-butadiene	U		0.0656	0.630
n-Hexane	U		0.0457	0.200
Isopropylbenzene	U		0.0563	0.200

Method Blank (MB)

(MB) R3391479-3 03/13/19 13:34

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Methylene Chloride	U		0.0465	0.200
Methyl Butyl Ketone	U		0.0682	1.25
2-Butanone (MEK)	U		0.0493	1.25
4-Methyl-2-pentanone (MIBK)	U		0.0650	1.25
Methyl Methacrylate	U		0.0773	0.200
MTBE	U		0.0505	0.200
Naphthalene	U		0.154	0.630
2-Propanol	U		0.0882	1.25
Propene	U		0.0932	0.400
Styrene	U		0.0465	0.200
1,1,2,2-Tetrachloroethane	U		0.0576	0.200
Tetrachloroethylene	U		0.0497	0.200
Tetrahydrofuran	U		0.0508	0.200
Toluene	U		0.0499	0.200
1,2,4-Trichlorobenzene	U		0.148	0.630
1,1,1-Trichloroethane	U		0.0665	0.200
1,1,2-Trichloroethane	U		0.0287	0.200
Trichloroethylene	U		0.0545	0.200
1,2,4-Trimethylbenzene	U		0.0483	0.200
1,3,5-Trimethylbenzene	U		0.0631	0.200
2,2,4-Trimethylpentane	U		0.0456	0.200
Vinyl chloride	U		0.0457	0.200
Vinyl Bromide	U		0.0727	0.200
Vinyl acetate	U		0.0639	0.200
m&p-Xylene	U		0.0946	0.400
o-Xylene	U		0.0633	0.200
Ethanol	U		0.0832	0.630
(S) 1,4-Bromofluorobenzene	*85.6*			*60.0-140*

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

(LCS) R3391479-1 03/13/19 09:22 • (LCSD) R3391479-2 03/13/19 10:12

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethanol	3.75	4.03	3.81	107	102	55.0-148			5.60	25
Propene	3.75	4.14	4.15	110	111	64.0-144			0.186	25
Dichlorodifluoromethane	3.75	3.96	4.00	106	107	64.0-139			0.989	25
1,2-Dichlorotetrafluoroethane	3.75	4.45	4.51	119	120	70.0-130			1.50	25
Chloromethane	3.75	4.11	4.17	110	111	70.0-130			1.50	25

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

(LCS) R3391479-1 03/13/19 09:22 • (LCSD) R3391479-2 03/13/19 10:12

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Vinyl chloride	3.75	4.06	3.98	108	106	70.0-130			1.90	25
1,3-Butadiene	3.75	4.16	4.14	111	110	70.0-130			0.481	25
Bromomethane	3.75	4.21	4.33	112	115	70.0-130			2.78	25
Chloroethane	3.75	3.90	4.09	104	109	70.0-130			4.66	25
Trichlorofluoromethane	3.75	4.06	4.11	108	110	70.0-130			1.22	25
1,1,2-Trichlorotrifluoroethane	3.75	4.04	4.11	108	110	70.0-130			1.79	25
1,1-Dichloroethene	3.75	3.93	4.06	105	108	70.0-130			3.27	25
1,1-Dichloroethane	3.75	4.03	4.10	108	109	70.0-130			1.58	25
Acetone	3.75	3.83	3.89	102	104	70.0-130			1.61	25
2-Propanol	3.75	3.82	4.03	102	107	70.0-139			5.31	25
Carbon disulfide	3.75	4.03	4.13	107	110	70.0-130			2.49	25
Methylene Chloride	3.75	3.72	3.80	99.2	101	70.0-130			2.17	25
MTBE	3.75	3.92	4.00	105	107	70.0-130			1.97	25
trans-1,2-Dichloroethene	3.75	3.92	3.91	104	104	70.0-130			0.0844	25
n-Hexane	3.75	4.00	4.13	107	110	70.0-130			3.30	25
Vinyl acetate	3.75	4.07	4.18	108	111	70.0-130			2.70	25
Methyl Ethyl Ketone	3.75	3.99	3.94	106	105	70.0-130			1.29	25
cis-1,2-Dichloroethene	3.75	4.05	4.06	108	108	70.0-130			0.222	25
Chloroform	3.75	3.98	4.09	106	109	70.0-130			2.71	25
Cyclohexane	3.75	4.10	4.14	109	110	70.0-130			1.09	25
1,1,1-Trichloroethane	3.75	3.98	4.06	106	108	70.0-130			2.18	25
Carbon tetrachloride	3.75	3.98	4.09	106	109	70.0-130			2.54	25
Benzene	3.75	4.00	4.06	107	108	70.0-130			1.73	25
1,2-Dichloroethane	3.75	3.92	3.95	104	105	70.0-130			0.955	25
Heptane	3.75	4.03	4.12	107	110	70.0-130			2.31	25
Trichloroethylene	3.75	3.93	3.90	105	104	70.0-130			0.687	25
1,2-Dichloropropane	3.75	4.04	4.08	108	109	70.0-130			0.927	25
1,4-Dioxane	3.75	3.78	3.90	101	104	70.0-140			3.12	25
Bromodichloromethane	3.75	4.02	4.13	107	110	70.0-130			2.85	25
cis-1,3-Dichloropropene	3.75	4.03	4.13	108	110	70.0-130			2.46	25
4-Methyl-2-pentanone (MIBK)	3.75	4.00	4.11	107	110	70.0-139			2.81	25
Toluene	3.75	4.19	4.24	112	113	70.0-130			1.28	25
trans-1,3-Dichloropropene	3.75	4.01	4.11	107	110	70.0-130			2.52	25
1,1,2-Trichloroethane	3.75	4.16	4.17	111	111	70.0-130			0.0905	25
Tetrachloroethylene	3.75	4.07	4.13	108	110	70.0-130			1.61	25
Methyl Butyl Ketone	3.75	4.08	4.18	109	111	70.0-149			2.54	25
Dibromochloromethane	3.75	4.10	4.14	109	111	70.0-130			1.12	25
1,2-Dibromoethane	3.75	4.12	4.12	110	110	70.0-130			0.123	25
Chlorobenzene	3.75	4.21	4.23	112	113	70.0-130			0.537	25
Ethylbenzene	3.75	4.07	4.09	108	109	70.0-130			0.587	25

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

(LCS) R3391479-1 03/13/19 09:22 • (LCSD) R3391479-2 03/13/19 10:12

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
m&p-Xylene	7.50	8.09	8.18	108	109	70.0-130			1.05	25
o-Xylene	3.75	4.06	4.15	108	111	70.0-130			2.22	25
Styrene	3.75	4.10	4.16	109	111	70.0-130			1.47	25
Bromoform	3.75	4.10	4.13	109	110	70.0-130			0.699	25
1,1,2,2-Tetrachloroethane	3.75	4.00	4.08	107	109	70.0-130			1.94	25
4-Ethyltoluene	3.75	4.07	4.16	109	111	70.0-130			2.13	25
1,3,5-Trimethylbenzene	3.75	3.85	3.92	103	105	70.0-130			1.83	25
1,2,4-Trimethylbenzene	3.75	3.95	4.00	105	107	70.0-130			1.21	25
1,3-Dichlorobenzene	3.75	4.18	4.19	112	112	70.0-130			0.219	25
1,4-Dichlorobenzene	3.75	4.16	4.11	111	110	70.0-130			1.05	25
Benzyl Chloride	3.75	4.09	4.25	109	113	70.0-152			3.82	25
1,2-Dichlorobenzene	3.75	4.10	4.09	109	109	70.0-130			0.195	25
1,2,4-Trichlorobenzene	3.75	4.20	4.27	112	114	70.0-160			1.59	25
Hexachloro-1,3-butadiene	3.75	3.85	3.92	103	104	70.0-151			1.82	25
Naphthalene	3.75	4.21	4.36	112	116	70.0-159			3.45	25
Allyl Chloride	3.75	3.94	4.10	105	109	70.0-130			4.07	25
2-Chlorotoluene	3.75	3.92	4.03	105	107	70.0-130			2.69	25
Methyl Methacrylate	3.75	3.94	4.02	105	107	70.0-130			2.11	25
Tetrahydrofuran	3.75	3.91	4.05	104	108	70.0-137			3.41	25
2,2,4-Trimethylpentane	3.75	4.14	4.23	110	113	70.0-130			2.20	25
Vinyl Bromide	3.75	4.21	4.16	112	111	70.0-130			1.30	25
Isopropylbenzene	3.75	3.98	4.02	106	107	70.0-130			0.962	25
(S) 1,4-Bromofluorobenzene				*100*	*101*	*60.0-140*				

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

Method Blank (MB)

(MB) R3391855-2 03/14/19 10:58

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Tetrachloroethylene	U		0.0497	0.200
(S) 1,4-Bromofluorobenzene	*79.5*			*60.0-140*

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

(LCS) R3391855-1 03/14/19 10:07 • (LCSD) R3391855-3 03/14/19 11:48

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Tetrachloroethylene	3.75	4.42	4.51	118	120	70.0-130			2.19	25
(S) 1,4-Bromofluorobenzene				*90.7*	*90.0*	*60.0-140*				

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

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, the sample preparation volume or weight values differ from the standard, 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.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
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
	The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

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* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

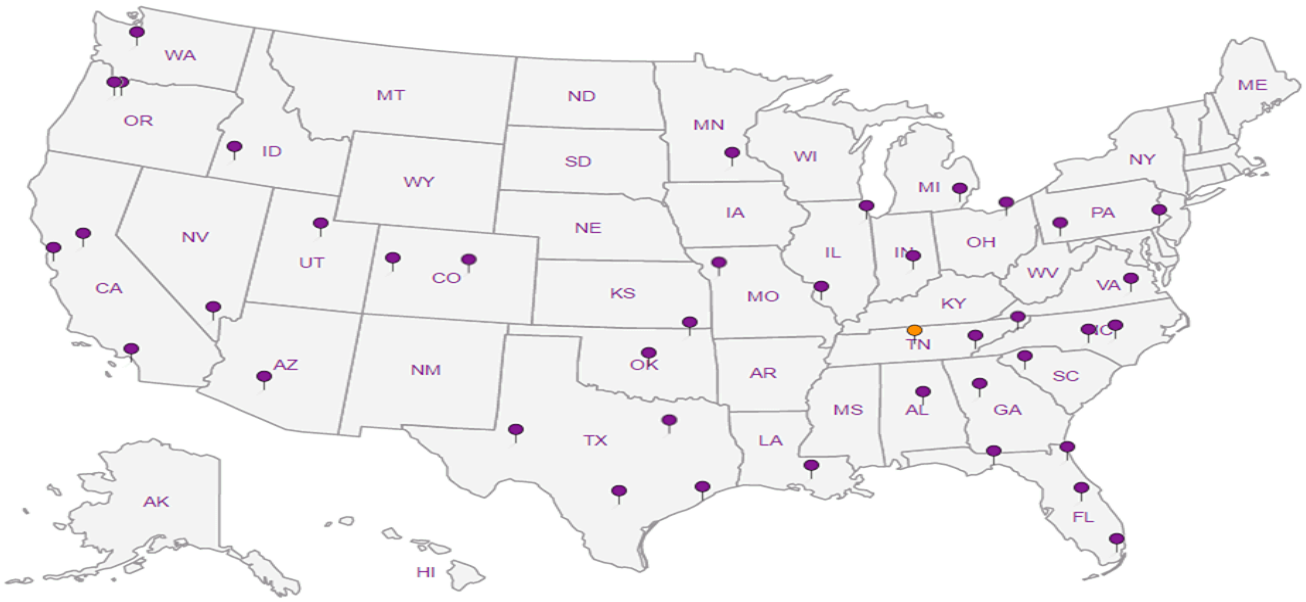
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National 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. Pace National performs all testing at our central laboratory.



Chain of Custody Page 1 of 1

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 1078104

M173

Acctnum: PESENVSWA
Template: T146923
Prelogin: P696353
TSR: 110 - Brian Ford
PB: TB 3-1-19
Shipped Via: FedEX Saver

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; mdahl@pesenv.com; cdeboer@pesenv.com

Project Description: MVSC

City/State Collected: NORMANDY PARK, WA

Phone: 206-529-3980
Fax: 206-529-3985

Client Project # 1358.001.01.003

Lab Project # PESENVSWA-MVSC

Collected by (print): S. MCKERNAN

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ___

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

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TO-15 Summa	Remarks	Sample # (lab only)
SVS-15-031119	GRAB	Air	NA	3/11/19	1445	1	X		-01
SVS-16-031119		Air			1505	1	X		02
SVS-12-031119		Air			1530	1	X		03
SVS-13-031119		Air			1600	1	X		04
		Air							
		Air							
		Air							
		Air							

Pres Chk

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier __ _____

Tracking # 4794 8832 4306

Sample Receipt Checklist
COC Seal Present/Intact: __NP __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

	Date:	Time:
Relinquished by : (Signature)	3/11/19	1605
Relinquished by : (Signature)	3/11/19	1638
Relinquished by : (Signature)		

Received by: (Signature)

Received by: (Signature)

Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: Amb °C Bottles Received: 4

Date: 3/13/19 Time: 0845

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

MEMORANDUM

TO: Project File **DATE:** April 2, 2019

FROM: Jessie Compeau

SUBJECT: Laboratory Data Validation Review

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

PROJECT #: 1358.001.01.009

TASK: EIM Data Validation Level EPA2A – March 11, 2019 Soil Gas Samples

LAB: Pace Analytical Sample Delivery Groups (SDGs): L1078104 and L1077796

Eight (8) soil gas samples were collected on March 11, 2019 as part of an ongoing remedial actions at the Manhattan Village Shopping Center in Normandy Park, Washington. One soil gas sample was canceled as described below. The remaining samples were analyzed for 67 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 Pace Analytical (Pace) of Mt. Juliet, Tennessee. Analytical data are reported under Pace's SDGs L1078104 and L1077796.

The quality assurance review of the laboratory data for Pace SDGs L1078104 and L1077796 are summarized below.

DATA QUALIFICATIONS

Guidelines established by USEPA for a limited data validation 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

The samples were collected and analyzed as requested. No concerns, issues, or anomalies were identified in the laboratory report with the following discussion:

- SDG L1077796: A Cooler Receipt Form is included with this SDG, but this form is not included with SDG L1078104. No action is taken other than to note that both SDGs were received in good condition.

- SDG L1078104: PES cancelled the analysis request for sample SVS-12-031119 because the laboratory supplied flow controller leaked during sample collection. The laboratory evaluated the equipment and confirmed that ambient air had leaked into the sample. Sample SVS-12-031119 VOC results are not reported because the results are not representative of sub-slab conditions.

Sample Collection and Preservation

The laboratory supplied Summa canisters (1-Liter) for the air samples. The samples were shipped, delivered by FedEx, and received in good condition by the laboratory. The samples were collected, handled, and delivered in an appropriate manner. Review of the Cooler Receipt Form on SDG L1077796 indicates that signed chain of custody seals were not placed on the exterior of the summa canister shipping box. No action is taken other than to note that the samples were received in good condition. No data qualifications were warranted based upon sampling and preservation techniques.

Holding Times

The analyses for VOCs by Method TO-15 were performed within the 30-day recommended holding time limit for the air samples collected in a Summa canister. Date of analyses are not reported with the results. Refer to the method blank results for date of analysis. 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 reporting detection limit (RDLs).

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 samples, method blanks, and laboratory control samples are within the laboratory surrogate control limits of 60 - 140% R. No data qualifications were warranted.

Laboratory Control Samples

Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) were analyzed for the VOCs by TO-15 along with each analytical batch. LCS/LCSD %Rs and relative percent differences (RPDs) are within QC criteria.

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 are reported based on laboratory RDLs (assuming standard temperature and pressure is equal to 24.45) and reported in units of ppbv and $\mu g/m^3$.

The RDLs indicate the minimum quantity of a target analyte that can be confidently determined by the reference method. For selected samples the RDLs for tetrachloroethene and cis-1,2-dichloroethene are elevated due to a method-required dilution. The RDLs were acceptable for the project; therefore, no data qualifications were warranted.

Data Assessment

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

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

June 10, 2019

PES Environmental, Inc.- WA

Sample Delivery Group:	L1105041
Samples Received:	06/04/2019
Project Number:	1358.001.01.009
Description:	MVSC
Site:	1358.001.01.009
Report To:	Karsten Springstead 1215 Fourth Ave., Suite 1350 Seattle, WA 98161

Entire Report Reviewed By:

Brian Ford
Project Manager

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 Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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SVS-12-060319 L1105041-01 Air

Collected by: Shannon McKernan | Collected date/time: 06/03/19 10:00 | Received date/time: 06/04/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1292009	2	06/06/19 13:45	06/06/19 13:45	AMC	Mt. Juliet, TN

SVS-13-060319 L1105041-02 Air

Collected by: Shannon McKernan | Collected date/time: 06/03/19 10:27 | Received date/time: 06/04/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1292009	2	06/06/19 14:30	06/06/19 14:30	AMC	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG1292656	25	06/07/19 22:26	06/07/19 22:26	AMC	Mt. Juliet, TN

SVS-14-060319 L1105041-03 Air

Collected by: Shannon McKernan | Collected date/time: 06/03/19 11:00 | Received date/time: 06/04/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1292009	2	06/06/19 15:14	06/06/19 15:14	AMC	Mt. Juliet, TN

SVS-15-060319 L1105041-04 Air

Collected by: Shannon McKernan | Collected date/time: 06/03/19 11:32 | Received date/time: 06/04/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1292009	2	06/06/19 16:00	06/06/19 16:00	AMC	Mt. Juliet, TN

SVS-17-060319 L1105041-05 Air

Collected by: Shannon McKernan | Collected date/time: 06/03/19 13:33 | Received date/time: 06/04/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1292009	2	06/06/19 16:46	06/06/19 16:46	AMC	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG1292656	80	06/07/19 23:07	06/07/19 23:07	AMC	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG1293152	1000	06/08/19 11:31	06/08/19 11:31	AMC	Mt. Juliet, TN

SVS-11-060319 L1105041-06 Air

Collected by: Shannon McKernan | Collected date/time: 06/03/19 14:15 | Received date/time: 06/04/19 08:45

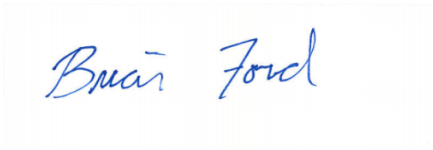
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1292009	2	06/06/19 17:31	06/06/19 17:31	AMC	Mt. Juliet, TN

SVS-10-060319 L1105041-07 Air

Collected by: Shannon McKernan | Collected date/time: 06/03/19 14:39 | Received date/time: 06/04/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1292009	2	06/06/19 18:14	06/06/19 18:14	AMC	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, 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
Project Manager

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	18.8	44.7		2	WG1292009
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1292009
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1292009
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1292009
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1292009
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1292009
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1292009
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1292009
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1292009
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1292009
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1292009
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1292009
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG1292009
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1292009
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1292009
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1292009
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1292009
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1292009
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1292009
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1292009
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1292009
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1292009
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1292009
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1292009
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1292009
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1292009
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1292009
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1292009
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1292009
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1292009
Ethanol	64-17-5	46.10	1.26	2.38	38.1	71.8		2	WG1292009
Ethylbenzene	100-41-4	106	0.400	1.73	0.621	2.69		2	WG1292009
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1292009
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	2.73	15.4		2	WG1292009
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	3.84	19.0		2	WG1292009
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1292009
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1292009
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1292009
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1292009
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG1292009
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1292009
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG1292009
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1292009
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	2.65	7.83		2	WG1292009
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1292009
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1292009
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1292009
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1292009
2-Propanol	67-63-0	60.10	2.50	6.15	ND	ND		2	WG1292009
Propene	115-07-1	42.10	0.800	1.38	0.906	1.56		2	WG1292009
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1292009
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1292009
Tetrachloroethylene	127-18-4	166	0.400	2.72	54.1	367		2	WG1292009
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1292009
Toluene	108-88-3	92.10	0.400	1.51	2.00	7.52		2	WG1292009
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1292009

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1292009
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1292009
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1292009
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	2.75	13.5		2	WG1292009
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	1.03	5.07		2	WG1292009
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1292009
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1292009
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1292009
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1292009
m&p-Xylene	1330-20-7	106	0.800	3.47	3.21	13.9		2	WG1292009
o-Xylene	95-47-6	106	0.400	1.73	1.79	7.78		2	WG1292009
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*101*				WG1292009

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	19.3	45.8		2	WG1292009
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1292009
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1292009
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1292009
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1292009
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1292009
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1292009
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1292009
Carbon disulfide	75-15-0	76.10	0.400	1.24	0.413	1.28		2	WG1292009
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1292009
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1292009
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1292009
Chloroform	67-66-3	119	0.400	1.95	0.410	1.99		2	WG1292009
Chloromethane	74-87-3	50.50	0.400	0.826	1.72	3.56		2	WG1292009
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1292009
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1292009
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1292009
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1292009
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1292009
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1292009
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1292009
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1292009
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1292009
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1292009
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1292009
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1292009
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1292009
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1292009
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1292009
1,4-Dioxane	123-91-1	88.10	0.400	1.44	0.700	2.52		2	WG1292009
Ethanol	64-17-5	46.10	1.26	2.38	17.9	33.8		2	WG1292009
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1292009
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1292009
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	5.66	31.8		2	WG1292009
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	8.59	42.5		2	WG1292009
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1292009
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1292009
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1292009
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1292009
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG1292009
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1292009
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG1292009
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1292009
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	2.71	8.00		2	WG1292009
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1292009
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1292009
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1292009
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1292009
2-Propanol	67-63-0	60.10	2.50	6.15	4.84	11.9		2	WG1292009
Propene	115-07-1	42.10	0.800	1.38	1.39	2.40		2	WG1292009
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1292009
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1292009
Tetrachloroethylene	127-18-4	166	5.00	33.9	221	1500		25	WG1292656
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	0.793	2.34		2	WG1292009
Toluene	108-88-3	92.10	0.400	1.51	1.06	4.00		2	WG1292009
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1292009

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

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1292009
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1292009
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1292009
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1292009
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1292009
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1292009
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1292009
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1292009
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1292009
m&p-Xylene	1330-20-7	106	0.800	3.47	1.15	4.98		2	WG1292009
o-Xylene	95-47-6	106	0.400	1.73	0.509	2.21		2	WG1292009
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*99.8*				WG1292009
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*88.6*				WG1292656

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	18.8	44.7		2	WG1292009
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1292009
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1292009
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1292009
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1292009
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1292009
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1292009
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1292009
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1292009
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1292009
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1292009
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1292009
Chloroform	67-66-3	119	0.400	1.95	0.674	3.28		2	WG1292009
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1292009
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1292009
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1292009
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1292009
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1292009
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1292009
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1292009
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1292009
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1292009
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1292009
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1292009
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1292009
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1292009
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1292009
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1292009
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1292009
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1292009
Ethanol	64-17-5	46.10	1.26	2.38	21.8	41.0		2	WG1292009
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1292009
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1292009
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	2.04	11.5		2	WG1292009
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	3.14	15.5		2	WG1292009
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1292009
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1292009
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1292009
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1292009
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG1292009
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1292009
Methylene Chloride	75-09-2	84.90	0.400	1.39	1.72	5.99		2	WG1292009
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1292009
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	2.52	7.43		2	WG1292009
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1292009
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1292009
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1292009
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1292009
2-Propanol	67-63-0	60.10	2.50	6.15	3.08	7.58		2	WG1292009
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1292009
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1292009
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1292009
Tetrachloroethylene	127-18-4	166	0.400	2.72	24.8	168		2	WG1292009
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1292009
Toluene	108-88-3	92.10	0.400	1.51	1.06	4.00		2	WG1292009
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1292009

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1292009
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1292009
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1292009
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1292009
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1292009
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1292009
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1292009
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1292009
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1292009
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG1292009
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG1292009
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*96.6*				WG1292009

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	4.54	10.8		2	WG1292009
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1292009
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1292009
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1292009
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1292009
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1292009
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1292009
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1292009
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1292009
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1292009
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1292009
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1292009
Chloroform	67-66-3	119	0.400	1.95	0.435	2.12		2	WG1292009
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1292009
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1292009
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1292009
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1292009
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1292009
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1292009
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1292009
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1292009
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1292009
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1292009
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1292009
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1292009
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1292009
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1292009
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1292009
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1292009
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1292009
Ethanol	64-17-5	46.10	1.26	2.38	18.2	34.4		2	WG1292009
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1292009
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1292009
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	1.13	6.35		2	WG1292009
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	1.63	8.09		2	WG1292009
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1292009
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1292009
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1292009
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1292009
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG1292009
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1292009
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG1292009
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1292009
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG1292009
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1292009
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1292009
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1292009
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1292009
2-Propanol	67-63-0	60.10	2.50	6.15	ND	ND		2	WG1292009
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1292009
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1292009
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1292009
Tetrachloroethylene	127-18-4	166	0.400	2.72	17.0	115		2	WG1292009
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1292009
Toluene	108-88-3	92.10	0.400	1.51	1.25	4.72		2	WG1292009
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1292009

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1292009
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1292009
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1292009
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1292009
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1292009
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1292009
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1292009
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1292009
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1292009
m&p-Xylene	1330-20-7	106	0.800	3.47	0.856	3.71		2	WG1292009
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG1292009
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*95.5*				WG1292009

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	4.27	10.2		2	WG1292009
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1292009
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1292009
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1292009
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1292009
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1292009
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1292009
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1292009
Carbon disulfide	75-15-0	76.10	0.400	1.24	11.4	35.6		2	WG1292009
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1292009
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1292009
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1292009
Chloroform	67-66-3	119	0.400	1.95	3.31	16.1		2	WG1292009
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1292009
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1292009
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1292009
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1292009
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1292009
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	0.589	3.54		2	WG1292009
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1292009
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1292009
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1292009
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1292009
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	0.564	2.24		2	WG1292009
cis-1,2-Dichloroethene	156-59-2	96.90	16.0	63.4	2170	8600		80	WG1292656
trans-1,2-Dichloroethene	156-60-5	96.90	16.0	63.4	131	519		80	WG1292656
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1292009
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1292009
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1292009
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1292009
Ethanol	64-17-5	46.10	1.26	2.38	3.51	6.61		2	WG1292009
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1292009
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1292009
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1292009
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	ND	ND		2	WG1292009
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1292009
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1292009
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1292009
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1292009
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG1292009
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1292009
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG1292009
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1292009
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG1292009
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1292009
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1292009
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1292009
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1292009
2-Propanol	67-63-0	60.10	2.50	6.15	ND	ND		2	WG1292009
Propene	115-07-1	42.10	0.800	1.38	8.72	15.0		2	WG1292009
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1292009
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1292009
Tetrachloroethylene	127-18-4	166	200	1360	15400	104000		1000	WG1293152
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1292009
Toluene	108-88-3	92.10	0.400	1.51	1.02	3.84		2	WG1292009
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1292009

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1292009
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1292009
Trichloroethylene	79-01-6	131	16.0	85.7	614	3290		80	WG1292656
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1292009
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1292009
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1292009
Vinyl chloride	75-01-4	62.50	0.400	1.02	8.38	21.4		2	WG1292009
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1292009
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1292009
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG1292009
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG1292009
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*101*				WG1292009
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*92.8*				WG1292656
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*89.9*				WG1293152

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	6.05	14.4		2	WG1292009
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1292009
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1292009
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1292009
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1292009
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1292009
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1292009
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1292009
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1292009
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1292009
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1292009
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1292009
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG1292009
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1292009
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1292009
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1292009
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1292009
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1292009
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1292009
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1292009
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1292009
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1292009
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1292009
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1292009
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	3.78	15.0		2	WG1292009
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1292009
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1292009
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1292009
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1292009
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1292009
Ethanol	64-17-5	46.10	1.26	2.38	5.04	9.50		2	WG1292009
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1292009
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1292009
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1292009
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	0.401	1.98		2	WG1292009
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1292009
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1292009
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1292009
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1292009
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG1292009
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1292009
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG1292009
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1292009
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG1292009
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1292009
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1292009
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1292009
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1292009
2-Propanol	67-63-0	60.10	2.50	6.15	8.19	20.1		2	WG1292009
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1292009
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1292009
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1292009
Tetrachloroethylene	127-18-4	166	0.400	2.72	79.1	537		2	WG1292009
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1292009
Toluene	108-88-3	92.10	0.400	1.51	0.538	2.02		2	WG1292009
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1292009

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	0.942	5.12		2	WG1292009
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1292009
Trichloroethylene	79-01-6	131	0.400	2.14	1.05	5.64		2	WG1292009
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1292009
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1292009
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1292009
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1292009
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1292009
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1292009
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG1292009
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG1292009
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*94.3*				WG1292009

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	23.7	56.4		2	WG1292009
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1292009
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1292009
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1292009
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1292009
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1292009
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1292009
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1292009
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1292009
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1292009
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1292009
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1292009
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG1292009
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1292009
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1292009
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1292009
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1292009
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1292009
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1292009
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1292009
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1292009
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1292009
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1292009
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1292009
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1292009
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1292009
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1292009
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1292009
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1292009
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1292009
Ethanol	64-17-5	46.10	1.26	2.38	11.9	22.4		2	WG1292009
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1292009
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1292009
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1292009
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	0.403	1.99		2	WG1292009
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1292009
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1292009
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1292009
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1292009
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG1292009
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1292009
Methylene Chloride	75-09-2	84.90	0.400	1.39	1.23	4.26		2	WG1292009
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1292009
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG1292009
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1292009
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1292009
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1292009
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1292009
2-Propanol	67-63-0	60.10	2.50	6.15	ND	ND		2	WG1292009
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1292009
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1292009
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1292009
Tetrachloroethylene	127-18-4	166	0.400	2.72	71.4	485		2	WG1292009
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1292009
Toluene	108-88-3	92.10	0.400	1.51	1.66	6.24		2	WG1292009
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1292009

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1292009
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1292009
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1292009
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1292009
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1292009
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1292009
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1292009
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1292009
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1292009
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG1292009
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG1292009
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*96.0*				WG1292009

Method Blank (MB)

(MB) R3418527-3 06/06/19 11:30

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.0569	1.25
Allyl Chloride	U		0.0546	0.200
Benzene	U		0.0460	0.200
Benzyl Chloride	U		0.0598	0.200
Bromodichloromethane	U		0.0436	0.200
Bromoform	U		0.0786	0.600
Bromomethane	U		0.0609	0.200
1,3-Butadiene	U		0.0563	2.00
Carbon disulfide	U		0.0544	0.200
Carbon tetrachloride	U		0.0585	0.200
Chlorobenzene	U		0.0601	0.200
Chloroethane	U		0.0489	0.200
Chloroform	U		0.0574	0.200
Chloromethane	U		0.0544	0.200
2-Chlorotoluene	U		0.0605	0.200
Cyclohexane	U		0.0534	0.200
Dibromochloromethane	U		0.0494	0.200
1,2-Dibromoethane	U		0.0185	0.200
1,2-Dichlorobenzene	U		0.0603	0.200
1,3-Dichlorobenzene	U		0.0597	0.200
1,4-Dichlorobenzene	U		0.0557	0.200
1,2-Dichloroethane	U		0.0616	0.200
1,1-Dichloroethane	U		0.0514	0.200
1,1-Dichloroethene	U		0.0490	0.200
cis-1,2-Dichloroethene	U		0.0389	0.200
trans-1,2-Dichloroethene	U		0.0464	0.200
1,2-Dichloropropane	U		0.0599	0.200
cis-1,3-Dichloropropene	U		0.0588	0.200
trans-1,3-Dichloropropene	U		0.0435	0.200
1,4-Dioxane	U		0.0554	0.200
Ethylbenzene	U		0.0506	0.200
4-Ethyltoluene	U		0.0666	0.200
Trichlorofluoromethane	U		0.0673	0.200
Dichlorodifluoromethane	U		0.0601	0.200
1,1,2-Trichlorotrifluoroethane	U		0.0687	0.200
1,2-Dichlorotetrafluoroethane	U		0.0458	0.200
Heptane	U		0.0626	0.200
Hexachloro-1,3-butadiene	U		0.0656	0.630
n-Hexane	U		0.0457	0.200
Isopropylbenzene	U		0.0563	0.200

Method Blank (MB)

(MB) R3418527-3 06/06/19 11:30

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Methylene Chloride	U		0.0465	0.200
Methyl Butyl Ketone	U		0.0682	1.25
2-Butanone (MEK)	U		0.0493	1.25
4-Methyl-2-pentanone (MIBK)	U		0.0650	1.25
Methyl Methacrylate	U		0.0773	0.200
MTBE	U		0.0505	0.200
Naphthalene	U		0.154	0.630
2-Propanol	U		0.0882	1.25
Propene	U		0.0932	0.400
Styrene	U		0.0465	0.200
1,1,2,2-Tetrachloroethane	U		0.0576	0.200
Tetrachloroethylene	U		0.0497	0.200
Tetrahydrofuran	U		0.0508	0.200
Toluene	U		0.0499	0.200
1,2,4-Trichlorobenzene	U		0.148	0.630
1,1,1-Trichloroethane	U		0.0665	0.200
1,1,2-Trichloroethane	U		0.0287	0.200
Trichloroethylene	U		0.0545	0.200
1,2,4-Trimethylbenzene	U		0.0483	0.200
1,3,5-Trimethylbenzene	U		0.0631	0.200
2,2,4-Trimethylpentane	U		0.0456	0.200
Vinyl chloride	U		0.0457	0.200
Vinyl Bromide	U		0.0727	0.200
Vinyl acetate	U		0.0639	0.200
m&p-Xylene	U		0.0946	0.400
o-Xylene	U		0.0633	0.200
Ethanol	U		0.0832	0.630
(S) 1,4-Bromofluorobenzene	*95.7*			*60.0-140*

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

(LCS) R3418527-1 06/06/19 09:03 • (LCSD) R3418527-2 06/06/19 09:48

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethanol	3.75	3.96	3.61	106	96.3	55.0-148			9.12	25
Propene	3.75	4.09	4.00	109	107	64.0-144			2.26	25
Dichlorodifluoromethane	3.75	4.20	3.99	112	106	64.0-139			5.30	25
1,2-Dichlorotetrafluoroethane	3.75	4.13	4.13	110	110	70.0-130			0.0983	25
Chloromethane	3.75	4.14	4.03	110	107	70.0-130			2.75	25

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

(LCS) R3418527-1 06/06/19 09:03 • (LCSD) R3418527-2 06/06/19 09:48

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Vinyl chloride	3.75	3.85	3.89	103	104	70.0-130			0.919	25
1,3-Butadiene	3.75	4.10	4.08	109	109	70.0-130			0.441	25
Bromomethane	3.75	3.83	3.74	102	99.8	70.0-130			2.27	25
Chloroethane	3.75	3.95	3.96	105	106	70.0-130			0.377	25
Trichlorofluoromethane	3.75	4.09	3.82	109	102	70.0-130			6.85	25
1,1,2-Trichlorotrifluoroethane	3.75	3.80	3.76	101	100	70.0-130			1.22	25
1,1-Dichloroethene	3.75	3.87	3.80	103	101	70.0-130			1.96	25
1,1-Dichloroethane	3.75	3.85	3.80	103	101	70.0-130			1.49	25
Acetone	3.75	3.88	3.76	104	100	70.0-130			3.16	25
2-Propanol	3.75	3.97	3.86	106	103	70.0-139			2.66	25
Carbon disulfide	3.75	3.83	3.77	102	100	70.0-130			1.61	25
Methylene Chloride	3.75	3.68	3.63	98.1	96.7	70.0-130			1.41	25
MTBE	3.75	3.87	3.79	103	101	70.0-130			2.32	25
trans-1,2-Dichloroethene	3.75	3.82	3.75	102	100	70.0-130			1.89	25
n-Hexane	3.75	3.86	3.80	103	101	70.0-130			1.57	25
Vinyl acetate	3.75	3.94	3.75	105	100	70.0-130			4.79	25
Methyl Ethyl Ketone	3.75	3.97	3.93	106	105	70.0-130			1.06	25
cis-1,2-Dichloroethene	3.75	3.91	3.83	104	102	70.0-130			2.06	25
Chloroform	3.75	3.81	3.77	102	101	70.0-130			1.13	25
Cyclohexane	3.75	3.77	3.75	100	100	70.0-130			0.419	25
1,1,1-Trichloroethane	3.75	3.89	3.81	104	102	70.0-130			2.02	25
Carbon tetrachloride	3.75	3.90	3.84	104	102	70.0-130			1.55	25
Benzene	3.75	3.82	3.80	102	101	70.0-130			0.665	25
1,2-Dichloroethane	3.75	3.93	3.88	105	103	70.0-130			1.44	25
Heptane	3.75	3.94	3.93	105	105	70.0-130			0.259	25
Trichloroethylene	3.75	3.77	3.77	101	101	70.0-130			0.104	25
1,2-Dichloropropane	3.75	3.86	3.86	103	103	70.0-130			0.136	25
1,4-Dioxane	3.75	3.95	3.95	105	105	70.0-140			0.0882	25
Bromodichloromethane	3.75	3.87	3.85	103	103	70.0-130			0.633	25
cis-1,3-Dichloropropene	3.75	3.92	3.90	105	104	70.0-130			0.550	25
4-Methyl-2-pentanone (MIBK)	3.75	4.10	4.05	109	108	70.0-139			1.13	25
Toluene	3.75	3.86	3.86	103	103	70.0-130			0.120	25
trans-1,3-Dichloropropene	3.75	3.98	3.99	106	107	70.0-130			0.473	25
1,1,2-Trichloroethane	3.75	3.81	3.84	102	102	70.0-130			0.915	25
Tetrachloroethylene	3.75	3.85	3.83	103	102	70.0-130			0.402	25
Methyl Butyl Ketone	3.75	4.19	4.12	112	110	70.0-149			1.55	25
Dibromochloromethane	3.75	3.96	3.95	105	105	70.0-130			0.138	25
1,2-Dibromoethane	3.75	3.91	3.92	104	105	70.0-130			0.206	25
Chlorobenzene	3.75	3.86	3.86	103	103	70.0-130			0.107	25
Ethylbenzene	3.75	3.88	3.87	103	103	70.0-130			0.0554	25

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

(LCS) R3418527-1 06/06/19 09:03 • (LCSD) R3418527-2 06/06/19 09:48

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
m&p-Xylene	7.50	7.60	7.55	101	101	70.0-130			0.686	25
o-Xylene	3.75	3.95	3.93	105	105	70.0-130			0.550	25
Styrene	3.75	3.99	3.97	106	106	70.0-130			0.510	25
Bromoform	3.75	4.01	4.00	107	107	70.0-130			0.379	25
1,1,2,2-Tetrachloroethane	3.75	3.92	3.93	105	105	70.0-130			0.257	25
4-Ethyltoluene	3.75	3.98	3.93	106	105	70.0-130			1.16	25
1,3,5-Trimethylbenzene	3.75	3.95	3.90	105	104	70.0-130			1.38	25
1,2,4-Trimethylbenzene	3.75	4.01	3.96	107	106	70.0-130			1.08	25
1,3-Dichlorobenzene	3.75	4.11	4.03	110	108	70.0-130			1.98	25
1,4-Dichlorobenzene	3.75	4.18	4.08	112	109	70.0-130			2.60	25
Benzyl Chloride	3.75	4.32	4.23	115	113	70.0-152			2.19	25
1,2-Dichlorobenzene	3.75	3.99	3.95	107	105	70.0-130			1.04	25
1,2,4-Trichlorobenzene	3.75	4.44	4.36	118	116	70.0-160			1.88	25
Hexachloro-1,3-butadiene	3.75	4.11	4.08	109	109	70.0-151			0.525	25
Naphthalene	3.75	4.45	4.32	119	115	70.0-159			2.79	25
Allyl Chloride	3.75	3.89	3.78	104	101	70.0-130			3.05	25
2-Chlorotoluene	3.75	3.92	3.89	105	104	70.0-130			0.788	25
Methyl Methacrylate	3.75	4.05	3.97	108	106	70.0-130			2.09	25
Tetrahydrofuran	3.75	3.99	3.94	106	105	70.0-137			1.43	25
2,2,4-Trimethylpentane	3.75	3.91	3.85	104	103	70.0-130			1.54	25
Vinyl Bromide	3.75	3.88	4.03	104	108	70.0-130			3.88	25
Isopropylbenzene	3.75	3.91	3.88	104	103	70.0-130			0.905	25
(S) 1,4-Bromofluorobenzene				*101*	*99.9*	*60.0-140*				

Method Blank (MB)

(MB) R3418971-3 06/07/19 10:35

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
cis-1,2-Dichloroethene	U		0.0389	0.200
trans-1,2-Dichloroethene	U		0.0464	0.200
Tetrachloroethylene	U		0.0497	0.200
Trichloroethylene	U		0.0545	0.200
(S) 1,4-Bromofluorobenzene	*86.2*			*60.0-140*

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

(LCS) R3418971-1 06/07/19 09:06 • (LCSD) R3418971-2 06/07/19 09:50

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
trans-1,2-Dichloroethene	3.75	3.88	3.78	104	101	70.0-130			2.77	25
cis-1,2-Dichloroethene	3.75	3.89	3.85	104	103	70.0-130			0.972	25
Trichloroethylene	3.75	4.01	3.99	107	106	70.0-130			0.564	25
Tetrachloroethylene	3.75	3.85	3.78	103	101	70.0-130			2.04	25
(S) 1,4-Bromofluorobenzene				*96.0*	*95.0*	*60.0-140*				

Method Blank (MB)

(MB) R3419180-3 06/08/19 10:05

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Tetrachloroethylene	U		0.0497	0.200
(S) 1,4-Bromofluorobenzene	*84.3*			*60.0-140*

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

(LCS) R3419180-1 06/08/19 08:36 • (LCSD) R3419180-2 06/08/19 09:20

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Tetrachloroethylene	3.75	3.94	4.01	105	107	70.0-130			1.70	25
(S) 1,4-Bromofluorobenzene				*95.2*	*95.1*	*60.0-140*				

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, the sample preparation volume or weight values differ from the standard, 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.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
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

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

Pace National 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.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

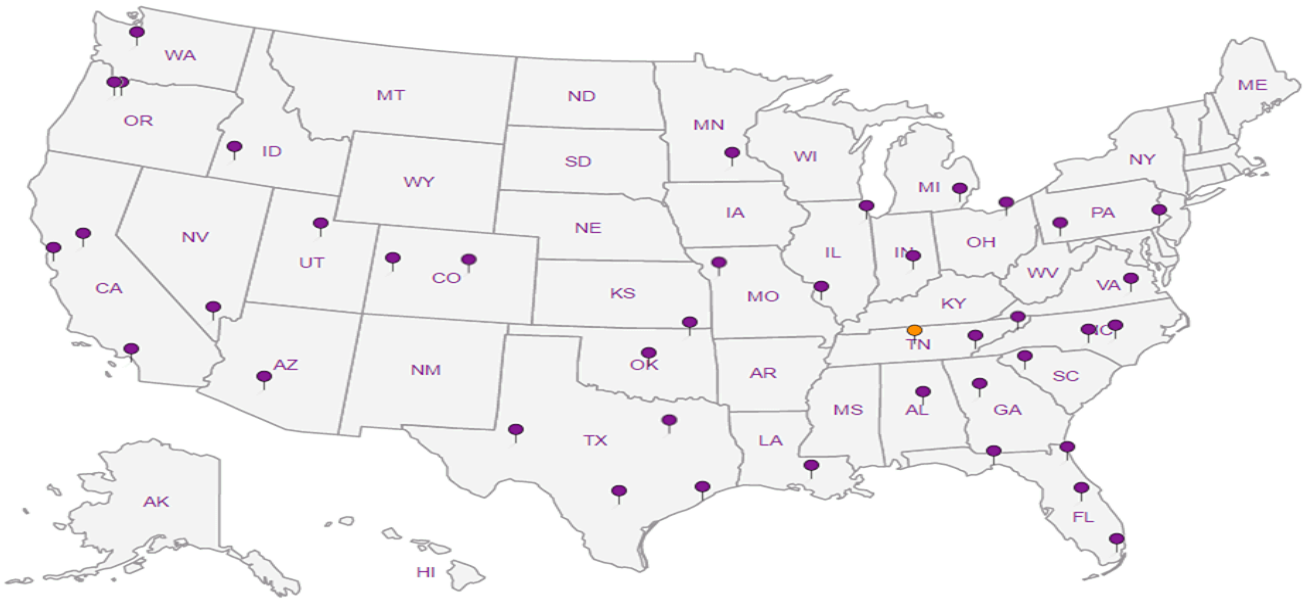
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National 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. Pace National 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; mdahl@pesenv.com; cdeboer@pesenv.com

Project Description: MVSC

City/State Collected: BURIEN, WA

Phone: 206-529-3980
Fax: 206-529-3985

Client Project # 1358.001.01.009

Lab Project # PESENVSWA-MVSC

Collected by (print): SHANNON MCKERNAN

Site/Facility ID # 1358.001.01.009

P.O. #

Collected by (signature):

Immediately Packed on Ice N___ Y___ NA

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

Analysis / Container / Preservative

Pres Chk

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TO-15 Summa	Remarks	Sample # (lab only)
SVS-12-060319	GRAB	Air	NA	6/3/19	1000	1	X		-01
SVS-13-060319		Air			1027	1	X		-02
SVS-14-060319		Air			1100	1	X		-03
SVS-15-060319		Air			1132	1	X		-04
SVS-16-060319		Air			1333	1	X		-05
SVS-11-060319		Air			1415	1	X		-06
SVS-10-060319		Air			1439	1	X		-07
		Air							
		Air							
		Air							

Chain of Custody Page 1 of 1

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1105041

Table # BAir 1

Acctnum: PESENVSWA

Template: T150380

Prelogin: P709149

TSR: 110 - Brian Ford

PB: BF 5/15/19

Shipped Via: FedEX Saver

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier __ _____

Tracking # 4794 8839 7444 1754

Sample Receipt Checklist
COC Seal Present/Intact: NP 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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
	6/3/19	1550		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:
				Amb. 7
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:
				6.4.19 0845

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

Brian Ford

From: Shannon E. McKernan <SMcKernan@pesenv.com>
Sent: Wednesday, June 05, 2019 1:21 PM
To: Brian Ford
Cc: Matt Dahl
Subject: Revised COC for L1105041
Attachments: COC_060319-revised.pdf

Brian-

Attached is a revised chain of custody for samples collected 6/3/19 at our MVSC site (project number 1358.001.01.009). Sample ID “SVS-16-060319” should be revised to “SVS-17-060319.” I have also attached our field form with canister and flow regulator ids, and canister start and end pressures.

Please let me know if you have any additional questions.

Best,
Shannon

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; mdahl@pesenv.com; cdeboer@pesenv.com**

Project Description: **MVSC**

City/State Collected: BURIEN, WA

Phone: **206-529-3980**
Fax: **206-529-3985**

Client Project # **1358.001.01.009**

Lab Project # **PESENVSWA-MVSC**

Collected by (print): SHANNON MCKERNAN

Site/Facility ID # 1358-001-01-009

P.O. #

Collected by (signature):

Immediately Packed on Ice N___ Y___ N/A

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

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TO-15 Summa
SVS-12-060319	GRAB	Air	NA	6/3/19	1000	1	X
SVS-13-060319		Air			1027	1	X
SVS-14-060319		Air			1100	1	X
SVS-15-060319		Air			1132	1	X
SVS-16-060319 (17 @ 6/5/19)		Air			1333	1	X
SVS-11-060319		Air			1415	1	X
SVS-10-060319	↓	Air	↓	↓	1439	1	X
		Air					
		Air					
		Air					

Chain of Custody Page 1 of 1

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L #

Table #

Acctnum: **PESENVSWA**
Template: **T150380**
Prelogin: **P709149**
TSR: **110 - Brian Ford**
PB: BF 5/15/19
Shipped Via: **FedEX Saver**

Remarks | Sample # (lab only)

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier ____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: __NP __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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
	6/3/19	1550			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:	Hold: / Condition: NCF / OK

PES Environmental, Inc.
Engineering & Environmental Services

	Page 1 of 1
	Date: 6/3/19
Project:	MVSC
Job No.:	1358-001.01.009
Project Manager:	M. DAHL
Recorded By:	S. MCKERNAN

SUB-SLAB SOIL GAS SAMPLING LOG

Tubing Type: _____ **Annular Seal:** _____

Filter Pack: _____ **Hydration Fluid:** _____

Sampling Location ID	Tip Depth (inches)	CANISTER PRESSURE Tip Installed ~~Date~~ initial	~~Time~~ final	Tracer Results Shroud	Tubing	Sampling Start Date	Time	Sampling Finish Date	Time	Sample ID Number	Summa ID Number	FLOW REGULATOR Comments
SVS-12		-30	-3	20.9%	Ø ppm	6/3/19	1000	~~6/3/19~~ GRAB	1005	SVS-12-060319	~~008624~~ 007347	008624
SVS-13		-30	-2	20.2%	Ø ppm	"	1027	"	1032	SVS-13-060319	008800	006789
SVS-14		-28	-2	21.6%	Ø ppm		1100		1105	SVS-14-060319	006299	006324
SVS-15		-28	-3	23.0%	Ø ppm		1132		1137	SVS-15-060319	005756	009165
SVS-~~10~~ 17 @ 6/5/19		-28	-3	20.3%	Ø ppm	↓	1333	↓	1338	SVS-~~10~~ 17 -060319 @ 6/5/19	009349	007782
① ~~SVS-11~~				20.3%	Ø ppm					~~SVS-11-060319~~	~~007320~~ ~~008803~~	007132
SVS-11		-30	-3	21.1%	Ø ppm	6/3/19	1415	6/3/19	1421	SVS-11-063019	007320	007132
SVS-10		-28	-3	20.9%	Ø ppm	↓	1439	↓	1444	SVS-10-063019	005825	006675

① CANISTER EMPTY- RE-ASSEMBLED W/ EXTRA CANISTER.

MEMORANDUM

TO: Project File **DATE:** June 24, 2019

FROM: Jessie Compeau

SUBJECT: Laboratory Data Validation Review

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

PROJECT #: 1358.001.01.009

TASK: EIM Data Validation Level EPA2A – June 3, 2019 Air Samples

LAB: Pace Analytical Sample Delivery Group (SDG): L1105041

Seven (7) soil vapor extraction samples were collected on June 3, 2019 as part of an ongoing remedial actions at the Manhattan Village Shopping Center in Normandy Park, Washington. The samples were analyzed for 68 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 Pace Analytical (Pace) of Mt. Juliet, Tennessee. Analytical data are reported under Pace SDG L1105041 and the quality assurance review is summarized below.

DATA QUALIFICATIONS

Guidelines established by USEPA for a limited data validation 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

The samples were collected and analyzed as requested. No concerns, issues, or anomalies were identified in the laboratory report with the following discussion:

- SDG L1105041: On June 5, 2019 PES revised the chain of custody (via email) to show a sample identification correction. Sample identification SVS-16-060319 was revised by PES to read SVS-17-060319. PES also included field form details with canister flow regulator identifications, canister start and end pressures.

Sample Collection and Preservation

The laboratory supplied Summa canisters (1-Liter) for the air samples. The samples were shipped, delivered by FedEx, and received in good condition by the laboratory. The samples were collected, handled, and delivered in an appropriate manner. No data qualifications were warranted based upon sampling and preservation techniques.

Holding Times

The analyses for VOCs by Method TO-15 were performed within the 30-day recommended holding time limit for the air samples collected in a Summa canister. Date of analyses are not reported with the results. Refer to the method blank results for date of analysis. 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 do not report any compounds at concentrations at or above the reporting detection limit (RDLs).

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 samples, method blanks, and laboratory control samples are within the laboratory surrogate control limits of 60 - 140% R. No data qualifications were warranted.

Laboratory Control Samples

Laboratory control samples/laboratory control sample duplicates (LCS/LCSDs) were analyzed for the VOCs by TO-15 along with each analytical batch. LCS/LCSD %Rs and relative percent differences (RPDs) are within QC criteria.

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 are reported based on laboratory RDLs (assuming standard temperature and pressure is equal to 24.45) and reported in units of ppbv and $\mu g/m^3$.

The RDLs indicate the minimum quantity of a target analyte that can be confidently determined by the reference method. For selected samples (SVS-13-060319 and SVS-17-060319) the RDLs for cis-1,2-dichloroethene, trans-1,2-dichloroethene, tetrachloroethene, and/or trichloroethylene are elevated due to method-required dilutions. The RDLs were acceptable for the project; therefore, no data qualifications were warranted.

Data Assessment

No data qualifiers are 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
www.alsglobal.com

LABORATORY REPORT

July 24, 2019

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 July 10, 2019. For your reference, this analysis has been assigned our service request number P1904055.

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 11:01 am, 07/24/19

Kate Kaneko
Laboratory Director

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

Client: PES Environmental
Project: MVSC / 1358.001.01.007

Service Request No: P1904055

CASE NARRATIVE

The sample was received intact under chain of custody on July 10, 2019 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 samples 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. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. 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
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1521096
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-006
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
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
Service Request: P1904055
Project ID: MVSC / 1358.001.01.007

Date Received: 7/10/2019
Time Received: 09:15

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans
SYS-07082019	P1904055-001	Air	7/8/2019	13:15	SC01932	-2.83	3.71	X

Air - Chain of Custody Record & Analytical Service Request

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

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.: P1904055

Company Name & Address (Reporting Information)	PES ENVIRONMENTAL, INC 1215 4th AVE STE 350; SEATTLE, WA
Project Manager	Matt Dahl
Phone	206-529-3980
Fax	206-529-3985
Email Address for Result Reporting	MDahl@pesenv.com
Project Name	NVSL
Project Number	1358.001.01.007
P.O. # / Billing Information	1358.001.01.007
Sampler (Print & Sign)	Karsten Springstead
ALS Contact:	

Analysis Method

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	TO-15		Comments e.g. Actual Preservative or specific instructions
SYS-07082019		7-8-19	1315	SL01932	NA	28	3.5	6L	X		

5 of 19

Report Tier Levels - please select

Tier I - Results (Default if not specified) ____ Tier III (Results + QC & Calibration Summaries) ____
Tier II (Results + QC Summaries) X Tier IV (Data Validation Package) 10% Surcharge ____

EDD required Yes / No
Type: EIM/Ed. Tony Units: ____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	7/8/19	1325		7/10/19	0915
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:

Cooler / Blank Temperature ____ °C

ALS Environmental

Sample Acceptance Check Form

Client: PES Environmental Work order: P1904055

Project: MVSC / 1358.001.01.007

Sample(s) received on: 7/10/19 Date opened: 7/10/19 by: DENISE.POSADA

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 if necessary 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
P1904055-001.01	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

Client: **PES Environmental**
Client Sample ID: **SYS-07082019** ALS Project ID: P1904055
Client Project ID: **MVSC / 1358.001.01.007** ALS Sample ID: P1904055-001

Test Code: EPA TO-15 Date Collected: 7/8/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 7/10/19
Analyst: Lusine Hakobyan Date Analyzed: 7/18/19
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC01932

Initial Pressure (psig): -2.83 Final Pressure (psig): 3.71

Container Dilution Factor: 1.55

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.81	ND	0.47	
75-71-8	Dichlorodifluoromethane (CFC 12)	**4.3**	0.81	**0.87**	0.16	
74-87-3	Chloromethane	ND	0.78	ND	0.38	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.79	ND	0.11	
75-01-4	Vinyl Chloride	ND	0.82	ND	0.32	
106-99-0	1,3-Butadiene	ND	0.81	ND	0.36	
74-83-9	Bromomethane	ND	0.78	ND	0.20	
75-00-3	Chloroethane	ND	0.79	ND	0.30	
64-17-5	Ethanol	ND	7.9	ND	4.2	
75-05-8	Acetonitrile	ND	0.81	ND	0.48	
107-02-8	Acrolein	ND	1.6	ND	0.68	
67-64-1	Acetone	ND	8.4	ND	3.5	
75-69-4	Trichlorofluoromethane (CFC 11)	**7.6**	0.82	**1.3**	0.15	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	3.3	ND	1.3	
107-13-1	Acrylonitrile	ND	0.81	ND	0.37	
75-35-4	1,1-Dichloroethene	ND	0.84	ND	0.21	
75-09-2	Methylene Chloride	ND	0.84	ND	0.24	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.82	ND	0.26	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.82	ND	0.11	
75-15-0	Carbon Disulfide	**16**	1.7	**5.1**	0.55	
156-60-5	trans-1,2-Dichloroethene	ND	0.82	ND	0.21	
75-34-3	1,1-Dichloroethane	ND	0.81	ND	0.20	
1634-04-4	Methyl tert-Butyl Ether	ND	0.84	ND	0.23	
108-05-4	Vinyl Acetate	ND	8.2	ND	2.3	
78-93-3	2-Butanone (MEK)	ND	1.6	ND	0.53	

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

Client: **PES Environmental**
Client Sample ID: **SYS-07082019** ALS Project ID: P1904055
Client Project ID: **MVSC / 1358.001.01.007** ALS Sample ID: P1904055-001

Test Code: EPA TO-15 Date Collected: 7/8/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 7/10/19
Analyst: Lusine Hakobyan Date Analyzed: 7/18/19
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC01932

Initial Pressure (psig): -2.83 Final Pressure (psig): 3.71

Container Dilution Factor: 1.55

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	**3.5**	0.82	**0.88**	0.21	
141-78-6	Ethyl Acetate	ND	1.7	ND	0.47	
110-54-3	n-Hexane	ND	0.84	ND	0.24	
67-66-3	Chloroform	**7.1**	0.84	**1.5**	0.17	
109-99-9	Tetrahydrofuran (THF)	ND	0.82	ND	0.28	
107-06-2	1,2-Dichloroethane	ND	0.82	ND	0.20	
71-55-6	1,1,1-Trichloroethane	ND	0.84	ND	0.15	
71-43-2	Benzene	ND	0.81	ND	0.25	
56-23-5	Carbon Tetrachloride	**0.99**	0.81	**0.16**	0.13	
110-82-7	Cyclohexane	ND	1.6	ND	0.45	
78-87-5	1,2-Dichloropropane	ND	0.84	ND	0.18	
75-27-4	Bromodichloromethane	ND	0.82	ND	0.12	
79-01-6	Trichloroethene	**2.6**	0.82	**0.48**	0.15	
123-91-1	1,4-Dioxane	ND	0.82	ND	0.23	
80-62-6	Methyl Methacrylate	ND	1.7	ND	0.42	
142-82-5	n-Heptane	ND	0.84	ND	0.20	
10061-01-5	cis-1,3-Dichloropropene	ND	0.87	ND	0.19	
108-10-1	4-Methyl-2-pentanone	ND	0.82	ND	0.20	
10061-02-6	trans-1,3-Dichloropropene	ND	0.82	ND	0.18	
79-00-5	1,1,2-Trichloroethane	ND	0.84	ND	0.15	
108-88-3	Toluene	ND	0.82	ND	0.22	
591-78-6	2-Hexanone	ND	0.84	ND	0.20	
124-48-1	Dibromochloromethane	ND	0.84	ND	0.098	
106-93-4	1,2-Dibromoethane	ND	0.84	ND	0.11	
123-86-4	n-Butyl Acetate	ND	0.84	ND	0.18	

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

Client: **PES Environmental**
Client Sample ID: **SYS-07082019** ALS Project ID: P1904055
Client Project ID: **MVSC / 1358.001.01.007** ALS Sample ID: P1904055-001

Test Code: EPA TO-15 Date Collected: 7/8/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 7/10/19
Analyst: Lusine Hakobyan Date Analyzed: 7/18/19
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC01932

Initial Pressure (psig): -2.83 Final Pressure (psig): 3.71

Container Dilution Factor: 1.55

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.84	ND	0.18	
127-18-4	Tetrachloroethene	**440**	8.2	**65**	1.2	**D**
108-90-7	Chlorobenzene	ND	0.82	ND	0.18	
100-41-4	Ethylbenzene	ND	0.81	ND	0.19	
179601-23-1	m,p-Xylenes	ND	1.7	ND	0.39	
75-25-2	Bromoform	ND	0.82	ND	0.079	
100-42-5	Styrene	ND	0.82	ND	0.19	
95-47-6	o-Xylene	ND	0.82	ND	0.19	
111-84-2	n-Nonane	ND	0.84	ND	0.16	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.82	ND	0.12	
98-82-8	Cumene	ND	0.82	ND	0.17	
80-56-8	alpha-Pinene	ND	0.81	ND	0.14	
103-65-1	n-Propylbenzene	ND	0.84	ND	0.17	
622-96-8	4-Ethyltoluene	ND	0.82	ND	0.17	
108-67-8	1,3,5-Trimethylbenzene	ND	0.82	ND	0.17	
95-63-6	1,2,4-Trimethylbenzene	ND	0.82	ND	0.17	
100-44-7	Benzyl Chloride	ND	1.7	ND	0.33	
541-73-1	1,3-Dichlorobenzene	ND	0.84	ND	0.14	
106-46-7	1,4-Dichlorobenzene	ND	0.84	ND	0.14	
95-50-1	1,2-Dichlorobenzene	ND	0.84	ND	0.14	
5989-27-5	d-Limonene	ND	0.79	ND	0.14	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.81	ND	0.083	
120-82-1	1,2,4-Trichlorobenzene	ND	0.82	ND	0.11	
91-20-3	Naphthalene	ND	0.79	ND	0.15	
87-68-3	Hexachlorobutadiene	ND	0.82	ND	0.077	

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

Client: **PES Environmental**
Client Sample ID: **Method Blank** ALS Project ID: P1904055
Client Project ID: **MVSC / 1358.001.01.007** ALS Sample ID: P190718-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 7/18/19
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.52	ND	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.52	ND	0.11	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.51	ND	0.073	
75-01-4	Vinyl Chloride	ND	0.53	ND	0.21	
106-99-0	1,3-Butadiene	ND	0.52	ND	0.24	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.51	ND	0.19	
64-17-5	Ethanol	ND	5.1	ND	2.7	
75-05-8	Acetonitrile	ND	0.52	ND	0.31	
107-02-8	Acrolein	ND	1.0	ND	0.44	
67-64-1	Acetone	ND	5.4	ND	2.3	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.53	ND	0.094	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	2.1	ND	0.85	
107-13-1	Acrylonitrile	ND	0.52	ND	0.24	
75-35-4	1,1-Dichloroethene	ND	0.54	ND	0.14	
75-09-2	Methylene Chloride	ND	0.54	ND	0.16	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.53	ND	0.17	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.53	ND	0.069	
75-15-0	Carbon Disulfide	ND	1.1	ND	0.35	
156-60-5	trans-1,2-Dichloroethene	ND	0.53	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.52	ND	0.13	
1634-04-4	Methyl tert-Butyl Ether	ND	0.54	ND	0.15	
108-05-4	Vinyl Acetate	ND	5.3	ND	1.5	
78-93-3	2-Butanone (MEK)	ND	1.0	ND	0.34	

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.

Client: **PES Environmental**

Client Sample ID: **Method Blank** ALS Project ID: P1904055

Client Project ID: **MVSC / 1358.001.01.007** ALS Sample ID: P190718-MB

Test Code: EPA TO-15 Date Collected: NA

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

Analyst: Lusine Hakobyan Date Analyzed: 7/18/19

Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

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	0.53	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.1	ND	0.31	
110-54-3	n-Hexane	ND	0.54	ND	0.15	
67-66-3	Chloroform	ND	0.54	ND	0.11	
109-99-9	Tetrahydrofuran (THF)	ND	0.53	ND	0.18	
107-06-2	1,2-Dichloroethane	ND	0.53	ND	0.13	
71-55-6	1,1,1-Trichloroethane	ND	0.54	ND	0.099	
71-43-2	Benzene	ND	0.52	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.52	ND	0.083	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.54	ND	0.12	
75-27-4	Bromodichloromethane	ND	0.53	ND	0.079	
79-01-6	Trichloroethene	ND	0.53	ND	0.099	
123-91-1	1,4-Dioxane	ND	0.53	ND	0.15	
80-62-6	Methyl Methacrylate	ND	1.1	ND	0.27	
142-82-5	n-Heptane	ND	0.54	ND	0.13	
10061-01-5	cis-1,3-Dichloropropene	ND	0.56	ND	0.12	
108-10-1	4-Methyl-2-pentanone	ND	0.53	ND	0.13	
10061-02-6	trans-1,3-Dichloropropene	ND	0.53	ND	0.12	
79-00-5	1,1,2-Trichloroethane	ND	0.54	ND	0.099	
108-88-3	Toluene	ND	0.53	ND	0.14	
591-78-6	2-Hexanone	ND	0.54	ND	0.13	
124-48-1	Dibromochloromethane	ND	0.54	ND	0.063	
106-93-4	1,2-Dibromoethane	ND	0.54	ND	0.070	
123-86-4	n-Butyl Acetate	ND	0.54	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.

Client: **PES Environmental**

Client Sample ID: **Method Blank** ALS Project ID: P1904055

Client Project ID: **MVSC / 1358.001.01.007** ALS Sample ID: P190718-MB

Test Code: EPA TO-15 Date Collected: NA

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

Analyst: Lusine Hakobyan Date Analyzed: 7/18/19

Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.54	ND	0.12	
127-18-4	Tetrachloroethene	ND	0.53	ND	0.078	
108-90-7	Chlorobenzene	ND	0.53	ND	0.12	
100-41-4	Ethylbenzene	ND	0.52	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.1	ND	0.25	
75-25-2	Bromoform	ND	0.53	ND	0.051	
100-42-5	Styrene	ND	0.53	ND	0.12	
95-47-6	o-Xylene	ND	0.53	ND	0.12	
111-84-2	n-Nonane	ND	0.54	ND	0.10	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.53	ND	0.077	
98-82-8	Cumene	ND	0.53	ND	0.11	
80-56-8	alpha-Pinene	ND	0.52	ND	0.093	
103-65-1	n-Propylbenzene	ND	0.54	ND	0.11	
622-96-8	4-Ethyltoluene	ND	0.53	ND	0.11	
108-67-8	1,3,5-Trimethylbenzene	ND	0.53	ND	0.11	
95-63-6	1,2,4-Trimethylbenzene	ND	0.53	ND	0.11	
100-44-7	Benzyl Chloride	ND	1.1	ND	0.21	
541-73-1	1,3-Dichlorobenzene	ND	0.54	ND	0.090	
106-46-7	1,4-Dichlorobenzene	ND	0.54	ND	0.090	
95-50-1	1,2-Dichlorobenzene	ND	0.54	ND	0.090	
5989-27-5	d-Limonene	ND	0.51	ND	0.092	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.52	ND	0.054	
120-82-1	1,2,4-Trichlorobenzene	ND	0.53	ND	0.071	
91-20-3	Naphthalene	ND	0.51	ND	0.097	
87-68-3	Hexachlorobutadiene	ND	0.53	ND	0.050	

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

Client: **PES Environmental**
Client Project ID: **MVSC / 1358.001.01.007** ALS Project ID: P1904055

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date(s) Collected: 7/8/19
Analyst: Lusine Hakobyan Date(s) Received: 7/10/19
Sample Type: 6.0 L Summa Canister(s) Date(s) Analyzed: 7/18/19
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P190718-MB	**92**	**95**	**103**	70-130	
Lab Control Sample	P190718-LCS	**91**	**94**	**106**	70-130	
Duplicate Lab Control Sample	P190718-DLCS	**91**	**95**	**106**	70-130	
SYS-07082019	P1904055-001	**92**	**96**	**104**	70-130	
SYS-07082019	P1904055-001DUP	**92**	**96**	**104**	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

Client: **PES Environmental**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1904055
Client Project ID: **MVSC / 1358.001.01.007** ALS Sample ID: P190718-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 7/18/19
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
115-07-1	Propene	211	194	195	**92**	**92**	53-112	0	25	
75-71-8	Dichlorodifluoromethane (CFC 12)	210	185	183	**88**	**87**	62-103	1	25	
74-87-3	Chloromethane	211	208	205	**99**	**97**	51-121	2	25	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	211	167	169	**79**	**80**	56-111	1	25	
75-01-4	Vinyl Chloride	214	185	187	**86**	**87**	57-117	1	25	
106-99-0	1,3-Butadiene	210	214	216	**102**	**103**	53-134	1	25	
74-83-9	Bromomethane	212	185	187	**87**	**88**	65-110	1	25	
75-00-3	Chloroethane	214	197	200	**92**	**93**	64-111	1	25	
64-17-5	Ethanol	1,020	861	879	**84**	**86**	57-124	2	25	
75-05-8	Acetonitrile	206	185	188	**90**	**91**	57-126	1	25	
107-02-8	Acrolein	205	192	192	**94**	**94**	62-121	0	25	
67-64-1	Acetone	1,060	889	886	**84**	**84**	60-113	0	25	
75-69-4	Trichlorofluoromethane (CFC 11)	211	171	170	**81**	**81**	63-104	0	25	
67-63-0	2-Propanol (Isopropyl Alcohol)	413	392	393	**95**	**95**	60-124	0	25	
107-13-1	Acrylonitrile	207	196	198	**95**	**96**	66-125	1	25	
75-35-4	1,1-Dichloroethene	218	200	199	**92**	**91**	68-107	1	25	
75-09-2	Methylene Chloride	217	190	189	**88**	**87**	66-105	1	25	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	216	211	212	**98**	**98**	63-127	0	25	
76-13-1	Trichlorotrifluoroethane (CFC 113)	216	186	185	**86**	**86**	59-109	0	25	
75-15-0	Carbon Disulfide	218	196	195	**90**	**89**	67-109	1	25	
156-60-5	trans-1,2-Dichloroethene	214	185	184	**86**	**86**	70-115	0	25	
75-34-3	1,1-Dichloroethane	216	184	184	**85**	**85**	66-106	0	25	
1634-04-4	Methyl tert-Butyl Ether	214	189	189	**88**	**88**	67-109	0	25	
108-05-4	Vinyl Acetate	1,060	981	981	**93**	**93**	68-136	0	25	
78-93-3	2-Butanone (MEK)	208	185	185	**89**	**89**	71-116	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.

Client: **PES Environmental**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1904055
Client Project ID: **MVSC / 1358.001.01.007** ALS Sample ID: P190718-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 7/18/19
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	211	186	187	**88**	**89**	67-110	1	25	
141-78-6	Ethyl Acetate	436	396	398	**91**	**91**	64-127	0	25	
110-54-3	n-Hexane	216	186	187	**86**	**87**	60-115	1	25	
67-66-3	Chloroform	217	184	183	**85**	**84**	66-105	1	25	
109-99-9	Tetrahydrofuran (THF)	216	192	192	**89**	**89**	65-110	0	25	
107-06-2	1,2-Dichloroethane	215	171	172	**80**	**80**	60-110	0	25	
71-55-6	1,1,1-Trichloroethane	215	184	181	**86**	**84**	64-108	2	25	
71-43-2	Benzene	211	179	177	**85**	**84**	67-106	1	25	
56-23-5	Carbon Tetrachloride	212	181	178	**85**	**84**	64-112	1	25	
110-82-7	Cyclohexane	416	367	362	**88**	**87**	67-110	1	25	
78-87-5	1,2-Dichloropropane	216	195	194	**90**	**90**	66-112	0	25	
75-27-4	Bromodichloromethane	215	187	185	**87**	**86**	67-113	1	25	
79-01-6	Trichloroethene	213	181	179	**85**	**84**	66-108	1	25	
123-91-1	1,4-Dioxane	214	183	181	**86**	**85**	70-116	1	25	
80-62-6	Methyl Methacrylate	431	402	399	**93**	**93**	73-118	0	25	
142-82-5	n-Heptane	215	186	184	**87**	**86**	66-110	1	25	
10061-01-5	cis-1,3-Dichloropropene	214	194	192	**91**	**90**	75-120	1	25	
108-10-1	4-Methyl-2-pentanone	209	193	190	**92**	**91**	65-124	1	25	
10061-02-6	trans-1,3-Dichloropropene	213	183	181	**86**	**85**	77-123	1	25	
79-00-5	1,1,2-Trichloroethane	215	183	179	**85**	**83**	68-112	2	25	
108-88-3	Toluene	212	180	180	**85**	**85**	62-111	0	25	
591-78-6	2-Hexanone	214	195	195	**91**	**91**	59-128	0	25	
124-48-1	Dibromochloromethane	213	204	201	**96**	**94**	67-123	2	25	
106-93-4	1,2-Dibromoethane	216	202	200	**94**	**93**	66-122	1	25	
123-86-4	n-Butyl Acetate	219	210	209	**96**	**95**	64-128	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

Client: **PES Environmental**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1904055
Client Project ID: **MVSC / 1358.001.01.007** ALS Sample ID: P190718-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 7/18/19
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
111-65-9	n-Octane	217	184	182	**85**	**84**	65-114	1	25	
127-18-4	Tetrachloroethene	213	191	189	**90**	**89**	55-120	1	25	
108-90-7	Chlorobenzene	215	181	179	**84**	**83**	61-114	1	25	
100-41-4	Ethylbenzene	212	183	182	**86**	**86**	64-113	0	25	
179601-23-1	m,p-Xylenes	426	368	363	**86**	**85**	64-114	1	25	
75-25-2	Bromoform	213	220	218	**103**	**102**	65-132	1	25	
100-42-5	Styrene	212	205	204	**97**	**96**	67-124	1	25	
95-47-6	o-Xylene	214	191	188	**89**	**88**	65-114	1	25	
111-84-2	n-Nonane	215	198	197	**92**	**92**	64-117	0	25	
79-34-5	1,1,2,2-Tetrachloroethane	214	193	191	**90**	**89**	66-119	1	25	
98-82-8	Cumene	214	186	183	**87**	**86**	61-116	1	25	
80-56-8	alpha-Pinene	211	200	199	**95**	**94**	65-120	1	25	
103-65-1	n-Propylbenzene	218	200	198	**92**	**91**	63-117	1	25	
622-96-8	4-Ethyltoluene	214	203	201	**95**	**94**	63-124	1	25	
108-67-8	1,3,5-Trimethylbenzene	214	184	182	**86**	**85**	60-117	1	25	
95-63-6	1,2,4-Trimethylbenzene	215	189	187	**88**	**87**	61-122	1	25	
100-44-7	Benzyl Chloride	217	193	192	**89**	**88**	77-142	1	25	
541-73-1	1,3-Dichlorobenzene	216	195	194	**90**	**90**	61-125	0	25	
106-46-7	1,4-Dichlorobenzene	216	189	187	**88**	**87**	59-123	1	25	
95-50-1	1,2-Dichlorobenzene	216	194	191	**90**	**88**	61-126	2	25	
5989-27-5	d-Limonene	211	208	205	**99**	**97**	66-124	2	25	
96-12-8	1,2-Dibromo-3-chloropropane	209	220	217	**105**	**104**	67-138	1	25	
120-82-1	1,2,4-Trichlorobenzene	214	203	204	**95**	**95**	62-141	0	25	
91-20-3	Naphthalene	203	189	188	**93**	**93**	62-145	0	25	
87-68-3	Hexachlorobutadiene	209	193	192	**92**	**92**	49-131	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 DUPLICATE SUMMARY RESULTS

Client: **PES Environmental**
Client Sample ID: **SYS-07082019** ALS Project ID: P1904055
Client Project ID: **MVSC / 1358.001.01.007** ALS Sample ID: P1904055-001DUP

Test Code: EPA TO-15 Date Collected: 7/8/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 7/10/19
Analyst: Lusine Hakobyan Date Analyzed: 7/18/19
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC01932

Initial Pressure (psig): -2.83 Final Pressure (psig): 3.71

Container Dilution Factor: 1.55

Compound	Sample Result µg/m³	Sample Result ppbV	Duplicate Sample Result µg/m³	Duplicate Sample Result ppbV	Average µg/m³	% RPD	RPD Limit	Data Qualifier
Propene	ND	ND	ND	ND	-	-	25	
Dichlorodifluoromethane (CFC 12)	4.31	0.871	4.39	0.889	4.35	**2**	25	
Chloromethane	ND	ND	ND	ND	-	-	25	
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	ND	ND	ND	-	-	25	
Vinyl Chloride	ND	ND	ND	ND	-	-	25	
1,3-Butadiene	ND	ND	ND	ND	-	-	25	
Bromomethane	ND	ND	ND	ND	-	-	25	
Chloroethane	ND	ND	ND	ND	-	-	25	
Ethanol	ND	ND	ND	ND	-	-	25	
Acetonitrile	ND	ND	ND	ND	-	-	25	
Acrolein	ND	ND	ND	ND	-	-	25	
Acetone	ND	ND	ND	ND	-	-	25	
Trichlorofluoromethane	7.58	1.35	7.68	1.37	7.63	**1**	25	
2-Propanol (Isopropyl Alcohol)	ND	ND	ND	ND	-	-	25	
Acrylonitrile	ND	ND	ND	ND	-	-	25	
1,1-Dichloroethene	ND	ND	ND	ND	-	-	25	
Methylene Chloride	ND	ND	ND	ND	-	-	25	
3-Chloro-1-propene (Allyl Chloride)	ND	ND	ND	ND	-	-	25	
Trichlorotrifluoroethane	ND	ND	ND	ND	-	-	25	
Carbon Disulfide	15.7	5.06	16.0	5.15	15.85	**2**	25	
trans-1,2-Dichloroethene	ND	ND	ND	ND	-	-	25	
1,1-Dichloroethane	ND	ND	ND	ND	-	-	25	
Methyl tert-Butyl Ether	ND	ND	ND	ND	-	-	25	
Vinyl Acetate	ND	ND	ND	ND	-	-	25	
2-Butanone (MEK)	ND	ND	ND	ND	-	-	25	

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

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **PES Environmental**
Client Sample ID: **SYS-07082019** ALS Project ID: P1904055
Client Project ID: **MVSC / 1358.001.01.007** ALS Sample ID: P1904055-001DUP

Test Code: EPA TO-15 Date Collected: 7/8/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 7/10/19
Analyst: Lusine Hakobyan Date Analyzed: 7/18/19
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC01932

Initial Pressure (psig): -2.83 Final Pressure (psig): 3.71

Container Dilution Factor: 1.55

Compound	Sample Result µg/m³	Sample Result ppbV	Duplicate Sample Result µg/m³	Duplicate Sample Result ppbV	Average µg/m³	% RPD	RPD Limit	Data Qualifier
cis-1,2-Dichloroethene	3.48	0.879	3.50	0.882	3.49	**0.6**	25	
Ethyl Acetate	ND	ND	ND	ND	-	-	25	
n-Hexane	ND	ND	ND	ND	-	-	25	
Chloroform	7.15	1.46	7.25	1.49	7.2	**1**	25	
Tetrahydrofuran (THF)	ND	ND	ND	ND	-	-	25	
1,2-Dichloroethane	ND	ND	ND	ND	-	-	25	
1,1,1-Trichloroethane	ND	ND	ND	ND	-	-	25	
Benzene	ND	ND	ND	ND	-	-	25	
Carbon Tetrachloride	0.986	0.157	0.990	0.158	0.988	**0.4**	25	
Cyclohexane	ND	ND	ND	ND	-	-	25	
1,2-Dichloropropane	ND	ND	ND	ND	-	-	25	
Bromodichloromethane	ND	ND	ND	ND	-	-	25	
Trichloroethene	2.56	0.477	2.58	0.481	2.57	**0.8**	25	
1,4-Dioxane	ND	ND	ND	ND	-	-	25	
Methyl Methacrylate	ND	ND	ND	ND	-	-	25	
n-Heptane	ND	ND	ND	ND	-	-	25	
cis-1,3-Dichloropropene	ND	ND	ND	ND	-	-	25	
4-Methyl-2-pentanone	ND	ND	ND	ND	-	-	25	
trans-1,3-Dichloropropene	ND	ND	ND	ND	-	-	25	
1,1,2-Trichloroethane	ND	ND	ND	ND	-	-	25	
Toluene	ND	ND	ND	ND	-	-	25	
2-Hexanone	ND	ND	ND	ND	-	-	25	
Dibromochloromethane	ND	ND	ND	ND	-	-	25	
1,2-Dibromoethane	ND	ND	ND	ND	-	-	25	
n-Butyl Acetate	ND	ND	ND	ND	-	-	25	

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

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **PES Environmental**
Client Sample ID: **SYS-07082019** ALS Project ID: P1904055
Client Project ID: **MVSC / 1358.001.01.007** ALS Sample ID: P1904055-001DUP

Test Code: EPA TO-15 Date Collected: 7/8/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 7/10/19
Analyst: Lusine Hakobyan Date Analyzed: 7/18/19
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC01932

Initial Pressure (psig): -2.83 Final Pressure (psig): 3.71

Container Dilution Factor: 1.55

Compound	Sample Result µg/m³	Sample Result ppbV	Duplicate Sample Result **µg/m³**	Duplicate Sample Result **ppbV**	Average µg/m³	**% RPD**	RPD Limit	**Data Qualifier**
n-Octane	ND	ND	ND	ND	-	-	25	
Tetrachloroethene	441	65.0	445	65.7	443	**0.9**	25	**D**
Chlorobenzene	ND	ND	ND	ND	-	-	25	
Ethylbenzene	ND	ND	ND	ND	-	-	25	
m,p-Xylenes	ND	ND	ND	ND	-	-	25	
Bromoform	ND	ND	ND	ND	-	-	25	
Styrene	ND	ND	ND	ND	-	-	25	
o-Xylene	ND	ND	ND	ND	-	-	25	
n-Nonane	ND	ND	ND	ND	-	-	25	
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	-	-	25	
Cumene	ND	ND	ND	ND	-	-	25	
alpha-Pinene	ND	ND	ND	ND	-	-	25	
n-Propylbenzene	ND	ND	ND	ND	-	-	25	
4-Ethyltoluene	ND	ND	ND	ND	-	-	25	
1,3,5-Trimethylbenzene	ND	ND	ND	ND	-	-	25	
1,2,4-Trimethylbenzene	ND	ND	ND	ND	-	-	25	
Benzyl Chloride	ND	ND	ND	ND	-	-	25	
1,3-Dichlorobenzene	ND	ND	ND	ND	-	-	25	
1,4-Dichlorobenzene	ND	ND	ND	ND	-	-	25	
1,2-Dichlorobenzene	ND	ND	ND	ND	-	-	25	
d-Limonene	ND	ND	ND	ND	-	-	25	
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	-	-	25	
1,2,4-Trichlorobenzene	ND	ND	ND	ND	-	-	25	
Naphthalene	ND	ND	ND	ND	-	-	25	
Hexachlorobutadiene	ND	ND	ND	ND	-	-	25	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
D = The reported result is from a dilution.

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

LABORATORY REPORT

November 25, 2019

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

RE: MVSC / 1358.001.02.015

Dear Matt:

Enclosed are the results of the sample submitted to our laboratory on October 30, 2019. For your reference, this analysis has been assigned our service request number P1906575.

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 Hayden Akers at 6:49 pm, Nov 25, 2019

For Kate Kaneko
Laboratory Director

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

Client: PES Environmental
Project: MVSC / 1358.001.02.015

Service Request No: P1906575

CASE NARRATIVE

The sample was received intact under chain of custody on October 30, 2019 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 hexachlorobutadiene in the Continuing Calibration Verification (CCV). 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 is not affected. No corrective action was required.

The sample container has a leaking valve; however, the sample was repressurized and analyzed and the results reported. Results from this sample should be considered estimated and utilized accordingly.

The container was cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. 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
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1521096
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-006
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
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 Service Request: P1906575

Project ID: MVSC / 1358.001.02.015

Date Received: 10/30/2019

Time Received: 09:20

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	2nd Pi (psig)	2nd Pf (psig)	TO-15 - VOC Cans
STACK - 102819	P1906575-001	Air	10/28/2019	12:15	SC02227	0.00	3.76	0.12	4.01	X

Air - Chain of Custody Record & Analytical Service Request

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

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.: P1906575

Company Name & Address (Reporting Information)	PES ENVIRONMENTAL INC. 1215 4th Ave STE 1350, SEATTLE, WA 98161
Project Name	MVSC
Project Number	1358.001.02.015
Project Manager	Matt Dahl
P.O. # / Billing Information	1358.001.02.015
Phone	206-529-3980
Fax	206-529-3985
Email Address for Result Reporting	MDahl@pesenv.com
Sampler (Print & Sign)	Karsten Springstead
ALS Contact:	

Analysis Method: 10-15

Comments e.g. Actual Preservative or specific instructions

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume
STACK-102819		10/28/19	1215	SC02227	AV05060	-30	-3	6L

Report Tier Levels - please select

Tier I - Results (Default if not specified) ____ Tier III (Results + QC & Calibration Summaries) X
Tier II (Results + QC Summaries) ____ Tier IV (Data Validation Package) 10% Surcharge ____

EDD required (Yes) / No
Type: EIM Units: ____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date: 10-28-19	Time: 1300	Received by: (Signature)	Date: 10/30/19	Time: 920	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:	Cooler / Blank Temperature ____°C

ALS Environmental
Sample Acceptance Check Form

Client: PES Environmental Work order: P1906575

Project: MVSC / 1358.001.02.015

Sample(s) received on: 10/30/2019 Date opened: 10/30/2019 by: DENISE.POSADA

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 if necessary 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
P1906575-001.01	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

Client: **PES Environmental**
Client Sample ID: **STACK - 102819** ALS Project ID: P1906575
Client Project ID: **MVSC / 1358.001.02.015** ALS Sample ID: P1906575-001

Test Code: EPA TO-15 Date Collected: 10/28/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 10/30/19
Analyst: Wida Ang Date Analyzed: 11/22/19
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC02227

Initial Pressure (psig): 0.0 Final Pressure (psig): 3.76
Initial Pressure 2 (psig): 0.12 Final Pressure 2 (psig): 4.01

Canister Dilution Factor: 1.59

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	**0.95**	0.84	**0.55**	0.49	
75-71-8	Dichlorodifluoromethane (CFC 12)	**4.2**	0.84	**0.85**	0.17	
74-87-3	Chloromethane	ND	0.84	ND	0.41	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.84	ND	0.12	
75-01-4	Vinyl Chloride	ND	0.86	ND	0.34	
106-99-0	1,3-Butadiene	ND	0.84	ND	0.38	
74-83-9	Bromomethane	ND	0.86	ND	0.22	
75-00-3	Chloroethane	ND	0.86	ND	0.33	
64-17-5	Ethanol	**12**	8.3	**6.3**	4.4	
75-05-8	Acetonitrile	**1.0**	0.84	**0.61**	0.50	
107-02-8	Acrolein	ND	1.6	ND	0.69	
67-64-1	Acetone	**17**	8.4	**7.1**	3.5	
75-69-4	Trichlorofluoromethane (CFC 11)	**5.6**	0.84	**0.99**	0.15	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	3.3	ND	1.4	
107-13-1	Acrylonitrile	ND	0.84	ND	0.39	
75-35-4	1,1-Dichloroethene	ND	0.86	ND	0.22	
75-09-2	Methylene Chloride	ND	0.84	ND	0.24	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.86	ND	0.27	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.86	ND	0.11	
75-15-0	Carbon Disulfide	**2.7**	1.7	**0.88**	0.56	
156-60-5	trans-1,2-Dichloroethene	ND	0.86	ND	0.22	
75-34-3	1,1-Dichloroethane	ND	0.87	ND	0.22	
1634-04-4	Methyl tert-Butyl Ether	ND	0.86	ND	0.24	
108-05-4	Vinyl Acetate	ND	8.6	ND	2.4	
78-93-3	2-Butanone (MEK)	**11**	1.7	**3.7**	0.59	

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

Client: **PES Environmental**
Client Sample ID: **STACK - 102819** ALS Project ID: P1906575
Client Project ID: **MVSC / 1358.001.02.015** ALS Sample ID: P1906575-001

Test Code: EPA TO-15 Date Collected: 10/28/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 10/30/19
Analyst: Wida Ang Date Analyzed: 11/22/19
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC02227

Initial Pressure (psig): 0.0 Final Pressure (psig): 3.76
Initial Pressure 2 (psig): 0.12 Final Pressure 2 (psig): 4.01

Canister Dilution Factor: 1.59

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	**2.0**	0.84	**0.50**	0.21	
141-78-6	Ethyl Acetate	**25**	1.7	**6.8**	0.49	
110-54-3	n-Hexane	ND	0.86	ND	0.24	
67-66-3	Chloroform	**5.7**	0.86	**1.2**	0.18	
109-99-9	Tetrahydrofuran (THF)	**25**	0.87	**8.6**	0.30	
107-06-2	1,2-Dichloroethane	ND	0.86	ND	0.21	
71-55-6	1,1,1-Trichloroethane	ND	0.86	ND	0.16	
71-43-2	Benzene	ND	0.84	ND	0.26	
56-23-5	Carbon Tetrachloride	ND	0.84	ND	0.13	
110-82-7	Cyclohexane	ND	1.7	ND	0.51	
78-87-5	1,2-Dichloropropane	ND	0.86	ND	0.19	
75-27-4	Bromodichloromethane	ND	0.86	ND	0.13	
79-01-6	Trichloroethene	**1.4**	0.86	**0.26**	0.16	
123-91-1	1,4-Dioxane	ND	0.86	ND	0.24	
80-62-6	Methyl Methacrylate	ND	1.7	ND	0.43	
142-82-5	n-Heptane	ND	0.86	ND	0.21	
10061-01-5	cis-1,3-Dichloropropene	ND	0.83	ND	0.18	
108-10-1	4-Methyl-2-pentanone	ND	0.84	ND	0.21	
10061-02-6	trans-1,3-Dichloropropene	ND	0.84	ND	0.19	
79-00-5	1,1,2-Trichloroethane	ND	0.86	ND	0.16	
108-88-3	Toluene	**21**	0.86	**5.5**	0.23	
591-78-6	2-Hexanone	ND	0.86	ND	0.21	
124-48-1	Dibromochloromethane	ND	0.86	ND	0.10	
106-93-4	1,2-Dibromoethane	ND	0.86	ND	0.11	
123-86-4	n-Butyl Acetate	**0.91**	0.87	**0.19**	0.18	

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.

Client: **PES Environmental**
Client Sample ID: **STACK - 102819** ALS Project ID: P1906575
Client Project ID: **MVSC / 1358.001.02.015** ALS Sample ID: P1906575-001

Test Code: EPA TO-15 Date Collected: 10/28/19
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 10/30/19
Analyst: Wida Ang Date Analyzed: 11/22/19
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC02227

Initial Pressure (psig): 0.0 Final Pressure (psig): 3.76
Initial Pressure 2 (psig): 0.12 Final Pressure 2 (psig): 4.01

Canister Dilution Factor: 1.59

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.86	ND	0.18	
127-18-4	Tetrachloroethene	**310**	8.3	**46**	1.2	**D**
108-90-7	Chlorobenzene	ND	0.86	ND	0.19	
100-41-4	Ethylbenzene	ND	0.86	ND	0.20	
179601-23-1	m,p-Xylenes	**2.5**	1.7	**0.57**	0.40	
75-25-2	Bromoform	ND	0.86	ND	0.083	
100-42-5	Styrene	ND	0.84	ND	0.20	
95-47-6	o-Xylene	**1.0**	0.86	**0.23**	0.20	
111-84-2	n-Nonane	ND	0.86	ND	0.16	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.86	ND	0.13	
98-82-8	Cumene	ND	0.86	ND	0.17	
80-56-8	alpha-Pinene	ND	0.86	ND	0.15	
103-65-1	n-Propylbenzene	ND	0.86	ND	0.17	
622-96-8	4-Ethyltoluene	ND	0.86	ND	0.17	
108-67-8	1,3,5-Trimethylbenzene	ND	0.84	ND	0.17	
95-63-6	1,2,4-Trimethylbenzene	ND	0.86	ND	0.17	
100-44-7	Benzyl Chloride	ND	1.7	ND	0.34	
541-73-1	1,3-Dichlorobenzene	ND	0.86	ND	0.14	
106-46-7	1,4-Dichlorobenzene	ND	0.86	ND	0.14	
95-50-1	1,2-Dichlorobenzene	ND	0.86	ND	0.14	
5989-27-5	d-Limonene	ND	0.86	ND	0.15	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.84	ND	0.087	
120-82-1	1,2,4-Trichlorobenzene	ND	0.86	ND	0.12	
91-20-3	Naphthalene	ND	0.83	ND	0.16	
87-68-3	Hexachlorobutadiene	ND	0.84	ND	0.079	

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

Client: **PES Environmental**
Client Sample ID: **Method Blank** ALS Project ID: P1906575
Client Project ID: **MVSC / 1358.001.02.015** ALS Sample ID: P191122-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 11/22/19
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.53	ND	0.31	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.53	ND	0.11	
74-87-3	Chloromethane	ND	0.53	ND	0.26	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.53	ND	0.076	
75-01-4	Vinyl Chloride	ND	0.54	ND	0.21	
106-99-0	1,3-Butadiene	ND	0.53	ND	0.24	
74-83-9	Bromomethane	ND	0.54	ND	0.14	
75-00-3	Chloroethane	ND	0.54	ND	0.20	
64-17-5	Ethanol	ND	5.2	ND	2.8	
75-05-8	Acetonitrile	ND	0.53	ND	0.32	
107-02-8	Acrolein	ND	1.0	ND	0.44	
67-64-1	Acetone	ND	5.3	ND	2.2	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.53	ND	0.094	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	2.1	ND	0.85	
107-13-1	Acrylonitrile	ND	0.53	ND	0.24	
75-35-4	1,1-Dichloroethene	ND	0.54	ND	0.14	
75-09-2	Methylene Chloride	ND	0.53	ND	0.15	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.54	ND	0.17	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.54	ND	0.070	
75-15-0	Carbon Disulfide	ND	1.1	ND	0.35	
156-60-5	trans-1,2-Dichloroethene	ND	0.54	ND	0.14	
75-34-3	1,1-Dichloroethane	ND	0.55	ND	0.14	
1634-04-4	Methyl tert-Butyl Ether	ND	0.54	ND	0.15	
108-05-4	Vinyl Acetate	ND	5.4	ND	1.5	
78-93-3	2-Butanone (MEK)	ND	1.1	ND	0.37	

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.

Client: **PES Environmental**

Client Sample ID: **Method Blank** ALS Project ID: P1906575

Client Project ID: **MVSC / 1358.001.02.015** ALS Sample ID: P191122-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA

Analyst: Wida Ang Date Analyzed: 11/22/19

Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister 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	0.53	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.1	ND	0.31	
110-54-3	n-Hexane	ND	0.54	ND	0.15	
67-66-3	Chloroform	ND	0.54	ND	0.11	
109-99-9	Tetrahydrofuran (THF)	ND	0.55	ND	0.19	
107-06-2	1,2-Dichloroethane	ND	0.54	ND	0.13	
71-55-6	1,1,1-Trichloroethane	ND	0.54	ND	0.099	
71-43-2	Benzene	ND	0.53	ND	0.17	
56-23-5	Carbon Tetrachloride	ND	0.53	ND	0.084	
110-82-7	Cyclohexane	ND	1.1	ND	0.32	
78-87-5	1,2-Dichloropropane	ND	0.54	ND	0.12	
75-27-4	Bromodichloromethane	ND	0.54	ND	0.081	
79-01-6	Trichloroethene	ND	0.54	ND	0.10	
123-91-1	1,4-Dioxane	ND	0.54	ND	0.15	
80-62-6	Methyl Methacrylate	ND	1.1	ND	0.27	
142-82-5	n-Heptane	ND	0.54	ND	0.13	
10061-01-5	cis-1,3-Dichloropropene	ND	0.52	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.53	ND	0.13	
10061-02-6	trans-1,3-Dichloropropene	ND	0.53	ND	0.12	
79-00-5	1,1,2-Trichloroethane	ND	0.54	ND	0.099	
108-88-3	Toluene	ND	0.54	ND	0.14	
591-78-6	2-Hexanone	ND	0.54	ND	0.13	
124-48-1	Dibromochloromethane	ND	0.54	ND	0.063	
106-93-4	1,2-Dibromoethane	ND	0.54	ND	0.070	
123-86-4	n-Butyl Acetate	ND	0.55	ND	0.12	

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.

Client: **PES Environmental**

Client Sample ID: **Method Blank** ALS Project ID: P1906575

Client Project ID: **MVSC / 1358.001.02.015** ALS Sample ID: P191122-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA

Analyst: Wida Ang Date Analyzed: 11/22/19

Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.54	ND	0.12	
127-18-4	Tetrachloroethene	ND	0.52	ND	0.077	
108-90-7	Chlorobenzene	ND	0.54	ND	0.12	
100-41-4	Ethylbenzene	ND	0.54	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.1	ND	0.25	
75-25-2	Bromoform	ND	0.54	ND	0.052	
100-42-5	Styrene	ND	0.53	ND	0.12	
95-47-6	o-Xylene	ND	0.54	ND	0.12	
111-84-2	n-Nonane	ND	0.54	ND	0.10	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.54	ND	0.079	
98-82-8	Cumene	ND	0.54	ND	0.11	
80-56-8	alpha-Pinene	ND	0.54	ND	0.097	
103-65-1	n-Propylbenzene	ND	0.54	ND	0.11	
622-96-8	4-Ethyltoluene	ND	0.54	ND	0.11	
108-67-8	1,3,5-Trimethylbenzene	ND	0.53	ND	0.11	
95-63-6	1,2,4-Trimethylbenzene	ND	0.54	ND	0.11	
100-44-7	Benzyl Chloride	ND	1.1	ND	0.21	
541-73-1	1,3-Dichlorobenzene	ND	0.54	ND	0.090	
106-46-7	1,4-Dichlorobenzene	ND	0.54	ND	0.090	
95-50-1	1,2-Dichlorobenzene	ND	0.54	ND	0.090	
5989-27-5	d-Limonene	ND	0.54	ND	0.097	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.53	ND	0.055	
120-82-1	1,2,4-Trichlorobenzene	ND	0.54	ND	0.073	
91-20-3	Naphthalene	ND	0.52	ND	0.099	
87-68-3	Hexachlorobutadiene	ND	0.53	ND	0.050	

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

Client: **PES Environmental**
Client Project ID: **MVSC / 1358.001.02.015** ALS Project ID: P1906575

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date(s) Collected: 10/28/19
Analyst: Wida Ang Date(s) Received: 10/30/19
Sample Type: 6.0 L Summa Canister(s) Date(s) Analyzed: 11/22/19
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P191122-MB	**84**	**102**	**109**	70-130	
Lab Control Sample	P191122-LCS	**81**	**101**	**112**	70-130	
Duplicate Lab Control Sample	P191122-DLCS	**81**	**102**	**113**	70-130	
STACK - 102819	P1906575-001	**88**	**99**	**105**	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

Client: **PES Environmental**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1906575
Client Project ID: **MVSC / 1358.001.02.015** ALS Sample ID: P191122-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 11/22/19
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
115-07-1	Propene	210	199	199	**95**	**95**	53-112	0	25	
75-71-8	Dichlorodifluoromethane (CFC 12)	210	170	168	**81**	**80**	62-103	1	25	
74-87-3	Chloromethane	212	126	124	**59**	**58**	51-121	2	25	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	206	160	160	**78**	**78**	56-111	0	25	
75-01-4	Vinyl Chloride	212	173	174	**82**	**82**	57-117	0	25	
106-99-0	1,3-Butadiene	212	206	213	**97**	**100**	53-134	3	25	
74-83-9	Bromomethane	212	189	190	**89**	**90**	65-110	1	25	
75-00-3	Chloroethane	214	203	204	**95**	**95**	64-111	0	25	
64-17-5	Ethanol	1,060	937	945	**88**	**89**	57-124	1	25	
75-05-8	Acetonitrile	214	217	219	**101**	**102**	57-126	1	25	
107-02-8	Acrolein	206	199	202	**97**	**98**	62-121	1	25	
67-64-1	Acetone	1,070	894	901	**84**	**84**	60-113	0	25	
75-69-4	Trichlorofluoromethane (CFC 11)	212	170	170	**80**	**80**	63-104	0	25	
67-63-0	2-Propanol (Isopropyl Alcohol)	422	400	403	**95**	**95**	60-124	0	25	
107-13-1	Acrylonitrile	212	223	225	**105**	**106**	66-125	0.9	25	
75-35-4	1,1-Dichloroethene	214	204	204	**95**	**95**	68-107	0	25	
75-09-2	Methylene Chloride	210	195	196	**93**	**93**	66-105	0	25	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	214	211	212	**99**	**99**	63-127	0	25	
76-13-1	Trichlorotrifluoroethane (CFC 113)	216	209	213	**97**	**99**	59-109	2	25	
75-15-0	Carbon Disulfide	212	184	184	**87**	**87**	67-109	0	25	
156-60-5	trans-1,2-Dichloroethene	214	202	203	**94**	**95**	70-115	1	25	
75-34-3	1,1-Dichloroethane	212	192	193	**91**	**91**	66-106	0	25	
1634-04-4	Methyl tert-Butyl Ether	214	146	141	**68**	**66**	67-109	3	25	**L**
108-05-4	Vinyl Acetate	1,070	869	873	**81**	**82**	68-136	1	25	
78-93-3	2-Butanone (MEK)	212	208	210	**98**	**99**	71-116	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.
L = Laboratory control sample recovery outside the specified limits, results may be biased high.

Client: **PES Environmental**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1906575
Client Project ID: **MVSC / 1358.001.02.015** ALS Sample ID: P191122-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 11/22/19
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	212	193	193	**91**	**91**	67-110	0	25	
141-78-6	Ethyl Acetate	432	387	389	**90**	**90**	64-127	0	25	
110-54-3	n-Hexane	216	191	191	**88**	**88**	60-115	0	25	
67-66-3	Chloroform	214	180	180	**84**	**84**	66-105	0	25	
109-99-9	Tetrahydrofuran (THF)	220	202	204	**92**	**93**	65-110	1	25	
107-06-2	1,2-Dichloroethane	214	165	166	**77**	**78**	60-110	1	25	
71-55-6	1,1,1-Trichloroethane	214	181	180	**85**	**84**	64-108	1	25	
71-43-2	Benzene	210	179	179	**85**	**85**	67-106	0	25	
56-23-5	Carbon Tetrachloride	208	176	175	**85**	**84**	64-112	1	25	
110-82-7	Cyclohexane	422	372	372	**88**	**88**	67-110	0	25	
78-87-5	1,2-Dichloropropane	214	198	198	**93**	**93**	66-112	0	25	
75-27-4	Bromodichloromethane	218	182	182	**83**	**83**	67-113	0	25	
79-01-6	Trichloroethene	216	190	190	**88**	**88**	66-108	0	25	
123-91-1	1,4-Dioxane	216	202	202	**94**	**94**	70-116	0	25	
80-62-6	Methyl Methacrylate	430	413	413	**96**	**96**	73-118	0	25	
142-82-5	n-Heptane	214	198	198	**93**	**93**	66-110	0	25	
10061-01-5	cis-1,3-Dichloropropene	214	213	213	**100**	**100**	75-120	0	25	
108-10-1	4-Methyl-2-pentanone	212	204	205	**96**	**97**	65-124	1	25	
10061-02-6	trans-1,3-Dichloropropene	212	213	212	**100**	**100**	77-123	0	25	
79-00-5	1,1,2-Trichloroethane	214	198	198	**93**	**93**	68-112	0	25	
108-88-3	Toluene	212	204	204	**96**	**96**	62-111	0	25	
591-78-6	2-Hexanone	216	212	214	**98**	**99**	59-128	1	25	
124-48-1	Dibromochloromethane	214	217	216	**101**	**101**	67-123	0	25	
106-93-4	1,2-Dibromoethane	214	215	214	**100**	**100**	66-122	0	25	
123-86-4	n-Butyl Acetate	218	219	220	**100**	**101**	64-128	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.

Client: **PES Environmental**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1906575
Client Project ID: **MVSC / 1358.001.02.015** ALS Sample ID: P191122-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 11/22/19
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
111-65-9	n-Octane	216	217	217	**100**	**100**	65-114	0	25	
127-18-4	Tetrachloroethene	208	214	214	**103**	**103**	55-120	0	25	
108-90-7	Chlorobenzene	214	204	203	**95**	**95**	61-114	0	25	
100-41-4	Ethylbenzene	212	208	208	**98**	**98**	64-113	0	25	
179601-23-1	m,p-Xylenes	426	408	408	**96**	**96**	64-114	0	25	
75-25-2	Bromoform	214	212	212	**99**	**99**	65-132	0	25	
100-42-5	Styrene	212	228	228	**108**	**108**	67-124	0	25	
95-47-6	o-Xylene	214	202	201	**94**	**94**	65-114	0	25	
111-84-2	n-Nonane	214	217	217	**101**	**101**	64-117	0	25	
79-34-5	1,1,2,2-Tetrachloroethane	214	203	203	**95**	**95**	66-119	0	25	
98-82-8	Cumene	214	208	208	**97**	**97**	61-116	0	25	
80-56-8	alpha-Pinene	212	210	211	**99**	**100**	65-120	1	25	
103-65-1	n-Propylbenzene	214	211	211	**99**	**99**	63-117	0	25	
622-96-8	4-Ethyltoluene	210	213	212	**101**	**101**	63-124	0	25	
108-67-8	1,3,5-Trimethylbenzene	212	211	210	**100**	**99**	60-117	1	25	
95-63-6	1,2,4-Trimethylbenzene	212	196	195	**92**	**92**	61-122	0	25	
100-44-7	Benzyl Chloride	214	189	190	**88**	**89**	77-142	1	25	
541-73-1	1,3-Dichlorobenzene	214	220	220	**103**	**103**	61-125	0	25	
106-46-7	1,4-Dichlorobenzene	214	222	221	**104**	**103**	59-123	1	25	
95-50-1	1,2-Dichlorobenzene	214	204	204	**95**	**95**	61-126	0	25	
5989-27-5	d-Limonene	212	203	203	**96**	**96**	66-124	0	25	
96-12-8	1,2-Dibromo-3-chloropropane	214	206	208	**96**	**97**	67-138	1	25	
120-82-1	1,2,4-Trichlorobenzene	216	215	215	**100**	**100**	62-141	0	25	
91-20-3	Naphthalene	212	201	202	**95**	**95**	62-145	0	25	
87-68-3	Hexachlorobutadiene	214	249	250	**116**	**117**	49-131	0.9	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.

Response Factor Report MS13

Method Path : I:\MS13\METHODS\
Method File : R13110119.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Sat Nov 02 09:55:49 2019
Response Via : Initial Calibration

Calibration Files
0.1 =11011916.D 0.2 =11011917.D 0.5 =11011928.D 1.0 =11011919.D 5.0 =11011920.D 25 =11011921.D 50 =11011922.D
100 =11011923.D

		Compound	0.1	0.2	0.5	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------	ISTD	----------							
2)	T	Propene	1.878	1.643	1.398	1.540	1.714	1.696	1.949	2.406	1.778	17.32
3)	T	Dichlorodifluo...	3.130	2.990	2.330	2.699	2.935	2.892	2.944	3.022	2.868	8.70
4)	T	Chloromethane	2.729	2.522	1.825	2.089	2.053	2.026	1.618		2.123	18.11
5)	T	1,2-Dichloro-1...	1.543	1.465	1.304	1.433	1.577	1.759	1.639	1.764	1.561	10.25
6)	T	Vinyl Chloride	2.463	2.506	1.799	1.957	2.596	2.806	2.590	2.702	2.427	14.74
7)	T	1,3-Butadiene	1.297	1.249	1.170	1.335	1.554	1.829	1.960	2.199	1.574	24.10
8)	T	Bromomethane	1.202	1.146	0.983	1.105	1.208	1.211	1.269	1.376	1.188	9.73
9)	T	Chloroethane	1.049	1.060	0.870	0.960	1.057	1.046	1.086	1.174	1.038	8.62
10)	T	Ethanol	1.342	1.092	0.922	0.993	1.119	1.245	1.323	1.394	1.179	14.69
11)	T	Acetonitrile	3.269	2.708	2.237	2.466	2.844	2.857	2.960	3.114	2.807	11.93
12)	T	Acrolein	0.870	0.890	0.708	0.826	0.973	0.955	0.947	1.000	0.896	10.64
13)	T	Acetone	1.405	1.198	0.977	1.038	1.177	1.311	1.367	1.308	1.223	12.61
14)	T	Trichlorofluor...	2.466	2.380	1.981	2.230	2.495	2.505	2.588	2.801	2.431	10.05
15)	T	2-Propanol (Is...	3.908	3.728	3.240	3.564	4.067	4.289	4.116	3.526	3.805	9.28
16)	T	Acrylonitrile	1.777	1.697	1.456	1.668	2.035	2.103	2.156	2.271	1.896	15.05
17)	T	1,1-Dichloroet...	1.253	1.224	1.012	1.175	1.313	1.350	1.399	1.552	1.285	12.51
18)	T	2-Methyl-2-Pro...	3.563	3.421	2.878	3.379	3.528	3.763	3.057	2.299	3.236	14.60
19)	T	Methylene Chlo...	1.413	1.337	1.110	1.273	1.425	1.465	1.525	1.704	1.407	12.52
20)	T	3-Chloro-1-pro...	2.250	2.093	1.796	1.976	2.335	2.420	2.486	2.629	2.248	12.37
21)	T	Trichlorotrifl...	0.939	1.024	0.823	0.942	1.031	1.064	1.088	1.220	1.016	11.64
22)	T	Carbon Disulfide	7.274	5.582	4.858	4.692	5.141	5.253	5.308	5.515	5.453	14.59
23)	T	trans-1,2-Dich...	2.042	1.945	1.601	1.883	2.114	2.164	2.227	2.374	2.044	11.60
24)	T	1,1-Dichloroet...	2.599	2.545	2.106	2.346	2.628	2.622	2.652	2.782	2.535	8.36
25)	T	Methyl tert-Bu...	4.091	4.087	3.379	3.906	4.363	4.136	3.147	2.351	3.682	18.36
26)	T	Vinyl Acetate			0.249	0.298	0.368	0.447	0.484	0.453	0.383	24.65
27)	T	2-Butanone (MEK)	0.746	0.879	0.758	0.903	1.059	1.114	1.156	1.265	0.985	19.44
28)	T	cis-1,2-Dichlo...	2.083	1.964	1.618	1.855	2.089	2.134	2.207	2.339	2.036	10.95
29)	T	Diisopropyl Ether	1.238	1.283	1.079	1.289	1.502	1.524	1.678	1.527	1.390	14.23
30)	T	Ethyl Acetate	0.485	0.453	0.421	0.485	0.581	0.687	0.747	0.688	0.568	22.01
31)	T	n-Hexane	2.541	2.439	2.096	2.352	2.687	3.042	3.217	2.944	2.665	14.28
32)	T	Chloroform	2.436	2.420	1.940	2.307	2.599	2.676	2.779	2.962	2.515	12.49
33)	S	1,2-Dichloroet...	1.884	1.864	1.894	1.866	1.856	1.832	1.838	1.857	1.861	1.13
34)	T	Tetrahydrofura...	1.079	0.932	0.804	0.865	0.982	1.021	1.055	1.147	0.986	11.60
35)	T	Ethyl tert-But...	1.467	1.435	1.258	1.477	1.717	1.821	1.941	2.137	1.657	17.95
36)	T	1,2-Dichloroet...	2.087	1.977	1.599	1.872	2.071	2.107	2.161	2.273	2.018	10.25
37)	IR	1,4-Difluorobenzen...	----------	ISTD	----------							
38)	T	1,1,1-Trichlor...	0.448	0.448	0.372	0.427	0.487	0.505	0.516	0.529	0.467	11.30
39)	T	Isopropyl Acetate	0.189	0.192	0.165	0.188	0.220	0.259	0.279	0.273	0.221	20.06
40)	T	1-Butanol	0.366	0.288	0.264	0.271	0.350	0.428	0.466	0.446	0.360	22.45
41)	T	Benzene	1.635	1.397	1.087	1.214	1.348	1.439	1.543	1.445	1.389	12.57
42)	T	Carbon Tetrach...	0.373	0.371	0.318	0.378	0.436	0.463	0.481	0.506	0.416	15.67

11/4/19

Method Path : I:\MS13\METHODS\
Method File : R13110119.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

43)	T	Cyclohexane	0.499	0.467	0.388	0.450	0.513	0.566	0.588	0.546	0.502	13.14
44)	T	tert-Amyl Meth...	0.889	0.830	0.682	0.795	0.925	0.986	1.026	1.044	0.897	13.84
45)	T	1,2-Dichloropr...	0.380	0.314	0.260	0.297	0.330	0.340	0.349	0.367	0.330	11.77
46)	T	Bromodichlorom...	0.441	0.368	0.319	0.366	0.437	0.474	0.495	0.527	0.428	16.77
47)	T	Trichloroethene	0.385	0.296	0.243	0.279	0.317	0.345	0.372	0.412	0.331	17.42
48)	T	1,4-Dioxane	0.258	0.210	0.194	0.217	0.252	0.290	0.313	0.352	0.261	20.92
49)	T	2,2,4-Trimethy...	1.733	1.352	1.136	1.275	1.438	1.483	1.510	1.459	1.423	12.41
50)	T	Methyl Methacr...	0.122	0.100	0.088	0.105	0.126	0.145	0.159	0.168	0.127	22.80
51)	T	n-Heptane	0.356	0.311	0.258	0.300	0.343	0.368	0.392	0.415	0.343	15.02
52)	T	cis-1,3-Dichlo...	0.435	0.415	0.381	0.449	0.536	0.579	0.604	0.637	0.505	19.09
53)	T	4-Methyl-2-pen...	0.276	0.268	0.230	0.270	0.318	0.351	0.369	0.395	0.310	18.63
54)	T	trans-1,3-Dich...	0.340	0.340	0.320	0.377	0.471	0.515	0.534	0.562	0.432	22.81
55)	T	1,1,2-Trichlor...	0.285	0.274	0.222	0.269	0.301	0.319	0.332	0.356	0.295	14.14
56)	IR	Chlorobenzene-d5 (...	----------	ISTD	----------							
57)	S	Toluene-d8 (SS2)	2.508	2.474	2.502	2.504	2.468	2.446	2.416	2.363	2.460	2.06
58)	T	Toluene	2.913	2.555	2.119	2.425	2.746	2.874	2.928	2.787	2.668	10.63
59)	T	2-Hexanone	1.472	1.240	1.211	1.369	1.620	1.754	1.809	1.797	1.534	16.00
60)	T	Dibromochlorom...	0.527	0.516	0.494	0.575	0.701	0.780	0.817	0.868	0.660	22.73
61)	T	1,2-Dibromoethane	0.580	0.565	0.502	0.587	0.692	0.732	0.758	0.800	0.652	16.48
62)	T	n-Butyl Acetate	1.561	1.385	1.327	1.489	1.783	1.926	1.975	1.948	1.674	15.83
63)	T	n-Octane	0.540	0.536	0.458	0.525	0.611	0.661	0.704	0.737	0.596	16.39
64)	T	Tetrachloroethene	0.625	0.622	0.505	0.592	0.666	0.746	0.809	0.896	0.683	18.56
65)	T	Chlorobenzene	1.562	1.521	1.306	1.511	1.716	1.822	2.342	1.927	1.713	18.72
66)	T	Ethylbenzene	2.877	2.696	2.273	2.676	3.066	3.338	3.408	3.074	2.926	12.83
67)	T	m- & p-Xylenes	2.219	2.015	1.783	2.071	2.430	2.779	2.849	2.378	2.316	15.98
68)	T	Bromoform			0.329	0.397	0.535	0.653	0.718	0.799	0.572	32.31
69)	T	Styrene	1.326	1.255	1.159	1.497	1.845	2.086	2.194	2.128	1.686	25.23
70)	T	o-Xylene	2.186	2.082	1.819	2.102	2.465	2.801	2.964	2.655	2.384	16.77
71)	T	n-Nonane	1.242	1.212	1.091	1.227	1.469	1.601	1.667	1.559	1.384	15.56
72)	T	1,1,2,2-Tetrac...	0.972	0.919	0.837	0.985	1.180	1.332	1.435	1.384	1.131	20.52
73)	S	Bromofluoroben...	0.503	0.512	0.510	0.515	0.532	0.542	0.545	0.549	0.526	3.43
74)	T	Cumene	2.778	2.626	2.221	2.576	3.002	3.337	3.412	2.942	2.862	13.91
75)	T	alpha-Pinene	1.325	1.343	0.990	1.290	1.575	1.782	1.910	1.793	1.501	21.05
76)	T	n-Propylbenzene	3.284	2.997	2.740	3.199	3.741	4.096	4.058	3.351	3.433	14.26
77)	T	3-Ethyltoluene	2.628	2.398	2.181	2.548	3.046	3.380	3.670	3.038	2.861	17.81
78)	T	4-Ethyltoluene	2.345	2.197	2.063	2.429	2.887	3.385	3.268	2.869	2.680	18.44
79)	T	1,3,5-Trimethy...	2.031	1.912	1.790	2.127	2.530	2.904	3.061	2.678	2.379	20.11
80)	T	alpha-Methylst...				1.036	1.338	1.556	1.715	1.619	1.453	18.67
81)	T	2-Ethyltoluene	2.476	2.320	2.109	2.466	2.999	3.397	3.516	3.029	2.789	18.60
82)	T	1,2,4-Trimethy...			1.766	2.110	2.649	3.343	3.152	2.222	2.540	24.37
83)	T	n-Decane	0.920	0.940	1.049	1.244	1.480	1.724	1.866	1.616	1.355	27.18
84)	T	Benzyl Chloride				1.396	2.061	2.651	2.871	2.467	2.289	25.38
85)	T	1,3-Dichlorobe...	1.070	0.941	0.941	1.117	1.397	1.683	1.857	1.690	1.337	27.58
86)	T	1,4-Dichlorobe...	1.037	0.936	0.949	1.136	1.381	1.589	1.815	1.677	1.315	26.45
87)	T	sec-Butylbenzene	2.990	2.649	2.379	2.839	3.435	3.852	3.940	3.132	3.152	17.65
88)	T	4-Isopropyltol...			2.098	2.516	3.182	3.927	3.504	2.354	2.930	24.52
89)	T	1,2,3-Trimethy...			1.769	2.122	2.689	3.423	3.158	2.169	2.555	25.29
90)	T	1,2-Dichlorobe...			0.896	1.074	1.355	1.695	1.792	1.390	1.367	25.27
91)	T	d-Limonene			0.529	0.841	1.093	1.332	1.382	1.034	1.035	30.72
92)	T	1,2-Dibromo-3-...			0.278	0.339	0.455	0.532	0.584	0.636	0.471	29.79
93)	T	n-Undecane			0.998	1.200	1.481	1.700	1.805	1.603	1.465	21.12
94)	T	1,2,4-Trichlor...			0.564	0.685	0.847	0.981	1.146	1.227	0.908	28.51

Method Path : I:\MS13\METHODS\
Method File : R13110119.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

95)	T	Naphthalene			1.948	2.477	3.224	3.858	3.922	2.913	3.057	25.35
96)	T	n-Dodecane				1.188	1.553	1.785	1.861	1.370	1.552	18.11
97)	T	Hexachlorobuta...	0.426	0.422	0.370	0.445	0.538	0.654	0.792		0.521	29.15
98)	T	Cyclohexanone	0.891	0.774	0.717	0.784	0.981	1.142	1.198	1.247	0.967	21.47
99)	T	tert-Butylbenzene	2.158	1.953	1.701	2.034	2.522	3.133	2.930	2.096	2.316	21.59
100)	T	n-Butylbenzene			1.923	2.320	2.822	3.158	3.207	2.604	2.673	18.60

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\MS13\DATA\2019 11\22\11221901.D Vial: 2
Acq On : 21 Nov 2019 23:41 Operator: WA
Sample : CCV R11221901 25ng Inst : MS13
Misc : S31-10251901/S31-10301905

Quant Time: Nov 22 06:15:06 2019
Quant Method : I:\MS13\METHODS\R13110119.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Nov 02 09:55:49 2019
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

VOA 11/22/19

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	96	-0.01
2	T	Propene	1.778	1.759	1.1	100	-0.01
3	T	Dichlorodifluoromethane (CF	2.868	2.469	13.9	82	-0.01
4	T	Chloromethane	2.123	1.884	11.3	89	0.00
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.561	1.320	15.4	72	-0.02
6	T	Vinyl Chloride	2.427	2.125	12.4	73	-0.01
7	T	1,3-Butadiene	1.574	1.608	-2.2	85	-0.02
8	T	Bromomethane	1.188	1.181	0.6	94	-0.02
9	T	Chloroethane	1.038	1.086	-4.6	100	-0.02
10	T	Ethanol	1.179	1.157	1.9	89	-0.07
11	T	Acetonitrile	2.807	3.043	-8.4	102	-0.05
12	T	Acrolein	0.896	0.962	-7.4	97	-0.02
13	T	Acetone	1.223	1.102	9.9	81	-0.04
14	T	Trichlorofluoromethane	2.431	2.089	14.1	80	-0.02
15	T	2-Propanol (Isopropanol)	3.805	3.982	-4.7	89	-0.05
16	T	Acrylonitrile	1.896	2.160	-13.9	99	-0.03
17	T	1,1-Dichloroethene	1.285	1.301	-1.2	93	-0.01
18	T	2-Methyl-2-Propanol (tert-B	3.236	3.514	-8.6	90	-0.04
19	T	Methylene Chloride	1.407	1.395	0.9	92	-0.01
20	T	3-Chloro-1-propene (Allyl C	2.248	2.440	-8.5	97	-0.02
21	T	Trichlorotrifluoroethane	1.016	1.088	-7.1	98	-0.01
22	T	Carbon Disulfide	5.453	5.072	7.0	93	-0.01
23	T	trans-1,2-Dichloroethene	2.044	2.039	0.2	91	-0.01
24	T	1,1-Dichloroethane	2.535	2.469	2.6	91	0.00
25	T	Methyl tert-Butyl Ether	3.682	3.499	5.0	81	-0.01
26	T	Vinyl Acetate	0.383	0.348	9.1	75	-0.03
27	T	2-Butanone (MEK)	0.985	1.050	-6.6	91	-0.02
28	T	cis-1,2-Dichloroethene	2.036	1.960	3.7	88	-0.01
29	T	Diisopropyl Ether	1.390	1.214	12.7	77	0.00
30	T	Ethyl Acetate	0.568	0.540	4.9	76	-0.02
31	T	n-Hexane	2.665	2.472	7.2	78	0.00
32	T	Chloroform	2.515	2.251	10.5	81	-0.01
33	S	1,2-Dichloroethane-d4(SS1)	1.861	1.488	20.0	78	0.00
34	T	Tetrahydrofuran (THF)	0.986	0.981	0.5	92	0.00
35	T	Ethyl tert-Butyl Ether	1.657	1.676	-1.1	89	0.00
36	T	1,2-Dichloroethane	2.018	1.638	18.8	75	-0.01
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	96	0.00
38	T	1,1,1-Trichloroethane	0.467	0.424	9.2	80	0.00
39	T	Isopropyl Acetate	0.221	0.216	2.3	80	-0.01
40	T	1-Butanol	0.360	0.352	2.2	79	-0.03
41	T	Benzene	1.389	1.275	8.2	85	-0.01
42	T	Carbon Tetrachloride	0.416	0.380	8.7	79	0.00
43	T	Cyclohexane	0.502	0.480	4.4	81	0.00
44	T	tert-Amyl Methyl Ether	0.897	0.899	-0.2	87	0.00
45	T	1,2-Dichloropropane	0.330	0.323	2.1	91	0.00
46	T	Bromodichloromethane	0.428	0.393	8.2	79	0.00
47	T	Trichloroethene	0.331	0.318	3.9	88	0.00
48	T	1,4-Dioxane	0.261	0.264	-1.1	87	-0.01
49	T	2,2,4-Trimethylpentane (Iso	1.423	1.404	1.3	91	0.00
50	T	Methyl Methacrylate	0.127	0.133	-4.7	87	-0.01
51	T	n-Heptane	0.343	0.336	2.0	87	0.00
52	T	cis-1,3-Dichloropropene	0.505	0.528	-4.6	87	0.00
53	T	4-Methyl-2-pentanone	0.310	0.325	-4.8	89	-0.01
54	T	trans-1,3-Dichloropropene	0.432	0.463	-7.2	86	0.00
55	T	1,1,2-Trichloroethane	0.295	0.294	0.3	88	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS13\DATA\2019 11\22\11221901.D Vial: 2
Acq On : 21 Nov 2019 23:41 Operator: WA
Sample : CCV R11221901 25ng Inst : MS13
Misc : S31-10251901/S31-10301905

Quant Time: Nov 22 06:15:06 2019
Quant Method : I:\MS13\METHODS\R13110119.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Nov 02 09:55:49 2019
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	90	0.00
57	S	Toluene-d8 (SS2)	2.460	2.516	-2.3	93	0.00
58	T	Toluene	2.668	2.744	-2.8	86	0.00
59	T	2-Hexanone	1.534	1.671	-8.9	86	-0.01
60	T	Dibromochloromethane	0.660	0.725	-9.8	84	0.00
61	T	1,2-Dibromoethane	0.652	0.699	-7.2	86	0.00
62	T	n-Butyl Acetate	1.674	1.870	-11.7	88	0.00
63	T	n-Octane	0.596	0.644	-8.1	88	0.00
64	T	Tetrachloroethene	0.683	0.763	-11.7	92	0.00
65	T	Chlorobenzene	1.713	1.756	-2.5	87	0.00
66	T	Ethylbenzene	2.926	3.065	-4.8	83	0.00
67	T	m- & p-Xylenes	2.316	2.372	-2.4	77	0.00
68	T	Bromoform	0.572	0.616	-7.7	85	0.00
69	T	Styrene	1.686	1.943	-15.2	84	0.00
70	T	o-Xylene	2.384	2.435	-2.1	78	-0.01
71	T	n-Nonane	1.384	1.510	-9.1	85	0.00
72	T	1,1,2,2-Tetrachloroethane	1.131	1.164	-2.9	79	0.00
73	S	Bromofluorobenzene (SS3)	0.526	0.593	-12.7	99	0.00
74	T	Cumene	2.862	3.019	-5.5	82	0.00
75	T	alpha-Pinene	1.501	1.622	-8.1	82	0.00
76	T	n-Propylbenzene	3.433	3.668	-6.8	81	0.00
77	T	3-Ethyltoluene	2.861	3.017	-5.5	81	0.00
78	T	4-Ethyltoluene	2.680	2.978	-11.1	79	0.00
79	T	1,3,5-Trimethylbenzene	2.379	2.571	-8.1	80	0.00
80	T	alpha-Methylstyrene	1.453	1.384	4.7	80	0.00
81	T	2-Ethyltoluene	2.789	2.981	-6.9	79	0.00
82	T	1,2,4-Trimethylbenzene	2.540	2.527	0.5	68	-0.01
83	T	n-Decane	1.355	1.568	-15.7	82	0.00
84	T	Benzyl Chloride	2.289	2.200	3.9	75	0.00
85	T	1,3-Dichlorobenzene	1.337	1.494	-11.7	80	0.00
86	T	1,4-Dichlorobenzene	1.315	1.469	-11.7	83	0.00
87	T	sec-Butylbenzene	3.152	3.420	-8.5	80	0.00
88	T	4-Isopropyltoluene (p-Cymen	2.930	3.036	-3.6	70	-0.01
89	T	1,2,3-Trimethylbenzene	2.555	2.551	0.2	67	-0.01
90	T	1,2-Dichlorobenzene	1.367	1.424	-4.2	76	0.00
91	T	d-Limonene	1.035	1.077	-4.1	73	-0.01
92	T	1,2-Dibromo-3-Chloropropane	0.471	0.529	-12.3	90	0.00
93	T	n-Undecane	1.465	1.616	-10.3	86	0.00
94	T	1,2,4-Trichlorobenzene	0.908	1.029	-13.3	95	0.00
95	T	Naphthalene	3.057	3.224	-5.5	75	0.00
96	T	n-Dodecane	1.552	1.575	-1.5	80	0.00
97	T	Hexachlorobutadiene	0.521	0.708	-35.9#	98	0.00
98	T	Cyclohexanone	0.967	1.120	-15.8	88	0.00
99	T	tert-Butylbenzene	2.316	2.423	-4.6	70	0.00
100	T	n-Butylbenzene	2.673	2.738	-2.4	78	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

MEMORANDUM

TO: Project File **DATE:** December 9, 2019

FROM: Jessie Compeau

SUBJECT: Laboratory Data Validation Review

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

PROJECT #: 1358.001.02.015

TASK: EIM Data Validation Level EPA2A – July and October Quarterly Air Samples

LAB: ALS Environmental Service Request Numbers: P1904055 and P1906575

One soil vapor extraction sample was collected for the July 8 and the October 28 2019 quarterly sampling events at the Manhattan Village Shopping Center in Normandy Park, Washington. The samples were analyzed for 68 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 P1904055 and P1906575.

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

DATA QUALIFICATIONS

Guidelines established by USEPA for a limited data validation 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

The 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 summa cannisters (6-Liter) for the air samples. The samples were shipped, delivered by FedEx, and received in good condition by the laboratory. The samples

were collected, handled, and delivered in an appropriate manner. No data qualifications were warranted based upon sampling and preservation techniques.

Holding Times

The analyses for VOCs by Method TO-15 were performed within the 30-day recommended holding time limit for the air samples collected in a summa cannister. 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 calibrations.

Method Blank Results

Laboratory method blanks were included with the analytical batch per method requirement. The method blank results do not report any compounds at concentrations at or above the reporting detection limit (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 the sample (sample SYS-07082019) collected in July of 2019. All target compound RPDs are within laboratory control limit criteria of 25%. Refer to the Laboratory Control Sample section for additional precision information.

Surrogate Recoveries

The surrogate percent recovery (% R) results for the VOCs by TO-15 air samples, method blanks, 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 samples/laboratory control sample duplicates (LCS/LCSDs) were analyzed for the VOCs by TO-15 along with each analytical batch. LCS/LCSD %Rs and relative percent differences (RPDs) are within QC criteria with the following exception:

- Service Request P1906575: LCSD recovery for methyl tert-butyl ether (MTBE) is marginally below control limit criteria. No action is taken since the LCS recovery for MTBE is within control limit criteria.

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 are reported based on laboratory MRLs (assuming standard temperature and pressure is equal to 24.45) and reported in units of ppbv and $\mu g/m^3$.

The MRLs indicate the minimum quantity of a target analyte that can be confidently determined by the reference method. For sample SYS-07082019 and sample STACK – 102819 tetrachloroethene MRLs for are elevated due to method-required dilutions. The MRLs were acceptable for the project; therefore, no data qualifications were warranted.

Data Assessment

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

ATTACHMENT C
BORING LOGS AND FIELD SOIL SCREENING DATA

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF BORING: MW-17

Well Completion	PID (PPM)	Sample ID	Blow Count	Sample Recovery	Sample Interval	Depth (Feet)	Graphic Log	Lithologic Description
Concrete	0.0					0		Asphalt (4 inches)
								BROWN SAND (SP), trace gravel, homogenous (FILL)
						2		
						4		
						6		
						8		Air knife & vac to 8 feet
	0.2	MW-17-10	5 7 10	18		10		GRAYISH BROWN SILTY SAND (SM), moist, medium dense, fine to medium, little fines
						12		
						14		
Bentonite Chips	0.2	MW-17-15	7 10 13	18		16		at 15 feet: some fines, occasional 2-inch thick layers with greater fines content
Sch 40 PVC Casing						18		
	0.2	MW-17-20	8 12 13	14		20		
						22		
						24		at 24 feet: becomes very dense
	0.3	MW-17-25*	31 42 50/5	16		26		at 25 feet: 6-inch layer of brown silty sand that transitions with depth to gray, trace subangular to subrounded gravel up to 0.5-inch diameter
						28		
	0.4	MW-17-30*	15 25 40	18		30		at 30 feet: little fines
#12-20 Sand						32		
						34		GRAYISH BROWN SAND WITH SILT (SP), wet, very dense, fine to medium, few fines
	0.4	MW-17-35*	28 36 36	18		36		at 35 feet: (driller noted water)
0.010-inch Sch 40 PVC screen						38		
Well cap	0.3	MW-17-38	15 25 48	18		40		at 38 feet: medium sand

Project: Manhattan Village Shopping Center & Harris Properties
Project Number: 1358.001.01.009
Site Location: Normandy Park
Logged By: Ben Hecht
Ecology I.D. BLI-196

Total Drilled Depth: 39.5 feet
Diameter of Boring: 7.5-inches
Drill Date: 3/1/19
Drilled By: Holt Services
Drill Method: Hollow Stem Auger

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF BORING: MW-17

Well Completion	PID (PPM)	Sample ID	Blow Count	Sample Recovery	Sample Interval	Depth (Feet)	Graphic Log	Lithologic Description
								Bottom of boring at 39.5 feet Well Completion Details: Well constructed with 2-inch Schedule 40 PVC pipe and 0.010-inch machine slotted screen with #12-20 Pioneer Sand Total Well Depth: 38.3 feet Well Endcap: 37.9 to 38.3 feet Well Screen: 27.9 to 37.9 feet Well Blank: 0.2 to 27.9 feet Filter Pack: 26 to 39.5 feet Well Seal: 2 to 26 feet Surface Seal: 0 to 2 feet Well Monument: Flush with grade 8-inch steel monument *Sample submitted for laboratory analysis

Project: Manhattan Village Shopping Center & Harris Properties
Project Number: 1358.001.01.009
Site Location: Normandy Park
Logged By: Ben Hecht
Ecology I.D. BLI-196

Total Drilled Depth: 39.5 feet
Diameter of Boring: 7.5-inches
Drill Date: 3/1/19
Drilled By: Holt Services
Drill Method: Hollow Stem Auger

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF BORING: MW-18

Well Completion	PID (PPM)	Sample ID	Blow Count	Sample Recovery	Sample Interval	Depth (Feet)	Graphic Log	Lithologic Description
Concrete						0		Asphalt (5 inches)
						2		BROWN SAND (SP), trace gravel, homogenous (FILL)
						4		
						6		
						8		Air knife & vac to 8 feet
Bentonite Chips	0.2	MW-18-10*	2 6 7	18		10		BROWN SAND WITH SILT (SP), moist, medium dense, fine to medium, few fines, trace orange staining
						12		
Sch 40 PVC Casing	0.0	MW-18-15	6 9 8	14		14		BROWN SILTY SAND (SM), moist, medium dense, fine to medium, little fines
						16		
						18		
	0.1	MW-18-20	8 10 13	18		20		GRAYISH BROWN SILTY SAND (SM), dry, medium dense, fine to medium, some fines at 21 feet: three 1-inch silt lenses
						22		at 22 feet: (driller noted gravel and harder drilling)
						24		GRAYISH BROWN SILTY SAND WITH GRAVEL (SM), dry, very dense, fine to coarse, little fine to coarse subangular to subrounded gravel up to 1.5-inch diameter, little fines
	0.2	MW-18-25	24 39 46	18		26		
						28		
	0.2	MW-18-30*	23 34 39	18		30		at 30 feet: moist, few subangular to subrounded gravel up to 0.5-inch diameter
						32		
#12-20 Sand						34		GRAYISH BROWN SAND (SP), moist, very dense, fine to medium, few fines
0.010-inch Sch 40 PVC screen	0.3	MW-18-35*	22 30 34	17		36		
						38		
						40		GRAYISH BROWN SILTY SAND (SM), moist to wet, very dense, fine to medium, little fines, trace coarse sand

Project: Manhattan Village Shopping Center & Harris Properties
Project Number: 1358.001.01.009
Site Location: Normandy Park
Logged By: Ben Hecht
Ecology I.D. BLI-195

Total Drilled Depth: 41.5 feet
Diameter of Boring: 7.5-inches
Drill Date: 2/28/2019
Drilled By: Holt Services
Drill Method: Hollow Stem Auger

Well Completion	PID (PPM)	Sample ID	Blow Count	Sample Recovery	Sample Interval	Depth (Feet)	Graphic Log	Lithologic Description
Well Cap	0.2	MW-18-40	18 31 49	18				
						42		Bottom of boring at 41.5 feet Well Completion Details: Well constructed with 2-inch Schedule 40 PVC pipe and 0.010-inch machine slotted screen with #12-20 Pioneer Sand Total Well Depth: 40.3 feet Well Endcap: 40 to 40.3 feet Well Screen: 30 to 40 feet Well Blank: 0.30 to 30 feet Filter Pack: 27.5 to 41.5 feet Well Seal: 3 to 27.5 feet Surface Seal: 0 to 3 feet Well Monument: Flush with grade 8-inch steel monument *Sample submitted for laboratory analysis
						44		
						46		
						48		
						50		
						52		
						54		
						56		
						58		
						60		
						62		
						64		
						66		
						68		
						70		
						72		
						74		
						76		
						78		
						80		

Project: Manhattan Village Shopping Center & Harris Properties
Project Number: 1358.001.01.009
Site Location: Normandy Park
Logged By: Ben Hecht
Ecology I.D. BLI-195

Total Drilled Depth: 41.5 feet
Diameter of Boring: 7.5-inches
Drill Date: 2/28/2019
Drilled By: Holt Services
Drill Method: Hollow Stem Auger

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF BORING: MW-19

Well Completion	PID (PPM)	Sample ID	Blow Count	Sample Recovery	Sample Interval	Depth (Feet)	Graphic Log	Lithologic Description
Concrete						0		Grass, gravel, plant roots
						2		LIGHT BROWN SILTY SAND (SM), moist, fine, some fines
						4		
						6		
						8		Air knife & vac to 7 feet bgs
								LIGHT BROWN SILT WITH SAND (SM), moist, hard, little fine sand
Bentonite Chips	0.4 0.6	MW-19-10	17 20 20	12		10		
						12		
						14		
	1 0.8	MW-19-15	19 20 28	14		16		BROWNISH GRAY SILTY SAND (SM), moist, medium dense, fine to medium, some fines
						18		
	0.6 0.7	MW-19-20	17 20 21	12		20		
Sch. 40 PVC blank casing						22		
						24		
	0.8 0.5	MW-19-25	14 24 45	12		26		at 26 feet: dense
	1.5 1.0 1.2		15 18 20	16				at 27.5 feet: medium dense
	1.0 1.0 1.0		16 19 20	18		28		GRAY SILT WITH SAND (ML), moist, hard, little fine sand at 29.5 feet: 6-inch layer of brownish gray silty sand, fine to medium
	0.7 1.2		10 13	18		30		GRAY SILT (ML), moist, hard, few fine sand
	1.2 0.8 1.0	MW-19-30.5	17 10 11	13		32		GRAY SILTY SAND (SM), moist, medium dense, fine to medium, little fines at 32 feet: 4-inch silt lens
	0.8 1.0		15 15 18	16				at 33 feet: some fines
	1.3 1.0 1.4		22 24 50	12		34		GRAY SILTY SAND WITH GRAVEL (SM), moist, medium dense, fine to coarse, little fines, little fine subangular to subrounded gravel
		MW-19-35	50					GRAY SILTY SAND (SM), moist, dense to very dense, fine to medium, little fines
	1.6 1.7		25 50 50/3	12		36		
	0.6 1.1		20 50	17				GRAY SAND WITH SILT (SP), wet, very dense, medium sand, trace fine subangular to subrounded gravel, homogenous in appearance
	1.0 1.0 1.4	MW-19-38	50/4 20 50 50/4	16		38 40		

Project: Manhattan Village Shopping Center & Harris Properties
Project Number: 1358.001.02.012
Site Location: Normandy Park
Logged By: Rachel McLaughlin
Ecology I.D. BLK-427

Total Drilled Depth: 55.5 feet
Diameter of Boring: 8-inches
Drill Date: 10/16/19 - 10/17/19
Drilled By: Cascade Drilling
Drill Method: Hollow Stem Auger

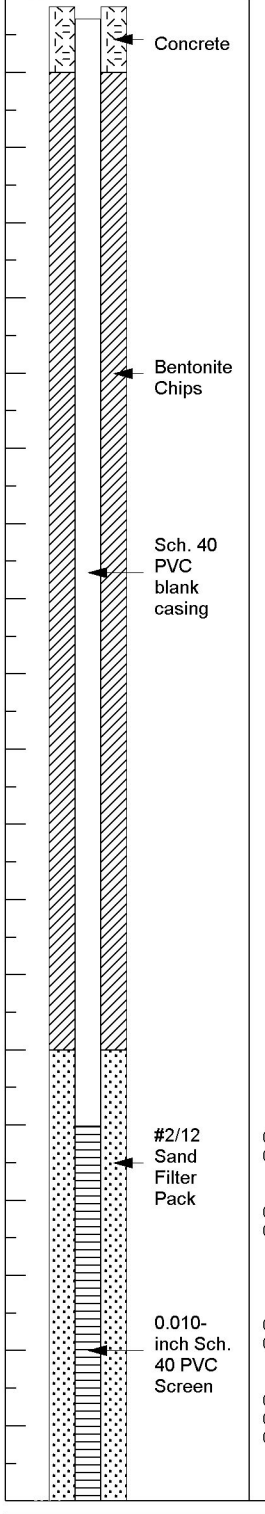
Well Completion	PID (PPM)	Sample ID	Blow Count	Sample Recovery	Sample Interval	Depth (Feet)	Graphic Log	Lithologic Description
	1.3		20					
	0.4		40	15				
			50/3					
	0.6		20					
	0.0		50	12		42		
								at 43 feet: fine to medium
	0.0		20					
	0.0		40	14		44		
#2/12 Sand Filter Pack		MW-19-44	50/3					
	0.0		25					
	0.0		50/5	11				
						46		at 45 feet: medium
	0.0		23					
			50/4	2				
	0.0		24					
	0.0		50	14		48		GRAY SILTY SAND (SM), wet, dense to very dense, fine to medium, little fines
0.010-inch Sch. 40 PVC Screen			50/2					
	0.0		25					
	0.0		50	12				at 49.5 feet: 6-inches of medium sand
		MW-19-50				50		
	0.0		7					
	0.0		32	17				
	0.0		50/5			52		
			25					
			50	0				
								at 53.5 feet: trace fine subangular to subrounded gravel
	0.0		65	6		54		
End Cap								LIGHT BROWN SILT (ML), moist, very hard, few fine to medium sand
			50					
		MW-19-55.5	50/3	9				
						56		Bottom of boring at 55.5 feet
								Well Completion Details: Well constructed with 2-inch Schedule 40 PVC pipe and 0.010-inch machine slotted screen with #2/12 Lapis Lustre sand
						58		
								Total Well Depth: 54.2 feet Well Endcap: 53.9 to 54.2 feet Well Screen: 43.9 to 53.9 feet Well Blank: 0.6 to 43.9 feet Filter Pack: 42 to 55 feet Well Seal: 2 to 42 feet Surface Seal: 0.3 to 2 feet Well Monument: Flush with grade 8-inch steel monument
						60		
						62		
						64		
						66		
						68		
						70		
						72		
						74		
						76		
						78		
						80		

Project: Manhattan Village Shopping Center & Harris Properties
Project Number: 1358.001.02.012
Site Location: Normandy Park
Logged By: Rachel McLaughlin
Ecology I.D. BLK-427

Total Drilled Depth: 55.5 feet
Diameter of Boring: 8-inches
Drill Date: 10/16/19 - 10/17/19
Drilled By: Cascade Drilling
Drill Method: Hollow Stem Auger

PES Environmental, Inc.
Engineering & Environmental Services

LOG OF BORING: MW-20



PID (PPM)	Sample ID	Blow Count	Sample Recovery	Sample Interval	Depth (Feet)	Graphic Log	Lithologic Description
					0		Grass, gravel, plant roots
					2		Drilled to 30 feet without sampling. See MW-19 for lithology
					4		
					6		Air knife & vac to 7 feet bgs
					8		
					10		
					12		
					14		
					16		
					18		
					20		
					22		
					24		
					26		
					28		
0.0		14			30		BROWNISH GRAY SILT WITH SAND (ML), moist, hard, few fine to medium sand
0.0	MW-20-30.5	17 18	14				BROWNISH GRAY SILTY SAND (SM), moist, medium dense, fine to medium, little fines
0.0					32		
0.0		17 20 20	12		34		
0.0	MW-20-35	25	10				GRAY SAND WITH SILT (SP), moist to wet, dense, fine to coarse, few fines, trace fine to coarse subangular to subrounded gravel
0.0		50/4			36		at 36 feet: wet
0.0							
0.0	MW-20-37.5	25	10		38		at 38 feet: fine to medium
0.0		50/4					
					40		

Project: Manhattan Village Shopping Center & Harris Properties
Project Number: 1358.001.02.012
Site Location: Normandy Park
Logged By: Rachel McLaughlin
Ecology I.D. BLK-428

Total Drilled Depth: 46 feet
Diameter of Boring: 8-inches
Drill Date: 10/17/19
Drilled By: Cascade Drilling
Drill Method: Hollow Stem Auger

Well Completion	PID (PPM)	Sample ID	Blow Count	Sample Recovery	Sample Interval	Depth (Feet)	Graphic Log	Lithologic Description
	0.0 0.0	MW-20-40.5	26 50/4	10				at 40 feet: no gravel
#2/12 Sand Filter Pack	0.0 0.0		25 50/5	NR		42 44		GRAY SILTY SAND (SM), wet, dense, fine to medium with trace coarse, little fines, trace fine to coarse subangular to subrounded gravel
End Cap	0.0	MW-20-45	27 50/4	8		46		GRAY SAND WITH SILT (SP), wet, dense, medium sand with trace coarse and fine, few fines, trace fine subangular to subrounded gravel
								Bottom of boring at 46 feet

Well Completion Details:
Well constructed with 2-inch Schedule 40 PVC pipe and 0.010-inch machine slotted screen with #2/12 Lapis Lustre sand

Total Well Depth: 45.3 feet
Well Endcap: 45.0 to 45.3 feet
Well Screen: 30.0 to 45.0 feet
Well Blank: 0.6 to 30.0 feet
Filter Pack: 28 to 46 feet
Well Seal: 2 to 28 feet
Surface Seal: 0.3 to 2 feet
Well Monument: Flush with grade 8-inch steel monument

48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80

Project: Manhattan Village Shopping Center & Harris Properties
Project Number: 1358.001.02.012
Site Location: Normandy Park
Logged By: Rachel McLaughlin
Ecology I.D. BLK-428

Total Drilled Depth: 46 feet
Diameter of Boring: 8-inches
Drill Date: 10/17/19
Drilled By: Cascade Drilling
Drill Method: Hollow Stem Auger

Table C1

Field Grain Size
Monitoring Wells MW-19 and MW-20
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

MW-19							MW-20						
Depth	Grain Size Distribution (%)			Sand Settling Tube (%)			Depth	Grain Size Distribution (%)			Sand Settling Tube (%)		
(ft)	Gravel	Sand	Fines	Course	Med	Fine	(ft)	Gravel	Sand	Fines	Course	Med	Fine
26	--	90	10	--	75	25							
27	--	80	20	--	75	25							
28	--	70	30	--	20	80							
29	--	15	85	--	--	100							
30	--	--	100	--	10	--	30.5	--	50	50	--	10	90
32	--	85	15	--	80	20	32	--	85	15	--	80	20
33	--	90	10	--	65	35	33	--	95	5	--	85	15
33.5	20	70	10	15	65	20	34	--	95	5	--	85	15
34.5	--	90	10	--	80	20							
36	--	95	5	--	80	20	35.5	Trace	85	10	30	65	5
37.5	--	100	Trace	Trace	90	10							
38.5	--	100	Trace	Trace	90	10	38	--	95	5	5	85	10
39.5	--	100	Trace	Trace	90	10							
40.5	--	95	5	Trace	90	10	41	--	100	Trace	--	90	10
42	--	100	Trace	--	90	10							
43.5	Trace	90	10	Trace	90	10	43	Trace	95	5	Trace	85	15
45	Trace	95	5	Trace	90	10	45.5	Trace	100	Tr	Trace	90	10
46.5	Trace	95	Trace	Trace	90	10							
48	--	95	5	--	85	15							
49.5	--	90	10	--	85	15							
50	--	90	10	--	85	15							
51	--	95	5	--	85	15							
54	--	90	10	Trace	80	20							
55	--	50	50	--	95	5							

NOTES:

1. The grain size distribution is summarized from the boring logs.
2. The sand fractions were visually estimated by placing sand in a small vial, water was added, shaken, and allowed to settle.

ATTACHMENT D
WELL COMPLETION DETAILS AND HISTORICAL GROUNDWATER DATA SUMMARIES

- Table D1 – Well Completion Details
- Table D2 – Historical Summary of Groundwater Elevations (1999-2019)
- Table D3 – Historical Summary of Groundwater Analytical Results (1999-2019)
- Table D4 – Historical Summary of Soil Analytical Results (1998 – 2019)

Table D1
Well Completion and Boring 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) Northing	Location (feet NAD 83/91) Easting	Elevation (feet NAVD 88) Monitoring Point	Elevation (feet NAVD 88) Surface Casing Rim	Elevation (feet NAVD 88) Ground Surface	Survey Notes	29.80-39.80 Monument Type	Boring Depth (feet)	Well Diameter (inches)	Screen Depth (ft bgs) Below Ground	Screen Depth (ft bgs) Below Top of Casing	Slot Size (inch)	Filter Pack (ft bgs)	Seal (ft bgs)
Shallow Monitoring Wells																	
MW-1		12/9/99	HSA	--	--	309.97	--	--	SCS, 1999 (converted)	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	PES, 08/2015	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	PES, 08/2015	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	PES, 08/2015	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	--	PES, 02/2013	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	PES, 02/2013; PES, 08/2015	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	PES, 02/2013; PES, 08/2015	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	PES, 02/2013; PES, 08/2015	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	PES, 02/2013; PES, 08/2015	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	PES, 02/2013; PES, 08/2015	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	PES, 02/2013; PES, 08/2015	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	PES, 02/2013; PES, 08/2015	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	PES, 02/2013; PES, 08/2015	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	--	PES, 02/2013	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	PES, 02/2013	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	PES, 05/2013	AG	43	2	27.2-42.2	29.45-44.65	0.020	25-43	0-25
MW-17	BLI196	3/1/19	HSA	165,371.0	1,268,609.7	303.01	303.56	303.60	PES, 03/2019; PES, 10/2019	Flush	39.5	2	28.2-38.2	27.61-37.61	0.010	26-39.5	0-26
MW-18	BLI195	2/28/19	HSA	165,386.9	1,268,688.3	305.26	305.74	305.70	PES, 03/2019; PES, 10/2019	Flush	41.5	2	30.3-40.3	29.86-39.86	0.010	27.5-41.5	0-27.5
MW-19	BLK427	10/24/19	HSA	165,346.1	1,268,663.1	305.35	305.77	305.90	PES, 10/2019	Flush	55.5	2	43.9-53.9	43.35-53.35	0.010	42-55	0-42
MW-20	BLK428	10/24/19	HSA	165,343.4	1,268,662.1	305.51	305.86	306.10	PES, 10/2019	Flush	46	2	30.0-45.0	29.41-44.41	0.010	28-46	0-28
DC-1		10/12/98	HSA	164,940.2	1,268,698.6	312.82	313.34	--	PES, 02/2013	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	PES, 02/2013; PES, 08/2015	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	PES, 02/2013; PES, 08/2015	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	PES, 02/2013; PES, 08/2015	Flush	49	2	44-49	43.36-48.36	0.020	41-49	0-41
DC-6		1/22/99	HSA	--	--	308.46	--	--	SCS, 1999 (converted)	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	PES, 02/2013; PES, 08/2015	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	PES, 02/2013; PES, 08/2015	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	--	--	ERM, 08/2008	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	PES, 02/2013; PES, 08/2015	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	--	PES, 02/2013	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	--	PES, 02/2013	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	--	PES, 02/2013	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	--	PES, 02/2013	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	--	PES, 02/2013	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	PES, 05/2013	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	PES, 02/2013; PES, 08/2015	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	--	PES, 02/2013	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	--	PES, 02/2013	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	--	PES, 02/2013; PES, 08/2015	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	PES, 02/2013; PES, 08/2015	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	296.99	297.77	297.70	Farallon, 05/2007; PES, 10/2019	Flush	40	2	25.18-35.18	24.47-34.47	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	Farallon, 05/2007; PES, 08/2015	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	Farallon, 05/2007; PES, 08/2015	Flush	34	2	24-34	23.66-33.66	0.020	22-34	0-22
KMW-6	APS-343	3/27/07	HSA	165,391.1	1,268,399.1	294.80	295.27	295.20	Farallon, 05/2007; PES, 08/2015; PES, 10/2019	Flush	42.5	2	26.18-41.18	25.78-40.78	0.020	22-41	0-22
KMW-7		3/25/07	HSA	165,389.7	1,268,563.6	301.42	302.02	302.00	Farallon, 05/2007; PES, 08/2015; PES, 10/2019	Flush	44	2	29.35-44.35	28.77-43.77	0.020	27-44	0-27
KMW-8	APS-341	3/26/07	HSA	165,386.2	1,268,800.7	308.16	308.73	308.70	Farallon, 05/2007; PES, 08/2015; PES, 10/2019	Flush	44	2	29.24-44.24	28.70-43.70	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	PES, 02/2013; PES, 08/2015	Flush	44	2	34-44	33.5-43.5	0.020	32-44	0-32

Table D1
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Well	Ecology Well Tag Number	Date Installed	Drilling Method	Location (feet NAD 83/91) Northing	Location (feet NAD 83/91) Easting	Elevation (feet NAVD 88) Monitoring Point	Elevation (feet NAVD 88) Surface Casing Rim	Elevation (feet NAVD 88) Ground Surface	Survey Notes	29.80-39.80 Monument Type	Boring Depth (feet)	Well Diameter (inches)	Screen Depth (ft bgs) Below Ground	Screen Depth (ft bgs) Below Top of Casing	Slot Size (inch)	Filter Pack (ft bgs)	Seal (ft bgs)
Deep Monitoring Wells																	
DC-5		1/22/99	HSA	165,166.5	1,268,526.9	306.03	306.28	306.24	PES, 02/2013; PES, 08/2015	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	--	--	ERM, 08/2008	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	PES, 02/2013; PES, 08/2015	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	--	Farallon, 05/2007; PES, 02/2013	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	Farallon, 05/2007; PES, 08/2015	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	--	--	--	--	--	--	PES, 02/2013; PES, 08/2015	Flush	11.5	2	3-11	--	0.020	2.5-11.5	1.5-2.5
VES-2A		1999	--	--	--	--	--	--	PES, 02/2013; PES, 08/2015	Flush	6.5	2	3-6	--	0.020	2.5-6.5	1.5-2.5
VES-2B		1999	--	--	--	--	--	--	PES, 02/2013	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	--	--	--	--	--	--	PES, 02/2013	Flush	6.5	2	3-6	--	0.020	2.5-6.5	1.5-2.5
VES-4 (BH-16)		1999	--	--	--	--	--	--	PES, 02/2013	Flush	6.5	2	3-6	--	0.020	2.5-6.5	1.5-2.5
VES-5 (BH-17)		1999	--	--	--	--	--	--	PES, 02/2013	Flush	6.5	2	3-6	--	0.010	2.5-6.5	1.5-2.5
VES-6A (BH-1)		1999	--	--	--	--	--	--	PES, 02/2013	Flush	6.5	2	3-6	--	0.020	2.5-6.5	1.5-2.5
VES-6B (BH-1)		1999	--	--	--	--	--	--	PES, 02/2013	Flush	36	2	11.5-35.5	--	0.020	7.5-36	1.5-2.5/6.5-7.5
VES-7		1999	--	--	--	--	--	--	PES, 02/2013	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	--	PES, 02/2013; PES, 08/2015	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	--	PES, 02/2013; PES, 08/2015	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	PES, 02/2013	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	PES, 02/2013	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	PES, 02/2013	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	--	PES, 02/2013	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	PES, 02/2013	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	PES, 02/2013	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	PES, 02/2013	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	--	PES, 02/2013	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	Flush	31	4	19.99-29.99	19.59-29.59	0.020	18-31	3.5-18
Vapor Monitoring Probes																	
VMP-1 (B-5)		3/26/08	DP	164,828.0	1,268,482.4	310.91	311.01	--	PES, 02/2013; PES, 08/2015	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	--	PES, 02/2013; PES, 08/2015	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	--	PES, 02/2013	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	--	PES, 02/2013	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	--	PES, 02/2013	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	--	PES, 02/2013	Flush	26	0.75	10-15	9.8-14.8	0.010	7-26	0-7

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Normandy Park, Washington

Well	Ecology Well Tag Number	Date Installed	Drilling Method	Location (feet NAD 83/91) Northing	Location (feet NAD 83/91) Easting	Elevation (feet NAVD 88) Monitoring Point	Elevation (feet NAVD 88) Surface Casing Rim	Elevation (feet NAVD 88) Ground Surface	Survey Notes	29.80-39.80 Monument Type	Boring Depth (feet)	Well Diameter (inches)	Screen Depth (ft bgs) Below Ground	Screen Depth (ft bgs) Below Top of Casing	Slot Size (inch)	Filter Pack (ft bgs)	Seal (ft bgs)
Recirculation Well																	
TW-1		5/2/06	HSA	165,114.8	1,268,571.3	--	--	--	PES, 02/2013	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	PES, 05/2013; PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	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	--	PES, 08/2015	Flush	52.5	2	48.86-50.89	48.46-50.49	0.020	47.6-52.5	3.5-47.6
Supplemental Investigation Borings																	
SB-10	--	4/16/18	DP	164,837.8	1,268,523.0	--	--	313.30	PES, 05/2018	--	11	2.25	--	--	--	--	--
SB-11	--	4/16/18	DP	164,831.3	1,268,470.8	--	--	310.59	PES, 05/2018	--	15	2.25	--	--	--	--	--
SB-12	--	4/16/18	DP	164,812.7	1,268,480.9	--	--	311.18	PES, 05/2018	--	11	2.25	--	--	--	--	--
SB-13	--	4/16/18	DP	165,056.3	1,268,696.8	--	--	313.34	PES, 05/2018	--	29	2.25	--	--	--	--	--
SB-13A	--	4/25/18	DP	165,055.2	1,268,697.2	--	--	313.38	PES, 05/2018	--	33	2.25	--	--	--	--	--
SB-13B	--	4/25/18	DP	165,067.3	1,268,697.4	--	--	309.32	PES, 05/2018	--	40	2.25	--	--	--	--	--
SB-14	--	4/16/18	DP	165,056.3	1,268,717.0	--	--	313.60	PES, 05/2018	--	31.5	2.25	--	--	--	--	--
SB-14A	--	4/25/18	DP	165,056.2	1,268,717.8	--	--	313.60	PES, 05/2018	--	40	2.25	--	--	--	--	--

Table D1
Well Completion and Boring 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) Northing	Location (feet NAD 83/91) Easting	Elevation (feet NAVD 88) Monitoring Point	Elevation (feet NAVD 88) Surface Casing Rim	Elevation (feet NAVD 88) Ground Surface	Survey Notes	29.80-39.80 Monument Type	Boring Depth (feet)	Well Diameter (inches)	Screen Depth (ft bgs) Below Ground	Screen Depth (ft bgs) Below Top of Casing	Slot Size (inch)	Filter Pack (ft bgs)	Seal (ft bgs)
SB-15	--	4/17/18	DP	165,078.3	1,268,721.7	--	--	310.28	PES, 05/2018	--	40	2.25	--	--	--	--	--
SB-16	--	4/17/18	DP	165,172.1	1,268,822.2	--	--	310.61	PES, 05/2018	--	40	2.25	--	--	--	--	--
SB-17	--	4/18/18	DP	165,175.7	1,268,798.0	--	--	310.03	PES, 05/2018	--	40	2.25	--	--	--	--	--
SB-18	--	4/18/18	DP	165,201.4	1,268,799.7	--	--	309.93	PES, 05/2018	--	40	2.25	--	--	--	--	--
SB-19	--	4/19/18	DP	165,132.6	1,268,649.4	--	--	308.76	PES, 05/2018	--	40	2.25	36-40	--	0.004	--	--
SB-20	--	4/19/18	DP	165,154.5	1,268,680.2	--	--	309.00	PES, 05/2018	--	40	2.25	36-40	--	0.004	--	--
SB-21	--	4/19/18	DP	165,187.4	1,268,742.4	--	--	309.65	PES, 05/2018	--	40	2.25	36-40	--	0.004	--	--
SB-22	--	4/20/18	DP	165,173.0	1,268,709.8	--	--	309.07	PES, 05/2018	--	40	2.25	36-40	--	0.004	--	--
SB-23	--	4/20/18	DP	165,109.3	1,268,725.1	--	--	309.76	PES, 05/2018	--	40	2.25	36-40	--	0.004	--	--
SB-24	--	4/23/18	DP	165,113.2	1,268,695.3	--	--	310.24	PES, 05/2018	--	40	2.25	36-40	--	0.004	--	--
SB-25	--	4/23/18	DP	165,107.6	1,268,755.1	--	--	310.27	PES, 05/2018	--	40	2.25	36-40	--	0.004	--	--
SB-26	--	4/24/18	DP	165,177.8	1,268,857.4	--	--	312.30	PES, 05/2018	--	40	2.25	--	--	--	--	--
SB-27	--	4/24/18	DP	165,166.7	1,268,856.4	--	--	311.62	PES, 05/2018	--	40	2.25	--	--	--	--	--
SB-28	--	4/24/18	DP	165,209.6	1,268,850.2	--	--	310.94	PES, 05/2018	--	40	2.25	--	--	--	--	--
SB-29	--	4/24/18	DP	165,116.8	1,268,669.9	--	--	309.39	PES, 05/2018	--	40	2.25	36-40	--	0.004	--	--
SB-30	--	4/25/18	DP	165,196.5	1,268,529.1	--	--	304.82	PES, 05/2018	--	40	2.25	--	--	--	--	--
Soil Vapor Sampling Probes																	
SVS-10	--	11/5/03	HA	--	--	--	--	--	--	Flush	1.0	1.0	0.96-1.00	--	Mesh	0.5-1.0	0-0.5
SVS-11	--	4/16/18	HA	--	--	--	--	--	--	Flush	1.3	0.63	1.27-1.30	--	Mesh	0.5-1.0	0-0.5
SVS-12	--	4/16/18	HA	--	--	--	--	--	--	Flush	1.3	0.63	1.27-1.30	--	Mesh	0.5-1.0	0-0.5
SVS-13	--	4/16/18	HA	--	--	--	--	--	--	Flush	1.2	0.63	1.27-1.30	--	Mesh	0.5-1.0	0-0.5
SVS-14	--	4/25/18	HA	--	--	--	--	--	--	Flush	1.3	0.63	1.27-1.30	--	Mesh	0.5-1.0	0-0.5
SVS-15	--	4/25/18	HA	--	--	--	--	--	--	Flush	1.3	0.63	1.27-1.30	--	Mesh	0.5-1.0	0-0.5
SVS-16	--	4/25/18	HA	--	--	--	--	--	--	Flush	1.3	0.63	1.27-1.30	--	Mesh	0.5-1.0	0-0.5
SVS-17	--	4/16/18	HA	--	--	--	--	--	--	Flush	5.0	2.25	4.5-5.0	--	Mesh	4-5	0-4

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), vacuum truck with air knife (AKVAC), and hand augered (HA)
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.
11. Temporary well screens consisting of Geoprobe SP22 stainless steel slotted tooling were deployed in direct push borings SB-19 through SB-25 and SB-29.
12. Soil vapor sampling probe screens are constructed of fine metal mesh.

Table D2
Historical Summary of Groundwater Elevations (1999 - 2019)
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)
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-2	1/24/2018	308.34	35.61	272.73
MW-2	4/17/2018	308.34	34.93	273.41
MW-2	7/18/2018	308.34	35.12	273.22
MW-2	10/15/2018	308.34	36.26	272.08
MW-2	10/24/2019	308.34	37.20	271.14
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
MW-3	1/24/2018	311.41	37.73	273.68
MW-3	4/17/2018	311.41	37.24	274.17
MW-3	7/18/2018	311.41	37.52	273.89
MW-3	10/15/2018	311.41	38.68	272.73
MW-3	10/24/2019	311.41	39.68	271.73

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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)
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-4	1/24/2018	310.47	37.04	273.43
MW-4	4/17/2018	310.47	36.59	273.88
MW-4	7/18/2018	310.47	36.86	273.61
MW-4	10/15/2018	310.47	38.01	272.46
MW-4	10/24/2019	310.47	39.00	271.47
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	310.38	36.80	273.58
MW-5	10/20/2017	310.38	38.17	272.21
MW-5	1/24/2018	310.38	38.60	271.78
MW-5	4/17/2018	310.38	37.71	272.67
MW-5	7/18/2018	310.38	37.89	272.49
MW-5	10/15/2018	310.38	38.92	271.46
MW-5	10/24/2019	310.38	39.85	270.53
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

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Historical Summary of Groundwater Elevations (1999 - 2019)
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)
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
MW-6	1/24/2018	304.14	36.08	268.06
MW-6	4/17/2018	304.14	35.61	268.53
MW-6	7/18/2018	304.14	35.71	268.43
MW-6	10/15/2018	304.14	36.58	267.56
MW-6	10/25/2019	304.14	37.37	266.77
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-7	1/24/2018	302.64	37.33	265.31
MW-7	4/17/2018	302.64	36.79	265.85
MW-7	7/18/2018	302.64	37.00	265.64
MW-7	10/23/2018	302.64	38.15	264.49
MW-7	10/25/2019	302.64	39.04	263.60
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-8	1/24/2018	280.68	10.80	269.88
MW-8	4/17/2018	280.68	10.50	270.18
MW-8	7/18/2018	280.68	11.22	269.46
MW-8	10/16/2018	280.68	12.09	268.59
MW-8	10/25/2019	280.68	12.74	267.94
MW-9	8/21/2008	285.11	32.24	252.87

Table D2
Historical Summary of Groundwater Elevations (1999 - 2019)
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)
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
MW-9	1/24/2018	284.97	30.84	254.13
MW-9	4/17/2018	284.97	30.43	254.54
MW-9	7/18/2018	284.97	30.60	254.37
MW-9	10/16/2018	284.97	31.40	253.57
MW-9	10/25/2019	284.97	32.22	252.75
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-10	1/24/2018	306.71	33.82	272.89
MW-10	4/17/2018	306.71	33.30	273.41
MW-10	7/18/2018	306.71	33.55	273.16
MW-10	10/15/2018	306.71	34.66	272.05
MW-10	5/21/2019	306.71	34.62	272.09
MW-10	10/24/2019	306.71	35.62	271.09
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

Table D2
Historical Summary of Groundwater Elevations (1999 - 2019)
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)
MW-11	10/20/2017	307.62	34.74	272.88
MW-11	1/24/2018	307.62	34.77	272.85
MW-11	4/17/2018	307.62	34.21	273.41
MW-11	7/18/2018	307.62	34.45	273.17
MW-11	10/19/2018	307.62	35.61	272.01
MW-11	5/21/2019	307.62	35.55	272.07
MW-11	10/24/2019	307.62	36.53	271.09
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-12	1/24/2018	312.80	39.01	273.79
MW-12	4/17/2018	312.80	38.49	274.31
MW-12	7/18/2018	312.80	38.75	274.05
MW-12	10/15/2018	312.80	39.94	272.86
MW-12	10/24/2019	312.80	40.96	271.84
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
MW-13	1/24/2018	308.75	35.45	273.30
MW-13	4/17/2018	308.75	34.98	273.77
MW-13	7/18/2018	308.75	35.24	273.51
MW-13	10/15/2018	308.75	36.40	272.35
MW-13	10/24/2019	308.75	38.40	270.35
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-14	1/24/2018	303.82	31.33	272.49
MW-14	4/17/2018	303.82	30.84	272.98
MW-14	10/15/2018	303.82	32.14	271.68
MW-14	10/24/2019	303.82	33.08	270.74

Table D2
Historical Summary of Groundwater Elevations (1999 - 2019)
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)
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-15	1/24/2018	312.44	39.31	273.13
MW-15	4/17/2018	312.44	38.75	273.69
MW-15	7/18/2018	312.44	38.99	273.45
MW-15	10/15/2018	312.44	40.08	272.36
MW-15	10/24/2019	312.44	41.05	271.39
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
MW-16	1/24/2018	310.37	37.53	272.84
MW-16	4/17/2018	310.37	36.99	273.38
MW-16	7/18/2018	310.37	37.20	273.17
MW-16	10/15/2018	310.37	38.31	272.06
MW-16	10/24/2019	310.37	39.20	271.17
MW-17	3/6/2019	303.00	32.33	270.67
MW-17	10/24/2019	303.01	33.10	269.91
MW-18	3/6/2019	305.26	34.55	270.71
MW-18	10/24/2019	305.26	35.25	270.01
MW-19	10/24/2019	305.35	35.09	270.26
MW-20	10/24/2019	305.51	35.22	270.29
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

Table D2
Historical Summary of Groundwater Elevations (1999 - 2019)
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)
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
DC-1	1/24/2018	312.82	39.02	273.80
DC-1	4/17/2018	312.82	38.43	274.39
DC-1	10/15/2018	312.82	39.80	273.02
DC-1	10/24/2019	312.82	40.84	271.98
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

Table D2
Historical Summary of Groundwater Elevations (1999 - 2019)
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)
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
DC-2	1/24/2018	312.92	39.76	273.16
DC-2	4/17/2018	312.92	39.20	273.72
DC-2	7/18/2018	312.92	39.42	273.50
DC-2	10/15/2018	312.92	40.53	272.39
DC-2	10/24/2019	312.92	41.53	271.39
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

Table D2
Historical Summary of Groundwater Elevations (1999 - 2019)
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)
DC-3	10/20/2017	313.11	39.94	273.17
DC-3	1/24/2018	313.11	39.98	273.13
DC-3	4/17/2018	313.11	39.47	273.64
DC-3	7/18/2018	313.11	39.67	273.44
DC-3	10/15/2018	313.11	40.80	272.31
DC-3	10/24/2019	313.11	41.78	271.33
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
DC-4	1/24/2018	312.35	39.21	273.14
DC-4	4/18/2018	312.35	38.61	273.74
DC-4	7/18/2018	312.35	38.95	273.40
DC-4	10/15/2018	312.35	40.16	272.19
DC-4	10/24/2019	312.35	41.05	271.30

Table D2
Historical Summary of Groundwater Elevations (1999 - 2019)
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)
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	10/15/2018	306.25	34.15	272.10
DC-6	2/3/1999	308.46	35.03	273.43
DC-6	4/16/1999	308.46	32.92	275.54
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

Table D2
Historical Summary of Groundwater Elevations (1999 - 2019)
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)
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
DC-7	1/24/2018	302.61	30.69	271.92
DC-7	4/17/2018	302.61	30.19	272.42
DC-7	7/18/2018	302.61	30.48	272.13
DC-7	10/15/2018	302.61	31.52	271.09
DC-7	10/24/2019	302.61	32.42	270.19
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-8	1/24/2018	306.23	34.21	272.02
DC-8	4/17/2018	306.23	33.64	272.59
DC-8	7/18/2018	306.23	33.92	272.31
DC-8	10/15/2018	306.23	34.94	271.29
DC-8	10/29/2019	306.23	36.03	270.20

Table D2
Historical Summary of Groundwater Elevations (1999 - 2019)
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)
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
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
DC-10A	1/24/2018	307.73	34.72	273.01
DC-10A	4/17/2018	307.73	34.23	273.50
DC-10A	4/17/2018	307.73	34.23	273.50
DC-10A	7/18/2018	307.73	34.50	273.23
DC-10A	10/15/2018	307.73	36.12	271.61
DC-10A	10/24/2019	307.73	36.48	271.25
DC-10B	4/16/1999	307.66	31.92	275.74
DC-10B	3/6/2001	307.66	36.89	270.77

Table D2
Historical Summary of Groundwater Elevations (1999 - 2019)
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)
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-10B	10/15/2018	307.89	35.70	272.19
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
DC-11	1/24/2018	311.25	38.00	273.25
DC-11	4/17/2018	311.25	37.40	273.85
DC-11	7/18/2018	311.25	37.63	273.62
DC-11	10/15/2018	311.25	38.74	272.51
DC-11	10/24/2019	311.25	39.73	271.52
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

Table D2
Historical Summary of Groundwater Elevations (1999 - 2019)
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)
DC-12	7/17/2017	311.25	36.71	274.54
DC-12	10/20/2017	311.25	38.20	273.05
DC-12	1/24/2018	311.25	38.24	273.01
DC-12	4/17/2018	311.25	37.67	273.58
DC-12	7/19/2018	311.25	37.90	273.35
DC-12	10/15/2018	311.25	38.94	272.31
DC-12	10/25/2019	311.25	39.95	271.30
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
DC-13	1/24/2018	310.20	37.33	272.87
DC-13	4/17/2018	310.20	36.77	273.43
DC-13	7/18/2018	310.20	36.97	273.23
DC-13	10/15/2018	310.20	38.06	272.14
DC-13	10/24/2019	310.20	39.05	271.15
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-14	1/24/2018	308.94	36.84	272.10
DC-14	4/17/2018	308.94	36.31	272.63
DC-14	7/18/2018	308.94	36.51	272.43

Table D2
Historical Summary of Groundwater Elevations (1999 - 2019)
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)
DC-14	10/15/2018	308.94	Well Missing	Decomissioned 3/2019
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-15	1/24/2018	307.89	35.40	272.49
DC-15	4/17/2018	307.89	34.81	273.08
DC-15	7/18/2018	307.89	35.08	272.81
DC-15	10/16/2018	307.89	36.12	271.77
DC-15	10/24/2019	307.89	37.10	270.79
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
DC-16	10/15/2018	307.12	35.37	271.75
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-17	1/24/2018	305.16	32.42	272.74
DC-17	4/17/2018	305.16	31.94	273.22
DC-17	7/18/2018	305.16	32.18	272.98
DC-17	10/15/2018	305.16	33.24	271.92
DC-17	5/21/2019	305.16	33.21	271.95
DC-17	10/24/2019	305.16	34.20	270.96

Table D2
Historical Summary of Groundwater Elevations (1999 - 2019)
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)
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-18	1/24/2018	309.51	36.81	272.70
DC-18	4/17/2018	309.51	36.24	273.27
DC-18	7/18/2018	309.51	36.46	273.05
DC-18	10/15/2018	309.51	37.54	271.97
DC-18	10/24/2019	309.51	38.52	270.99
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-19	1/24/2018	313.62	40.16	273.46
DC-19	4/17/2018	313.62	39.57	274.05
DC-19	7/18/2018	313.62	39.78	273.84
DC-19	10/15/2018	313.62	40.90	272.72
DC-19	10/29/2019	313.62	42.03	271.59
DC-20	6/2/2008	--	39.46	--
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
DC-20	1/24/2018	310.92	38.17	272.75
DC-20	4/17/2018	310.92	37.59	273.33
DC-20	10/15/2018	310.92	38.87	272.05
DC-20	10/25/2019	310.92	39.85	271.07

Table D2
Historical Summary of Groundwater Elevations (1999 - 2019)
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)
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-1	1/24/2018	311.59	38.83	272.76
KMW-1	4/17/2018	311.59	38.27	273.32
KMW-1	7/18/2018	311.59	38.47	273.12
KMW-1	10/15/2018	311.59	39.55	272.04
KMW-1	10/24/2019	311.59	40.55	271.04
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-2	1/24/2018	307.04	34.11	272.93
KMW-2	4/17/2018	307.04	33.56	273.48
KMW-2	7/18/2018	307.04	33.80	273.24
KMW-2	10/15/2018	307.04	34.92	272.12
KMW-2	10/24/2019	307.04	35.90	271.14
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

Table D2
Historical Summary of Groundwater Elevations (1999 - 2019)
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)
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
KMW-3	1/24/2018	296.92	25.16	271.76
KMW-3	4/17/2018	296.92	24.69	272.23
KMW-3	7/18/2018	296.92	25.04	271.88
KMW-3	10/15/2018	296.92	26.09	270.83
KMW-3	10/25/2019	296.99	26.96	270.03
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-4	1/24/2018	299.57	26.58	272.99
KMW-4	4/17/2018	299.57	26.13	273.44
KMW-4	7/18/2018	299.57	26.50	273.07
KMW-4	10/15/2018	299.57	27.60	271.97
KMW-4	10/25/2019	299.57	28.57	271.00
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-5	1/24/2018	297.22	24.95	272.27

Table D2
Historical Summary of Groundwater Elevations (1999 - 2019)
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)
KMW-5	4/17/2018	297.22	24.50	272.72
KMW-5	7/18/2018	297.22	24.87	272.35
KMW-5	10/31/2018	297.22	26.09	271.13
KMW-5	10/25/2019	297.22	27.15	270.07
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
KMW-5D	10/15/2018	296.94	25.79	271.15
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-6	1/24/2018	294.81	23.30	271.51
KMW-6	4/17/2018	294.81	22.54	272.27
KMW-6	7/18/2018	294.81	22.98	271.83
KMW-6	10/15/2018	294.81	23.98	270.83
KMW-6	10/28/2019	294.80	24.80	270.00
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

Table D2
Historical Summary of Groundwater Elevations (1999 - 2019)
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)
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-7	1/24/2018	301.43	28.66	272.77
KMW-7	4/17/2018	301.43	29.28	272.15
KMW-7	7/18/2018	301.43	29.70	271.73
KMW-7	10/15/2018	301.43	30.87	270.56
KMW-7	10/29/2019	301.42	31.71	269.71
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
KMW-8	1/24/2018	308.15	36.41	271.74
KMW-8	4/17/2018	308.15	35.87	272.28
KMW-8	7/18/2018	308.15	36.10	272.05
KMW-8	10/15/2018	308.15	37.12	271.03
KMW-8	10/28/2019	308.16	38.06	270.10
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
KMW-9	1/24/2018	310.33	37.22	273.11
KMW-9	4/17/2018	310.33	36.64	273.69
KMW-9	7/18/2018	310.33	36.87	273.46
KMW-9	10/15/2018	310.33	37.97	272.36
KMW-9	10/24/2019	310.33	39.00	271.33

Table D2
Historical Summary of Groundwater Elevations (1999 - 2019)
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)

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 213 and by Lanktree Land Surveying, Inc. in July 215.

Table D3
Historical Summary of Groundwater Analytical Results (1999 - 2019)
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-2	4/19/2018	**3.39**		
MW-2	7/17/2018	**1.78**		Chloroform (0.569)
MW-2	10/18/2018	**1.17**		Chloroform (0.843)
MW-2	10/25/2019	**1.20**		Chloroform (1.53)
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-3	4/20/2018	**1.00**		
MW-3	10/16/2018	0.500	U	
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**		

Table D3
Historical Summary of Groundwater Analytical Results (1999 - 2019)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)		Other VOCs detected (µg/l)
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**		
MW-4	4/20/2018	0.500	U	
MW-4	10/16/2018	0.500	U	
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-7	1/26/2018	**7.73**		
MW-7	4/20/2018	**7.64**		
MW-7	7/19/2018	**6.60**		
MW-7	10/23/2018	**5.79**		
MW-7	10/25/2019	**7.13**		
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-9	4/18/2018	0.500	U	
MW-9	10/17/2018	0.500	U	
MW-9	10/25/2019	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**		

Table D3
Historical Summary of Groundwater Analytical Results (1999 - 2019)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)		Other VOCs detected (µg/l)
MW-10	3/14/2017	**1.09**		
MW-10	7/18/2017	1.00	U	
MW-10	10/23/2017	0.500	U	
MW-10	4/18/2018	**0.716**		
MW-10	10/18/2018	0.500	U	
MW-10	5/21/2019	**0.630**		
MW-10	10/25/2019	**1.01**		
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**		
MW-11	1/25/2018	**2.52**		
MW-11	4/19/2018	**2.97**		
MW-11	10/19/2018	**2.44**		
MW-11	5/21/2019	**3.92**		
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-12	4/18/2018	0.500	U	
MW-12	10/16/2018	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-13	4/18/2018	0.500	U	
MW-13	10/16/2018	0.500	U	
MW-14	4/5/2012	2.0	U	

Table D3
Historical Summary of Groundwater Analytical Results (1999 - 2019)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)		Other VOCs detected (µg/l)
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-14	4/20/2018	**1.27**		
MW-14	10/23/2018	0.500	U	
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-15	4/19/2018	**1.13**		
MW-15	10/18/2018	0.500	U	
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**		
MW-16	4/19/2018	**1.33**		
MW-16	10/18/2018	**0.912**		Chloroform (0.539)
MW-17	3/6/2019	**6.82**		
MW-17	10/28/2019	**2.85**		
MW-18	3/6/2019	**11.4**		
MW-18	10/28/2019	**11.3**		
MW-19	10/29/2019	0.500	U	Chloroform (0.560)
MW-20	10/29/2019	0.500	U	Chloroform (0.547)
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	

Table D3
Historical Summary of Groundwater Analytical Results (1999 - 2019)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)		Other VOCs detected (µg/l)
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	
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	

Table D3
Historical Summary of Groundwater Analytical Results (1999 - 2019)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)		Other VOCs detected (µg/l)
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**		
DC-3	4/18/2018	**1.23**		
DC-3	10/17/2018	0.500	U	
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**		

Table D3
Historical Summary of Groundwater Analytical Results (1999 - 2019)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)		Other VOCs detected (µg/l)
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	
DC-4	4/18/2018	0.500	U	
DC-4	10/17/2018	0.500	U	
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**		

Table D3
Historical Summary of Groundwater Analytical Results (1999 - 2019)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)	Other VOCs detected (µg/l)
DC-7	10/23/2017	**6.67 J**	
DC-7	1/26/2018	**12.1**	
DC-7	4/20/2018	**12.8**	
DC-7	7/20/2018	**12.3**	
DC-7	10/23/2018	**11.6**	
DC-7	10/30/2019	**17.1**	
DC-8	2/4/1999	**56**	
DC-8	4/8/1999	**48**	Toluene (1.2)
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-8	1/24/2018	**12.0**	
DC-8	4/18/2018	**13.0**	
DC-8	7/18/2018	**11.7**	
DC-8	10/18/2018	**12.1**	
DC-8	10/29/2019	**15.0**	
DC-9A	4/8/1999	**135**	Toluene (3.2)
DC-9A	12/8/1999	**73**	
DC-9A	4/26/2000	**240**	

Table D3
Historical Summary of Groundwater Analytical Results (1999 - 2019)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)	Other VOCs detected (µg/l)
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			
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-10A	1/25/2018	**3.62**	
DC-10A	4/20/2018	**4.67**	
DC-10A	7/17/2018	**2.68**	
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-11	4/19/2018	**1.21**	
DC-11	10/18/2018	**1.25**	
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-12	4/20/2018	**1.50**	
DC-12	10/19/2018	**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**	

Table D3
Historical Summary of Groundwater Analytical Results (1999 - 2019)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)	Other VOCs detected (µg/l)
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**	
DC-13	4/20/2018	**2.87**	
DC-13	10/19/2018	**2.74**	
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-14	2/2/2018	**7.81**	
DC-14	4/19/2018	**5.14**	Chloroform (2.27)
DC-14	7/19/2018	**5.40**	Chloroform (1.25)
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-15	1/24/2018	**8.61**	
DC-15	4/18/2018	**9.88**	
DC-15	7/18/2018	**7.82**	
DC-15	10/18/2018	**7.65**	
DC-15	10/29/2019	**9.72**	
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-17	1/26/2018	**7.38**	
DC-17	4/20/2018	**10.1**	
DC-17	7/20/2018	**8.62**	
DC-17	10/19/2018	**8.24**	
DC-17	5/21/2019	**8.62**	

Table D3
Historical Summary of Groundwater Analytical Results (1999 - 2019)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)		Other VOCs detected (µg/l)
DC-17	10/30/2019	**5.72**		
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-18	4/20/2018	**3.31**		Chloroform (3.23)
DC-18	10/19/2018	**2.79**		Chloroform (2.36)
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-Dichlororpropane (1.82)
DC-20	3/15/2017	**2.00**		
DC-20	10/27/2017	**0.991**		
DC-20	4/19/2018	**1.14**		
DC-20	10/19/2018	**0.885**		Benzene (0.54), sec-Butylbenzene (0.6 0)
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	

Table D3
Historical Summary of Groundwater Analytical Results (1999 - 2019)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)		Other VOCs detected (µg/l)
KMW-2	7/18/2017	1.00	U	
KMW-2	10/24/2017	0.500	U	
KMW-2	4/18/2018	0.500	U	
KMW-2	10/16/2018	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-3	1/25/2018	**4.95**		
KMW-3	4/20/2018	**5.37**		
KMW-3	7/19/2018	**5.18**		
KMW-3	10/23/2018	**5.41**		
KMW-3	10/25/2019	**4.74**		
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	
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-7	4/19/2018	**1.59**		
KMW-7	10/23/2018	**0.711**		
KMW-7	10/29/2019	**0.631**		
KMW-8	4/24/2007	**11**		
KMW-8	4/15/2008	**17.4**		

Table D3
Historical Summary of Groundwater Analytical Results (1999 - 2019)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)		Other VOCs detected (µg/l)
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-8	1/25/2018	**5.89**		Chloroform (2.01)
KMW-8	4/19/2018	**5.74**		Chloroform (1.68)
KMW-8	7/19/2018	**5.17**		Chloroform (1.13)
KMW-8	10/23/2018	**5.26**		Chloroform (1.16)
KMW-8	10/28/2019	**6.24**		
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**		
KMW-9	4/18/2018	**1.02**		
KMW-9	10/18/2018	0.500	U	Chloroform (0.699)
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	
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	

Table D3
Historical Summary of Groundwater Analytical Results (1999 - 2019)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)		Other VOCs detected (µg/l)
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	
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	

NOTES:

1. Tetrachloroethene (PCE) concentrations in migrograms 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.

Table D4
Historical Summary of Soil Analytical Results (1998 - 2019)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Sample ID	Depth (ft bgs)	Date	PCE (mg/kg)	Other VOCs detected (mg/kg)	Comments
B-01	2	03/12/98	**0.28**		
B-01	5	03/12/98	**35**		
B-02	2	03/12/98	**0.3**		
B-02	4	03/12/98	**1.2**		
B-03	2	03/12/98	**1.2**		
B-03	5	03/12/98	**1.3**		
B-04	2	03/12/98	**1.4**		
B-04	2	03/12/98	**0.88**		Duplicate
B-04	5	03/12/98	**0.99**		
S-01	11	04/14/98	**0.8**		
S-01	20	04/14/98	**0.6**		
S-01	30	04/14/98	ND U		
S-01	34	04/14/98	ND U		
DC-01	NA	12/17/98	ND U		Composite
DC-02	NA	12/17/98	**0.19**		Composite
DC-03	NA	12/17/98	ND U		Composite
DC-04	NA	12/17/98	**0.15**		Composite
DC-04	NA	12/17/98	**0.16**		Duplicate
DC-03	NA	12/17/98	**0.18**		Comp (sat)
DC-04	NA	12/17/98	ND U		Comp (sat)
BH-01	3.5	12/16/98	**0.88**	Ethylbenzene = 0.17 Xylenes = 0.63	
BH-01	3.5	12/16/98	**0.9**	Benzene = 0.15, Xylenes 0.66	Duplicate
BH-01	9	12/16/98	**0.19**		
BH-02	8	12/16/98	ND U		
BH-03	7	12/16/98	ND U		
BH-04	7	12/16/98	ND U		
BH-05	6	12/16/98	**2.2**		
BH-05	6	12/16/98	**2.2**		Duplicate
BH-05	11	12/16/98	ND U		
BH-06	7	12/16/98	ND U		
BH-06	10	12/16/98	ND U	cis-1,2-dichloroethene = 0.07	
BH-07	1	12/16/98	**0.1**	Benzene = 0.31 Toluene = 0.32 Xylenes = 0.38	
BH-08	8	12/16/98	ND U		
BH-09	8	12/16/98	ND U	Benzene = 0.66 Ethylbenzene = 1.1	
BH-10	8	12/16/98	ND U		
BH-11	1	12/16/98	ND U		
BH-12	8	12/16/98	ND U		
BH-13	7	12/16/98	**1.4**		
BH-13	11	12/16/98	ND U		

Table D4
Historical Summary of Soil Analytical Results (1998 - 2019)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Sample ID	Depth (ft bgs)	Date	PCE (mg/kg)	Other VOCs detected (mg/kg)	Comments
BH-14	8	12/16/98	**10**		
BH-14	11	12/16/98	**0.22**		
BH-14	11	12/16/98	**0.16**		Duplicate
BH-14	20	12/16/98	ND U		
BH-15	6	12/17/98	**1.1**		
BH-15	11	12/17/98	ND U		
BH-16	7	12/17/98	**0.3**		
BH-16	11	12/17/98	ND U		
BH-17	11	12/17/98	ND U		
BH-18	7	12/17/98	ND U		
BH-18	11	12/17/98	ND U		
BH-19	8	12/17/98	ND U		
DC-05	56	01/22/99	ND U		
DC-06	40	01/22/99	ND U		
DC-07	35	01/22/99	ND U		
DC-08	35	01/22/99	ND U		
DC-9B	35	04/05/99	ND U		
DC-10B	50	04/05/99	ND U		
MW-01	2.5-4	12/09/99	ND U		
MW-02	32.5-34	12/09/99	ND U		
HA-01	4.5-5	12/22/99	0.05 U		
HA-01	10.10.5	12/22/99	**0.0685**		
HA-01	12.5-13	12/22/99	0.05 U		
T-01	4	07/26/00	ND U		S.Sewer Ex.
T-02	4	07/26/00	ND U		S.Sewer Ex.
T-03	3	07/26/00	ND U		S.Sewer Ex.
T-04	3	07/26/00	ND U		S.Sewer Ex.
SVS-04	0-4	02/11/05	**0.0058**		
SVS-05	0-4	02/11/05	0.0011 U		
KB-01	4-5	04/15/05	0.02 U		
KB-01	15-16	04/15/05	**0.02**		
KB-01	25-26	04/15/05	**0.084**		
KB-01	35-36	04/15/05	**0.18**		
KB-02	4-5	04/15/05	0.02 U		
KB-02	15-16	04/15/05	0.02 U		
KB-02	25-26	04/15/05	**0.098**		
KB-02	35-36	04/15/05	**0.16**		
KB-03	4-5	04/15/05	0.02 U		
KB-03	15-16	04/15/05	0.02 U		
KB-03	25-26	04/15/05	0.02 U		
KB-04	4-5	04/15/05	0.02 U		
KB-04	15-16	04/15/05	**0.049**		
KB-04	19-20	04/15/05	**0.1**		

Table D4
Historical Summary of Soil Analytical Results (1998 - 2019)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Sample ID	Depth (ft bgs)	Date	PCE (mg/kg)	Other VOCs detected (mg/kg)	Comments
KB-05	4-5	04/15/05	0.02 U		
KB-05	15-16	04/15/05	0.02 U		
KB-05	25-26	04/15/05	**0.035**		
KB-05	35-36	04/15/05	**0.055**		
ST-01	6	03/29/06	**0.07**		Overexcavated
North Septic Sidewall	9	04/05/06	0.005 U		Sidewall
East Septic Sidewall	9	04/05/06	**0.033**		Overexcavated
South Septic Sidewall	9	04/05/06	0.005 U		Sidewall
West Septic Sidewall	9	04/05/06	0.005 U		Sidewall
ST-02	6	04/05/06	**0.006**		Overexcavated
ST-03	7	04/05/06	**0.016**		Overexcavated
ST-04	7	04/05/06	**0.073**		Overexcavated
ST5 Clearance	9	04/05/06	0.005 U		Overexcavated
ST6 Clearance	9	04/05/06	**0.007**		Bottom
East Septic Sidewall 2	11	04/06/06	0.005 U		Sidewall
ST5 Clearance 2	12	04/05/06	0.005 U		Bottom
KMW-01	7	07/25/05	0.05 U		
KMW-01	22	07/25/05	0.05 U		
KMW-01	40	07/25/05	0.05 U		
KMW-02	10	05/01/06	0.05 U		
KMW-02	20	05/01/06	0.05 U		
KMW-02	30	05/01/06	0.05 U		
KMW-03	10	05/01/06	0.05 U		
KMW-03	20	05/01/06	0.05 U		
TW-01	5	05/01/06	0.05 U		
TW-01	10	05/01/06	0.05 U		
TW-01	20	05/01/06	0.05 U		
TW-01	30	05/01/06	0.05 U		
KMW-04	4-5.5	03/28/07	0.05 U		
KMW-04	9-10.5	03/28/07	0.05 U		
KMW-04	19-20.5	03/28/07	0.05 U		
KMW-04	29-30.5	03/28/07	0.05 U		
KMW-05	4-5.5	03/28/07	0.05 U		
KMW-05	9-10.5	03/28/07	0.05 U		
KMW-05	19-20.5	03/28/07	0.05 U		
KMW-05	29-30.5	03/28/07	0.05 U		
KMW-5D	4-5.5	03/28/07	0.05 U		
KMW-5D	9-10.5	03/28/07	0.05 U		
KMW-5D	24-25.5	03/28/07	0.05 U		
KMW-5D	46	03/28/07	0.05 U		
KMW-06	9-10.5	03/27/07	0.05 U		
KMW-06	19-20.5	03/27/07	0.05 U		
KMW-06	29-30.5	03/27/07	0.05 U		
KMW-06	41-42.5	03/27/07	0.05 U		

Table D4
Historical Summary of Soil Analytical Results (1998 - 2019)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Sample ID	Depth (ft bgs)	Date	PCE (mg/kg)	Other VOCs detected (mg/kg)	Comments
KMW-07	9-10.5	03/27/07	0.05 U		
KMW-07	19-20.5	03/27/07	0.05 U		
KMW-07	29-30.5	03/27/07	0.05 U		
KMW-08	9-10.5	03/27/07	0.05 U		
KMW-08	20-21.5	03/27/07	0.05 U		
KMW-08	29-30.5	03/27/07	0.05 U		
KMW-09	5	03/27/07	**0.0043**		
KMW-09	14-15.5	03/27/07	**0.2**		
KMW-09	19-20.5	03/27/07	**0.23**		
KMW-09	24-25.5	03/27/07	**1.8**		
KMW-09	29-30.5	03/27/07	**0.32**		
KMW-09	34-35.5	03/27/07	**0.29**		Split
KMW-09	35	03/27/07	**0.016**		Split
KMW-09	39-40.5	03/27/07	**0.053**		
KGP-01	4	07/06/07	**1.6**		Split
KGP-01	4	07/06/07	**13**	TCE = 0.15	Split
KGP-01	8	07/06/07	**59**		Split
KGP-01	8	07/06/07	**14**		Split
KGP-01	10.5	07/06/07	**2.1**		
KGP-01	16	07/06/07	**0.28**		Split
KGP-01	16	07/06/07	**0.08**		Split
KGP-01	20	07/06/07	**0.23**		
KGP-01	23	07/06/07	**0.15**		
KGP-01	32	07/06/07	**0.17**		
KGP-01	38	07/06/07	**0.051**		
KGP-02	4	07/06/07	**0.16**		Split
KGP-02	4	07/06/07	**0.087**		Split
KGP-02	8	07/06/07	**0.013**		Split
KGP-02	8	07/06/07	**0.0082**		Split
KGP-02	10.5	07/06/07	**0.064**		
KGP-02	16	07/06/07	**0.02**		Split
KGP-02	16	07/06/07	**0.022**		Split
KGP-02	20	07/06/07	**0.088**		
KGP-02	23	07/06/07	**0.033**		
KGP-02	30-31	07/06/07	**0.016**		
KGP-02	37	07/06/07	**0.015**		

Table D4
Historical Summary of Soil Analytical Results (1998 - 2019)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Sample ID	Depth (ft bgs)	Date	PCE (mg/kg)	Other VOCs detected (mg/kg)	Comments
KGP-03	2-4	07/06/07	**0.001**		Split
KGP-03	2-4	07/06/07	**0.0017**		Split
KGP-03	8	07/06/07	**0.005**		Split
KGP-03	8	07/06/07	**0.0045**		Split
KGP-03	10.5	07/06/07	**0.007**		
KGP-03	13-16	07/06/07	**0.009**		Split
KGP-03	13-16	07/06/07	**0.0089**		Split
KGP-03	20	07/06/07	**0.009**		
KGP-03	23	07/06/07	**0.012**		
KGP-03	29-32	07/06/07	**0.011**		
KGP-03	38	07/06/07	**0.01**		
GP-01	8-12	03/30/07	0.0008 U		
GP-01	30-34	03/30/07	**0.0067**		
GP-02	4-8	04/02/07	0.0009 U		
GP-02	28-32	04/02/07	**0.0055**		
GP-03	8-12	03/30/07	0.00099 U		
GP-03	28-30	03/30/07	**0.011**		
GP-04	20-24	03/30/07	**0.0023**		
GP-05	4-8	04/03/07	**0.0028**		
GP-05	16-20	04/03/07	**0.024**		
GP-06	4-8	04/02/07	0.0011 U		
GP-06	27-30	04/02/07	**0.0033**		
GP-07	4-8	04/02/07	0.00095 U		
GP-07	30-34	04/02/07	**0.0016**		
GP-08	6	05/27/08	**0.0017**		
GP-08	10	05/27/08	**0.0026**		
GP-09	4	05/27/08	0.00086 U		
GP-09	10	05/27/08	**0.0019**		
GP-10	4	05/27/08	0.001 U		
GP-10	10	05/27/08	**0.0017**		
GP-11	6	05/27/08	**0.0014**		
GP-11	10	05/27/08	**0.0013**		
GP-12	6	05/27/08	**0.0011**		
GP-12	10	05/27/08	0.00092 U		
DC-11	15-16.5	04/19/07	**0.0013**		
DC-11	30-31.5	04/19/07	**0.0084**		
DC-12	15-16.5	04/18/07	**0.0024**		
DC-13	15-16.5	04/19/07	**0.00096**		
DC-13	35-36.5	04/19/07	**0.0081**		
DC-14	15-16.5	04/17/07	0.0011 U		
DC-15	15-16.5	04/16/07	0.0011 U		
DC-16	15-16.5	04/17/07	0.0011 U		
DC-17	15-16.5	04/16/07	0.001 U		
DC-17	35-36.5	04/16/07	**0.077**		
DC-18	15-16.5	04/18/07	0.001 U		

Table D4
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Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Sample ID	Depth (ft bgs)	Date	PCE (mg/kg)	Other VOCs detected (mg/kg)	Comments
DC-19	3.5-5	06/01/07	0.00077 U		
DC-19	7.5-9	06/01/07	0.00069 U		
DC-19	37.5-38	06/01/07	**0.0047**		
DC-20	10	05/28/08	**0.0026**		
DC-20	35	05/28/08	**0.0018**		
TP-01	4	05/12/08	**0.001**		Split
TP-01	4	05/12/08	0.02 U		Split
TP-01	6.5	05/12/08	0.0012 U		Split
TP-01	6.5	05/12/08	**0.02**		Split
TP-02-south	4	05/12/08	**0.0068**		Split
TP-02-south	4	05/12/08	**0.27**		Split
TP-02-north	4	05/12/08	**0.05**		
TP-03	3.5	05/12/08	**0.014**		Split
TP-03	3.5	05/12/08	**0.02**		Split
TP-05	2.5	05/12/08	**0.34**		
B-05	10	03/26/08	0.00287 U		
B-05	20	03/26/08	**0.0034**		
B-05	30	03/26/08	**0.00888**		
B-06	10	03/25/08	0.00302 U		
B-06	20	03/25/08	**0.00816**		
B-06	30	03/25/08	**0.00899**		
B-07	10	03/25/08	0.000151 U		
B-07	20	03/25/08	**0.00351**		
B-07	30	03/25/08	**0.00884**		
B-08	10	03/26/08	**0.00654**		
B-08	20	03/26/08	**0.00554**		
B-08	30	03/26/08	**0.00562**		
B-09	10	03/25/08	**0.00616**		
B-09	20	03/25/08	**0.0143**		
B-09	30	03/25/08	**0.0116**		
B-10	10	03/24/08	**0.671**		
B-10	20	03/24/08	**0.0508**		
B-10	30	03/24/08	**0.0154**		
B-11	10	03/27/08	**0.0324**		
B-11	20	03/27/08	**0.346**		
B-11	30	03/27/08	**0.279**		
B-12	10	03/27/08	0.00292 U		
B-12	20	03/27/08	**0.00299**		
B-12	30	03/27/08	**0.00848**		
B-13	10	03/27/08	**0.0311**		
B-13	20	03/27/08	**0.0314**		
B-13	30	03/27/08	**0.0231**		
B-14	10	03/24/08	**0.0118**		
B-14	20	03/24/08	**0.0296**		
B-14	30	03/24/08	**0.594**		

Table D4
Historical Summary of Soil Analytical Results (1998 - 2019)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Sample ID	Depth (ft bgs)	Date	PCE (mg/kg)	Other VOCs detected (mg/kg)	Comments
B-15	10	03/24/08	**0.00532**		
B-15	20	03/24/08	**0.0188**		
B-15	30	03/24/08	**0.00785**		
B-16	10	03/25/08	0.00324 U		
B-16	20	03/25/08	0.00324 U		
B-16	24	03/25/08	0.000139 U		
B-17	10	03/26/08	0.00269 U		
B-17	20	03/26/08	0.00251 U		
B-17	30	03/26/08	0.00244 U		
SB-01	10	04/19/11	0.01 U		
SB-01	20	04/19/11	0.01 U		
SB-01	30	04/19/11	0.01 U		
SB-02	10	04/19/11	0.01 U		
SB-02	20	04/19/11	0.01 U		
SB-02	30	04/19/11	0.01 U		
SB-03	10	04/19/11	0.01 U		
SB-03	20	04/19/11	0.01 U		
SB-03	30	04/19/11	0.01 U		
SB-04	5	03/01/12	0.01 U		
SB-04	10	03/01/12	0.01 U		
SB-04	20	03/01/12	0.01 U		
SB-04	30	03/01/12	0.01 U		
SB-04	34	03/01/12	0.01 U		
SB-05	10	02/29/12	0.01 U		
SB-05	20	02/29/12	0.01 U		
SB-05	30	02/29/12	0.01 U		
SB-06	5	02/29/12	0.01 U		
SB-06	10	02/29/12	**0.028**		
SB-06	20	02/29/12	0.01 U		
SB-06	30	02/29/12	0.01 U		
SB-06	38	02/29/12	0.01 U		
SB-07	5	03/01/12	0.01 U		
SB-07	20	03/01/12	0.01 U		
SB-07	30	03/01/12	0.01 U		
SB-07	38	03/01/12	0.01 U		
SB-07	43	03/01/12	0.01 U		
SB-08	10	02/29/12	0.01 U		
SB-08	20	02/29/12	0.01 U		
SB-08	30	02/29/12	0.01 U		
SB-09	2	04/28/12	ND U		
SB-09	8	04/28/12	**0.013**		
SB-09	12	04/28/12	ND U		
SB-09	20	04/28/12	ND U		
AS-2	5	09/29/14	0.0011 U	Acetone = 0.082	
AS-3	10	10/01/14	**0.0010**		
AS-4	5	09/30/14	**0.0011**		

Table D4
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Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Sample ID	Depth (ft bgs)	Date	PCE (mg/kg)	Other VOCs detected (mg/kg)	Comments
AS-5	15	09/30/14	**0.0040**		
AS-6	5	09/26/14	**0.0042**	Acetone = 0.063	
AS-7	5	09/24/14	0.0012 U	Acetone = 0.29	
AS-8	3.5	09/30/14	**0.0075**		
AS-8	25	10/17/14	**0.029**	n-butylbenzene = 0.0036, sec-butylbenzene = 0.002 p-isopropyltoluene = 0.0016 Napthalene = 0.0041 1,2,4-Trimethlybenzene = 0.047 1,2,3-Trimethlybenzene = 0.014 1,3,5-Trimethlybenzene = 0.013 Total xylenes = 0.011	
AS-9	3	09/30/14	**0.0039**		
AS-9	25	10/16/14	**0.012**	n-butylbenzene = 0.0034, sec-butylbenzene = 0.0014 p-isopropyltoluene = 0.0012 Napthalene = 0.0088 n-propylbenzene = 0.0029 1,2,4-Trimethlybenzene = 0.042 1,2,3-Trimethlybenzene = 0.016 1,3,5-Trimethlybenzene = 0.010 Total xylenes = 0.0078	
AS-10	3	10/01/14	0.0011 U	Acetone = 0.069	
AS-10	8	10/14/14	**0.007**		
AS-11	3	10/01/14	**0.0011**		
AS-11	10	10/13/14	**0.0021**		
AS-12	3	10/01/14	**0.0017**	Acetone = 0.100 n-butylbenzene = 0.0013, n-propylbenzene = 0.0019 1,2,4-Trimethlybenzene = 0.020 1,2,3-Trimethlybenzene = 0.0053 1,3,5-Trimethlybenzene = 0.006 Total xylenes = 0.0084	
AS-12	8	10/10/14	**0.017**		
AS-13	3	10/01/14	**0.0028**		
AS-13	8	10/01/14	**0.0022**		
AS-14	3	09/29/14	**0.0038**		
AS-14	8	10/08/14	**0.0021**		
AS-15	3	09/29/14	**0.014**	Acetone = 0.11	
AS-15	8	10/06/14	**0.0031**		
AS-16	3	09/29/14	**0.018**		
AS-16	15	10/07/14	**0.0032**		
AS-17	3	09/29/14	**0.044**	Acetone = 0.33, MEK = 0.011	
AS-17	8	10/03/14	**0.0071**	1,2,4-Trimethlybenzene = 0.0028 1,2,3-Trimethlybenzene = 0.001	
AS-17	30	10/03/14	**0.0022**		

Table D4
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Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Sample ID	Depth (ft bgs)	Date	PCE (mg/kg)	Other VOCs detected (mg/kg)	Comments
AS-18	3	09/29/14	**0.0049**		
AS-18	8	10/02/14	**0.0014**		
AS-19	3	09/29/14	**0.0091**		
AS-19	8	10/02/14	**0.094**	n-butylbenzene = 1.4 sec-butylbenzene = 0.67 2-Chlorotoluene = 0.48 4-Chlorotoluene = 0.52 Ethylbenzene = 0.94 Cumene = 0.41 p-isopropyltoluene = 0.41 Napthalene = 1.5 n-propylbenzene = 1.8 Styrene = 0.089 1,1,2,2-Tetrachloroethane = 0.45 Toluene = 0.13 1,2,3-Trichlorotoluene = 0.036 1,1,2-Trichloroethane = 0.34 1,2,4-Trimethlybenzene = 18 1,2,3-Trimethlybenzene = 4.6 1,3,5-Trimethlybenzene = 5.0 Total xylenes = 7.7	
AS-20	3	09/29/14	**0.012**		
AS-20	10	10/06/14	**0.0033**	1,2,4-Trimethlybenzene = 0.0029	
AS-21	3	10/01/14	**0.0034**		
AS-21	8	10/07/14	**0.0038**		
AS-22	3	10/01/14	**0.0066**	Acetone = 0.062	
AS-22	8	10/01/14	**0.0052**		
AS-22	10	10/08/14	**0.0027**	Acetone = 0.073 n-butylbenzene = 0.0097 sec-butylbenzene = 0.0059 Ethylbenzene = 0.0072 Cumene = 0.0041 p-isopropyltoluene = 0.0036 Napthalene = 0.022 n-propylbenzene = 0.019 1,2,4-Trimethlybenzene = 0.18 1,2,3-Trimethlybenzene = 0.052 1,3,5-Trimethlybenzene = 0.047 Total xylenes = 0.076	
AS-23	3	09/30/14	**0.0012**		
AS-23	8	09/30/14	**0.0022**		
AS-23	10	10/10/14	**0.0038**		
AS-24	3	09/30/14	**0.0074**	Acetone = 0.066	
AS-24	8	09/30/14	**0.0013**		
AS-24	10	10/14/14	**0.0022**		

Table D4
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Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Sample ID	Depth (ft bgs)	Date	PCE (mg/kg)	Other VOCs detected (mg/kg)	Comments
AS-25	3	10/01/14	**0.0017**		
AS-25	10	10/15/14	**0.0020**		
AS-26	3	09/30/14	**0.0093**	Acetone = 0.057	
AS-26	8	09/30/14	**0.0089**	Acetone = 0.057	
AS-26	10	10/16/14	**0.0067**		
AS-27	3	09/30/14	**0.0051**		
AS-27	8	10/17/14	**0.015**		
AS-28	10	09/22/14	**0.0082**		
AS-29	5	09/23/14	**0.0034**	Acetone = 0.21, MEK = 0.018	
AS-30	5	09/25/14	**0.0015**		
AS-31	5	09/25/14	0.0011 U	Acetone = 0.076	
SVE-14	3.5	09/30/14	0.0011 U		
SVE-14	8.5	10/13/14	**0.0012**	1,2,4-Trimethlybenzene = 0.0044 1,2,3-Trimethlybenzene = 0.0019 1,3,5-Trimethlybenzene = 0.0015	
SVE-15	3	11/01/14	**0.0018**		
SVE-15	8	10/15/14	**0.0024**		
SVE-16	3	09/30/14	**0.0037**		
SVE-16	10	10/15/14	**0.008**	n-butylbenzene = 0.0048 sec-butylbenzene = 0.0028 Ethylbenzene = 0.0013 Cumene = 0.0013 p-isopropyltoluene = 0.0023 Napthalene = 0.0075 n-propylbenzene = 0.0057 Styrene = 0.089 1,1,2,2-Tetrachloroethane = 0.45 1,2,4-Trimethlybenzene = 0.074 1,2,3-Trimethlybenzene = 0.023 1,3,5-Trimethlybenzene = 0.021 Total xylenes = 0.020	
SVE-17	5	09/24/14	**0.026**		
SVE-18	5	09/23/14	**0.0024**		
SVE-19	5	09/29/14	0.0011 U		
SB-10	6	04/16/18	**0.193**		
SB-10	10	04/16/18	0.0359 U		
SB-11	8	04/16/18	0.0347 U		
SB-11	15	04/16/18	0.0353 U		
SB-12	1	04/16/18	0.0348 U		
SB-12	5	04/16/18	**0.138**		
SB-12	10	04/16/18	0.0325 U		

Table D4
Historical Summary of Soil Analytical Results (1998 - 2019)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Sample ID	Depth (ft bgs)	Date	PCE (mg/kg)	Other VOCs detected (mg/kg)	Comments
SB-13	5	04/16/18	0.0350 U		
SB-13	10	04/16/18	**0.128**		
SB-13	20	04/16/18	**6.03**		
SB-13	29	04/16/18	**0.110**		
SB-13b	36	04/25/18	**0.0829**		
SB-13b	40	04/25/18	**0.128**		
SB-14	5	04/16/18	0.0317 U		
SB-14	10	04/16/18	0.0298 U		
SB-14	20	04/16/18	0.0253 U		
SB-14	30	04/16/18	**0.109**		
SB-14a	40	04/25/18	**0.105**		
SB-15	10	04/17/18	0.0334 U		
SB-15	20	04/17/18	**0.0781**		
SB-15	30	04/17/18	**0.0645**		
SB-15	40	04/17/18	**0.132**		
SB-16	20	04/17/18	0.0366 U		
SB-16	30	04/17/18	**0.0505**		
SB-16	40	04/17/18	**0.0575**		
SB-17	20	04/18/18	**0.0435**		
SB-17	30	04/18/18	0.0281 U		
SB-17	40	04/18/18	**0.0286**		
SB-18	30	04/18/18	**0.0429**		
SB-18	40	04/18/18	**0.0284**		
SB-26	2	04/24/18	**0.0960**		
SB-26	4	04/24/18	0.0292 U		
SB-26	10	04/24/18	0.0433 U		
SB-26	20	04/24/18	**0.0763**		
SB-26	30	04/24/18	**0.0647**		
SB-26	40	04/24/18	0.0340 U		
SB-27	2	04/24/18	**0.0800**		
SB-27	4	04/24/18	0.0426 U		
SB-27	10	04/24/18	0.0339 U		
SB-27	20	04/24/18	**0.0942**		
SB-27	30	04/24/18	**0.118**		
SB-27	40	04/24/18	**0.169**		
SB-28	20	04/24/18	0.0323 U		
SB-28	30	04/24/18	**0.0784**		
SB-28	40	04/24/18	0.0325 U		
SB-30	30	04/25/18	0.0395 U		
SB-30	35	04/25/18	**0.142**		
SB-30	40	04/25/18	**0.0665**		
MW-17	25	03/01/19	0.0244 U		
MW-17	30	03/01/19	0.0267 U		
MW-17	35	03/01/19	**0.0543**		
MW-18	10	02/28/19	0.0314 U		
MW-18	30	02/28/19	**0.0288**		

Table D4
Historical Summary of Soil Analytical Results (1998 - 2019)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Sample ID	Depth (ft bgs)	Date	PCE (mg/kg)	Other VOCs detected (mg/kg)	Comments
MW-18	35	02/28/19	**0.0358**		
MW-19	30.5	10/17/19	0.0271 U		
MW-19	35	10/17/19	**0.0717**		
MW-19	38	10/17/19	**0.107**		

Table D4
Historical Summary of Soil Analytical Results (1998 - 2019)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

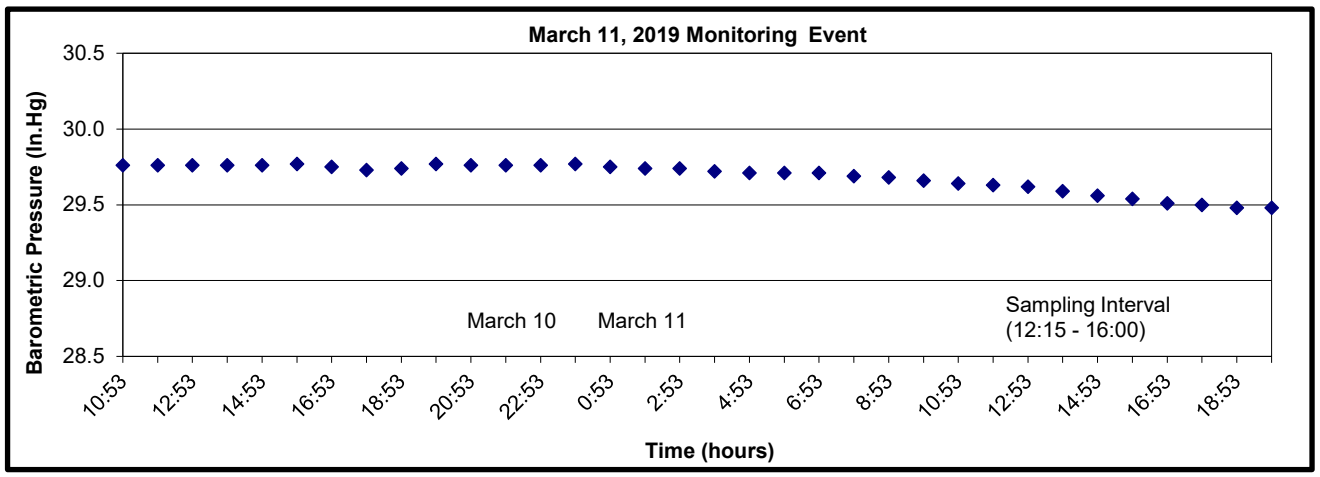
Sample ID	Depth (ft bgs)	Date	PCE (mg/kg)	Other VOCs detected (mg/kg)	Comments
MW-19	44	10/17/19	0.0268 U		
MW-20	30	10/17/19	**0.0280** U		
MW-20	35	10/17/19	**0.0299**		

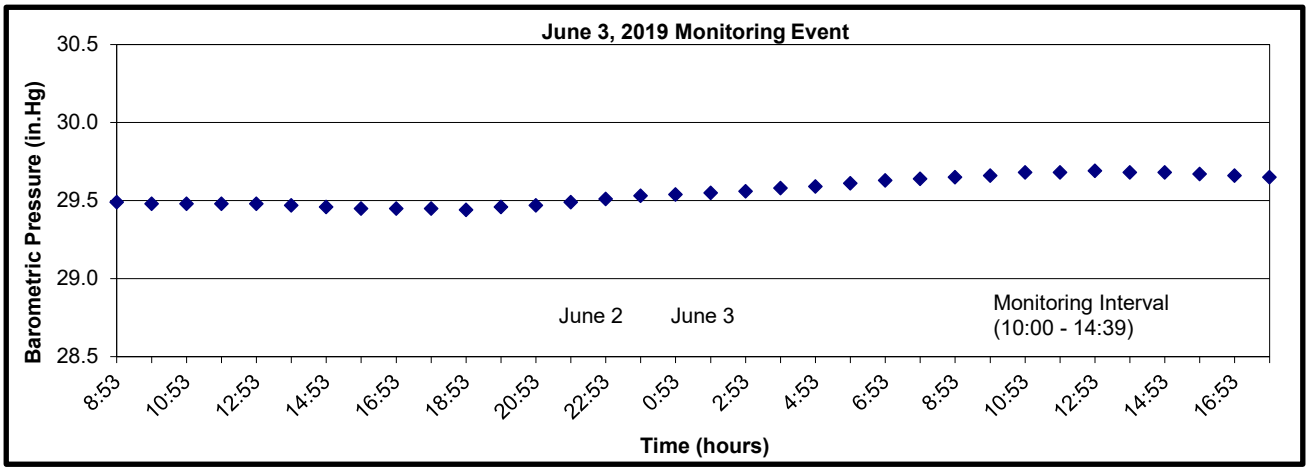
NOTES:

1. Tetrachloroethene (PCE) concentrations in milligrams per kilogram (mg/kg).
2. Soil samples analyzed using USEPA Methods 8260B and 8021B (1998 through 2000 only).
3. ND and U = concentration not detected at or above the laboratory practical quantitation limit (PQL).
4. Detected concentrations are shown in **bold.**
5. Concentrations exceeding the PCE MTCA Method A cleanup level of 0.050 mg/kg are **bold and shaded**.
6. Other detected VOCs - only those which are above their respective cleanup level are listed.

ATTACHMENT E
BAROMETRIC PRESSURE DURING SOIL GAS SAMPLING

Figure E1
24-Hour Barometric Pressure Trend Preceeding Monitoring Events at the MVSC and Harris Properties, Seatac Weather Station





ATTACHMENT F
PASSIVE FLUX METER RESULTS

Attachment F
Passive Flux Meter Test Results

Table F1. Summary of flux values for each well

Well_ID	Sample_ID	Depth below top of well casing (ft)	Darcy Velocity (cm/day)	PCE flux (mg/m^2/day)
MW-19	MW-19-43.9-45.3	44.7	17.9	0.0072
	MW-19-45.3-46.4	45.9	5.9	0.0020
	MW-19-46.4-47.5	47.0	7.1	0.0006
	MW-19-47.5-48.5	48.1	20.8	0.0020
	MW-19-49.0-50.0	49.6	9.5	0.0011
	MW-19-50.0-51.3	50.7	15.4	0.0020
	MW-19-51.3-52.5	52.0	15.2	0.0028
	MW-19-52.5-53.3	53.0	14.2	0.0017
MW-20	MW-20-35.3-36.4	35.9	9.1	0.0281
	MW-20-36.4-37.5	37.0	7.8	0.0507
	MW-20-36.4-37.5 DUP	37.0	7.9	0.0568
	MW-20-37.5-38.5	38.1	8.1	0.0572
	MW-20-38.5-39.6	39.1	12.7	0.0220
	MW-20-40.0-41.2	40.7	3.7	0.0223
	MW-20-41.2-42.5	41.9	4.3	0.0103
	MW-20-42.5-43.5	43.1	5.5	0.0047
	MW-20-43.5-44.3	44.0	15.4	0.0058

Table F2. Summary of flux average contaminant concentration

Well_ID	Sample_ID	Depth below top of well casing (ft)	Darcy Velocity (cm/day)	PCE (ug/L)
MW-19	MW-19-43.9-45.3	44.7	17.9	0.040
	MW-19-45.3-46.4	45.9	5.9	0.034
	MW-19-46.4-47.5	47.0	7.1	0.009
	MW-19-47.5-48.5	48.1	20.8	0.009
	MW-19-49.0-50.0	49.6	9.5	0.012
	MW-19-50.0-51.3	50.7	15.4	0.013
	MW-19-51.3-52.5	52.0	15.2	0.018
	MW-19-52.5-53.3	53.0	14.2	0.012
MW-20	MW-20-35.3-36.4	35.9	9.1	0.308
	MW-20-36.4-37.5	37.0	7.8	0.647
	MW-20-36.4-37.5 DUP	37.0	7.9	0.716
	MW-20-37.5-38.5	38.1	8.1	0.705
	MW-20-38.5-39.6	39.1	12.7	0.174
	MW-20-40.0-41.2	40.7	3.7	0.608
	MW-20-41.2-42.5	41.9	4.3	0.240
	MW-20-42.5-43.5	43.1	5.5	0.086
	MW-20-43.5-44.3	44.0	15.4	0.038

Chart F1. MW-19

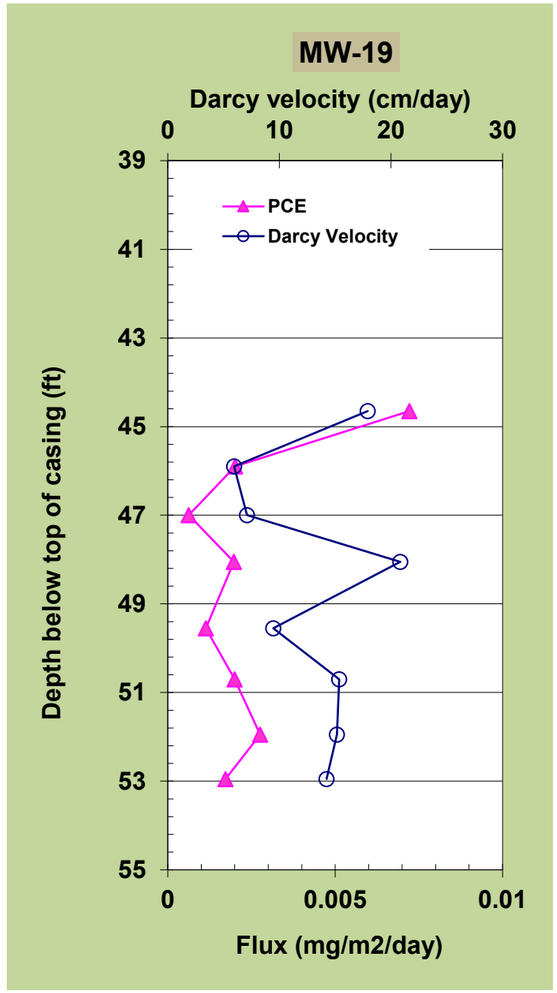
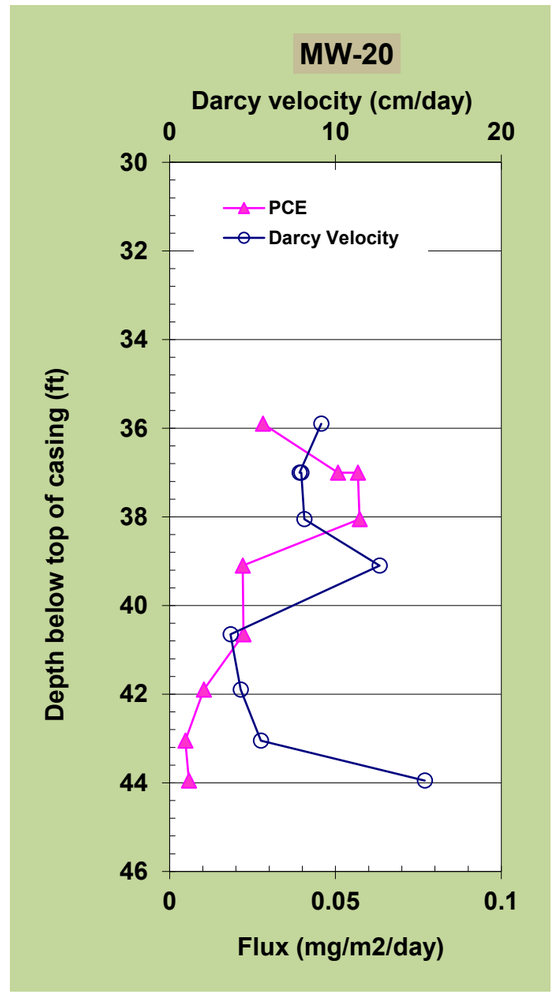


Chart F2. MW-20



Attachment F
Passive Flux Meter Test Results

Table F3. Mass discharge per unit width for aquifer of each well

Well	Darcy Velocity (cm/day)	PCE Discharge (mg/m/day)
MW-19	13.2	0.01
MW-20	8.3	0.08

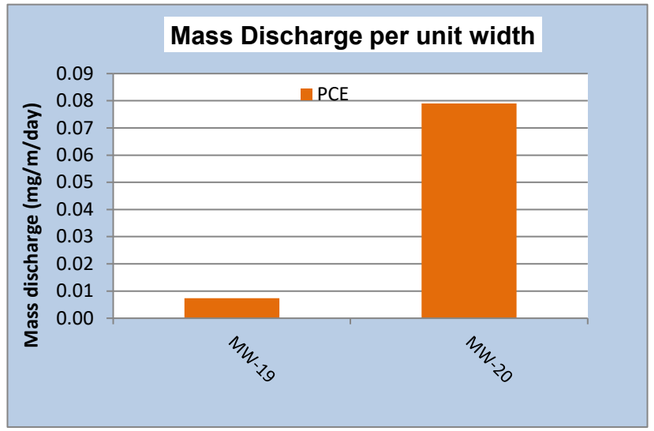


Table F4. Well average values of mass flux based on PFMs

Well	Darcy Velocity (cm/day)	PCE flux (mg/m^2/day)
MW-19	13.2	0.002
MW-20	8.3	0.026

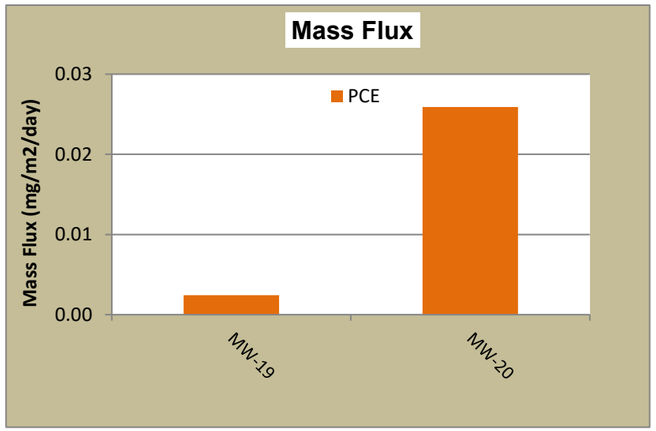
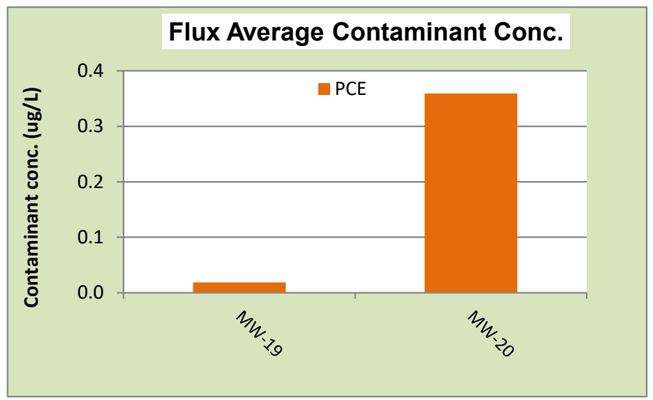
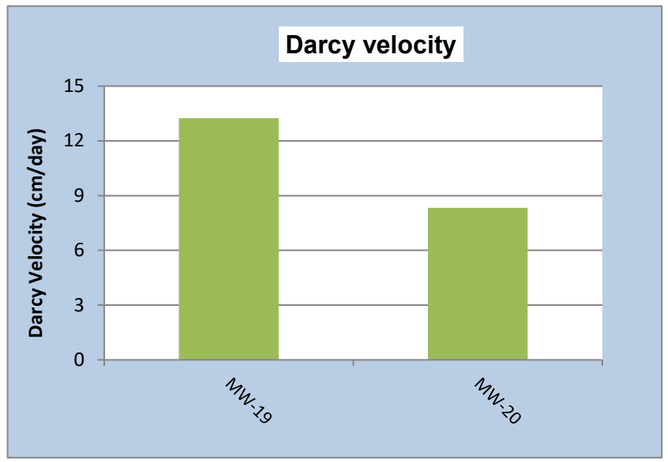


Table F5. Flux average contaminant concentration on PFMs

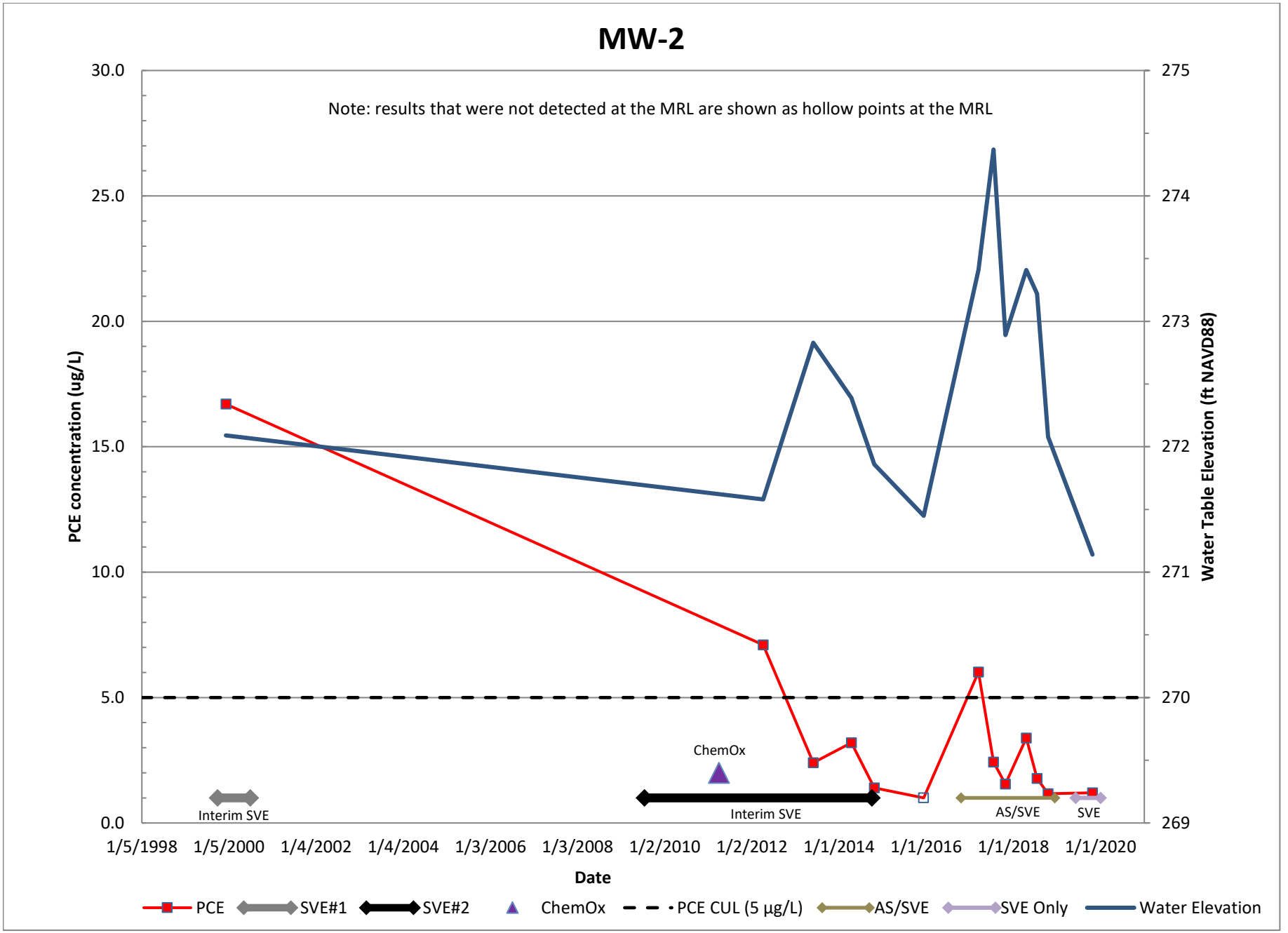
Well	Darcy Velocity (cm/day)	PCE (ug/L)
MW-19	13.2	0.02
MW-20	8.3	0.36

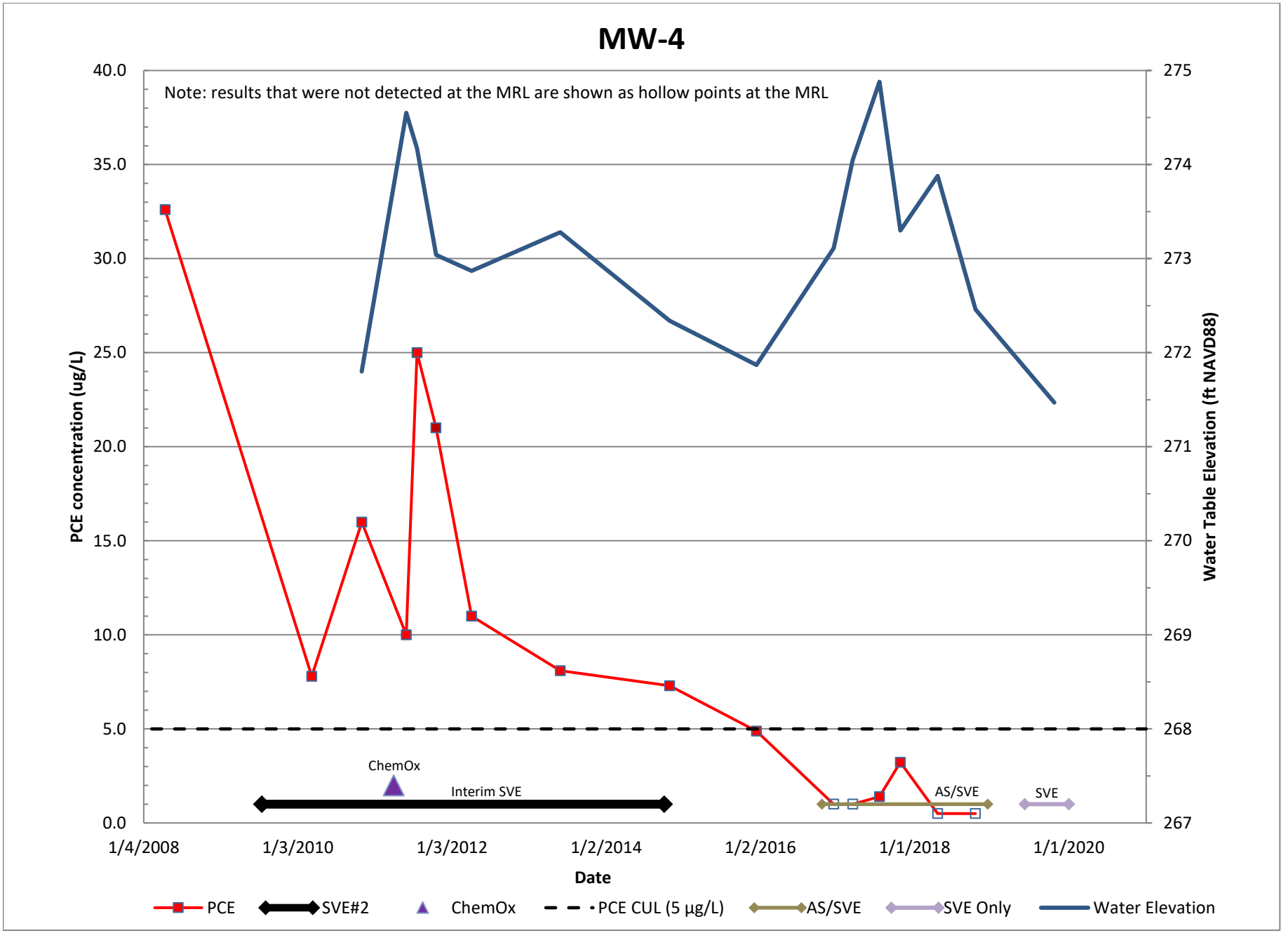


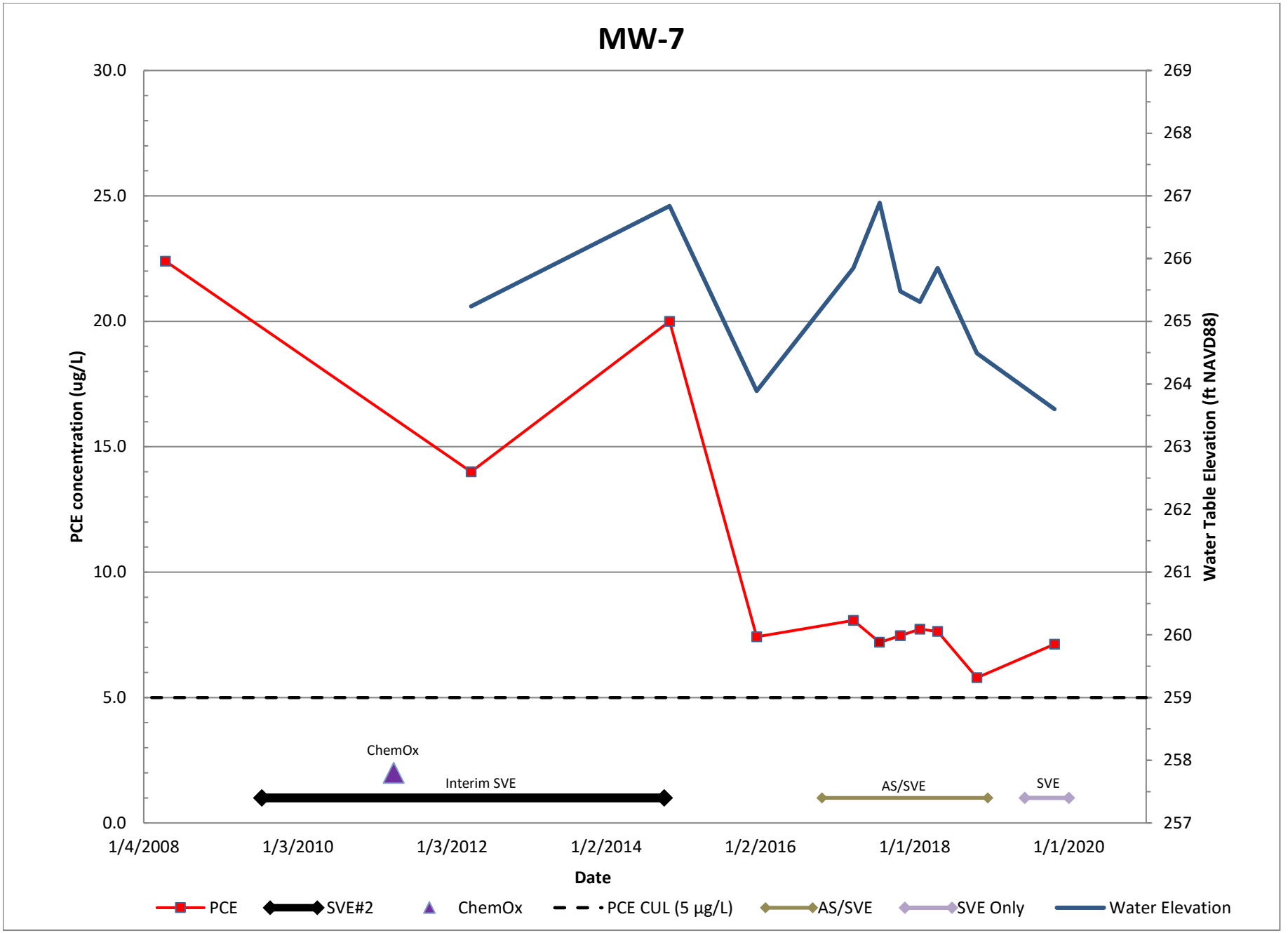


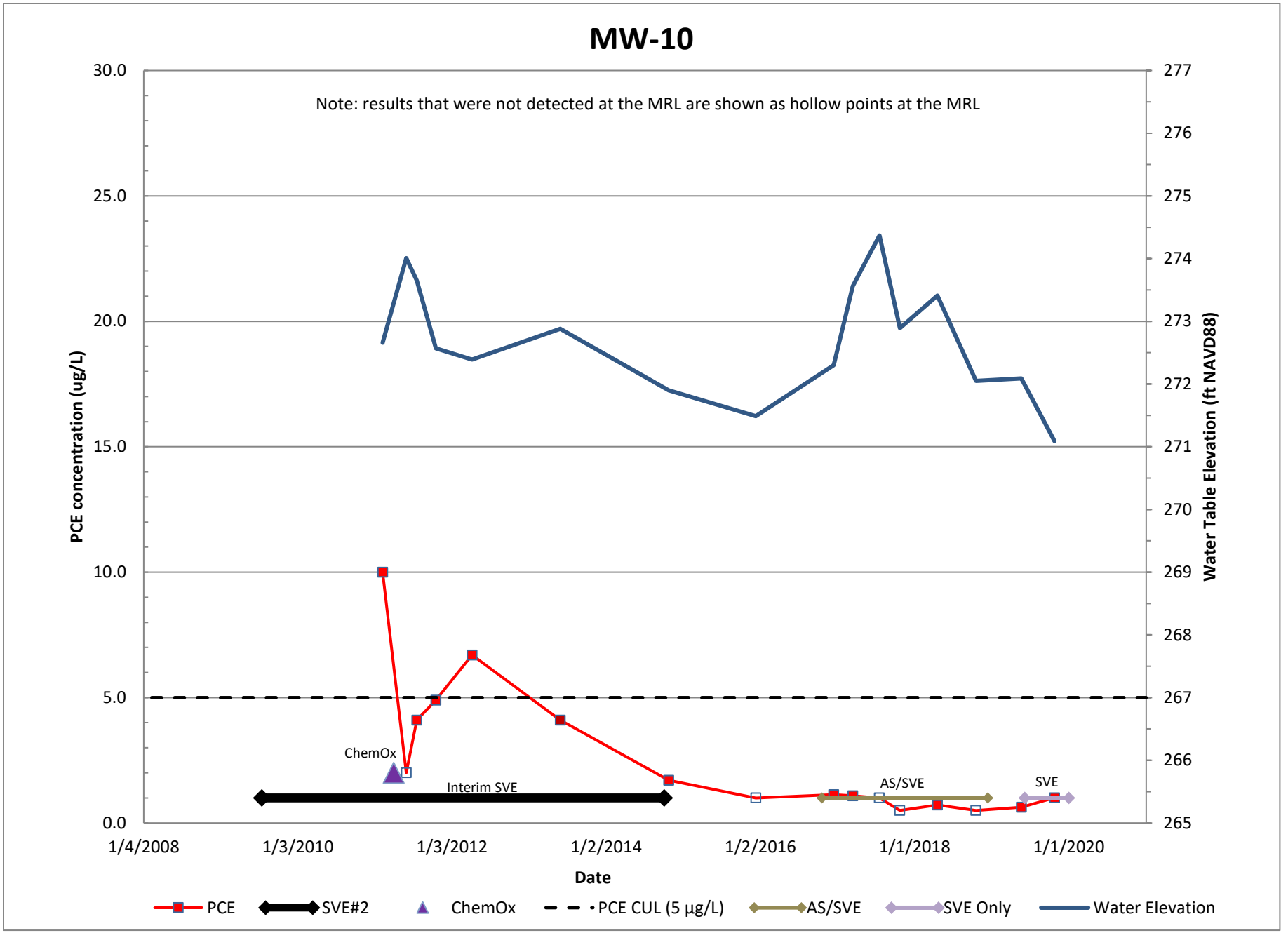
ATTACHMENT G
TIME TREND PLOTS

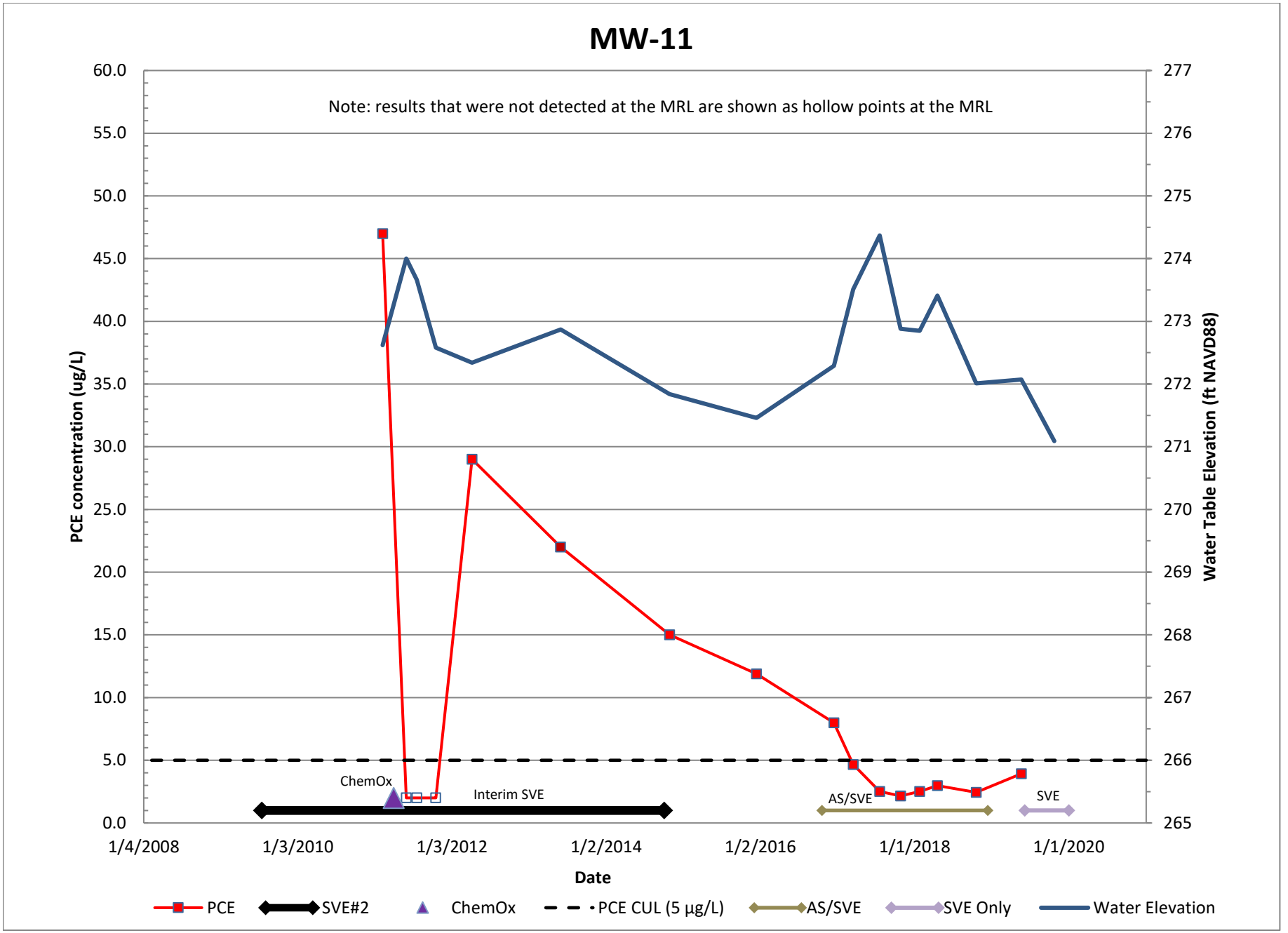
- MW-2, MW-4, MW-7, MW-10, MW-11
- DC-3, DC-4, DC-7, DC-8, DC-10a, DC-13, DC-14, DC-15, DC-17
- KMW-3, KMW-8, KMW-9

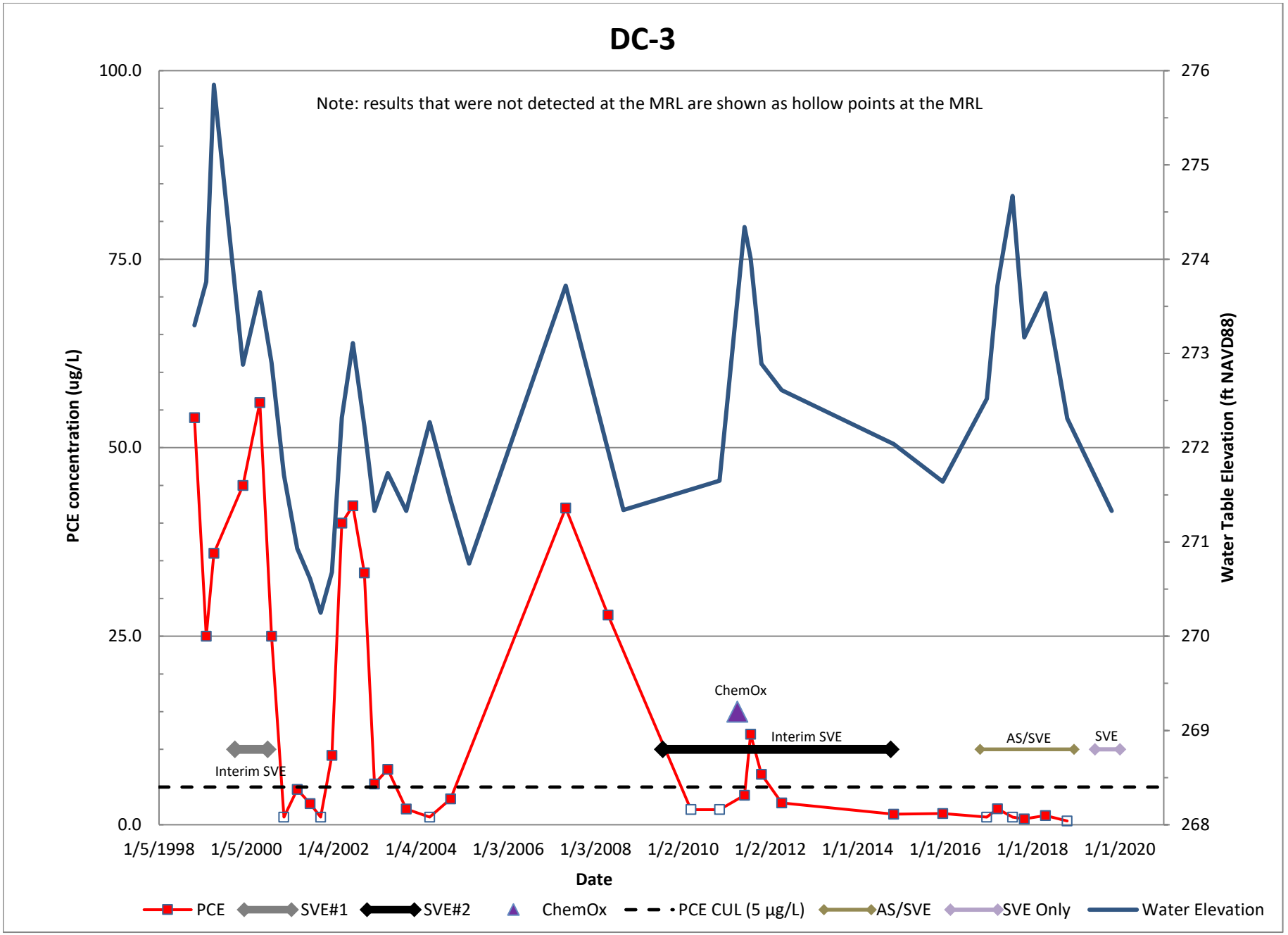

MW-2
Note: results that were not detected at the MRL are shown as hollow points at the MRL
PCE concentration (ug/L)
Water Table Elevation (ft NAVD88)
30.0
25.0
20.0
15.0
10.0
5.0
0.0
275
274
273
272
271
270
269
1/5/1998
1/5/2000
1/4/2002
1/4/2004
1/3/2006
1/3/2008
1/2/2010
1/2/2012
1/1/2014
1/1/2016
1/1/2018
1/1/2020
Date
Interim SVE
ChemOx
Interim SVE
AS/SVE
SVE
PCE
SVE#1
SVE#2
ChemOx
PCE CUL (5 µg/L)
AS/SVE
SVE Only
Water Elevation

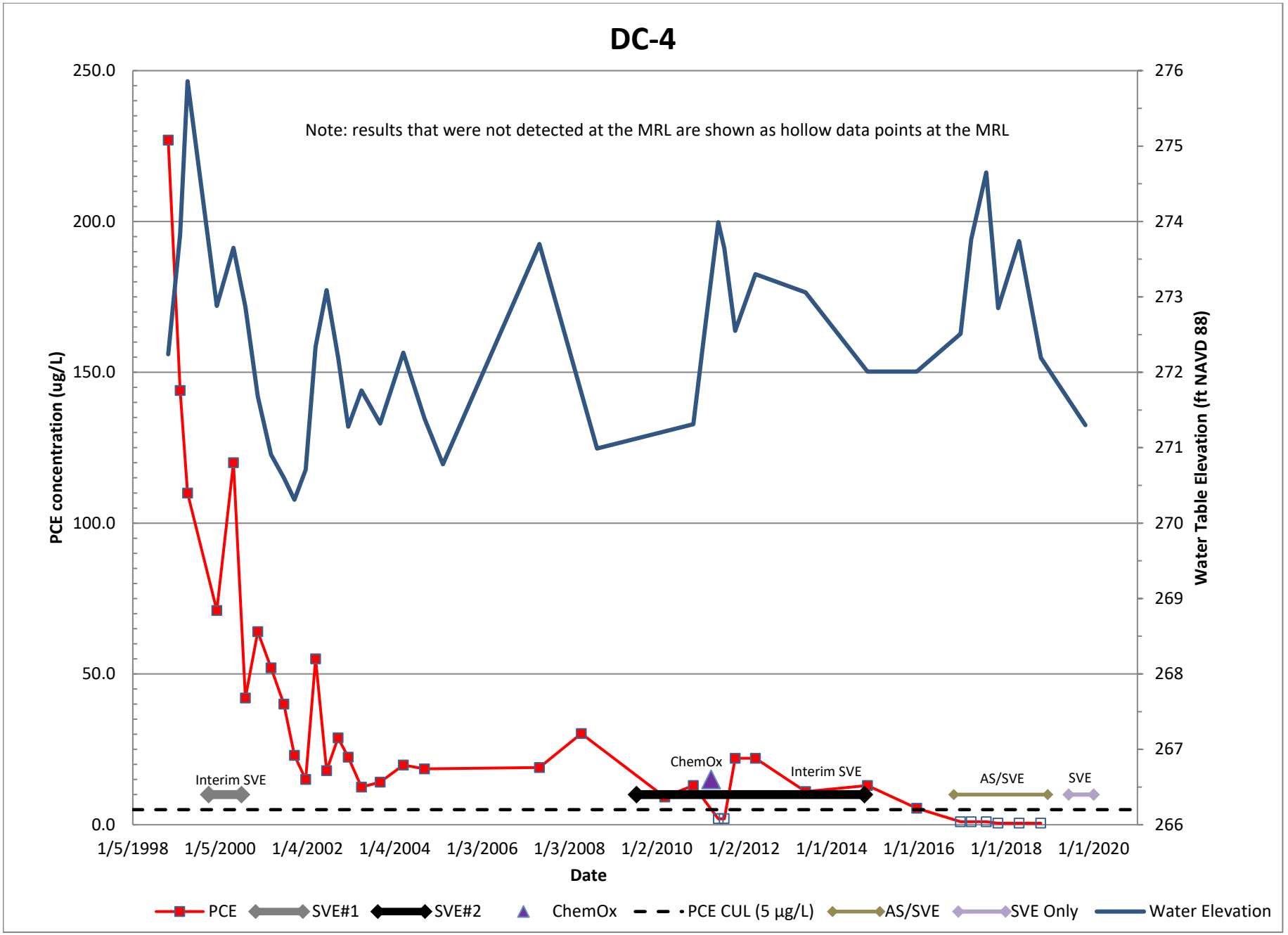

MW-4
Note: results that were not detected at the MRL are shown as hollow points at the MRL
PCE concentration (ug/L)
Water Table Elevation (ft NAVD88)
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
275
274
273
272
271
270
269
268
267
1/4/2008
1/3/2010
1/3/2012
1/2/2014
1/2/2016
1/1/2018
1/1/2020
Date
ChemOx
Interim SVE
AS/SVE
SVE
PCE
SVE#2
ChemOx
PCE CUL (5 µg/L)
AS/SVE
SVE Only
Water Elevation

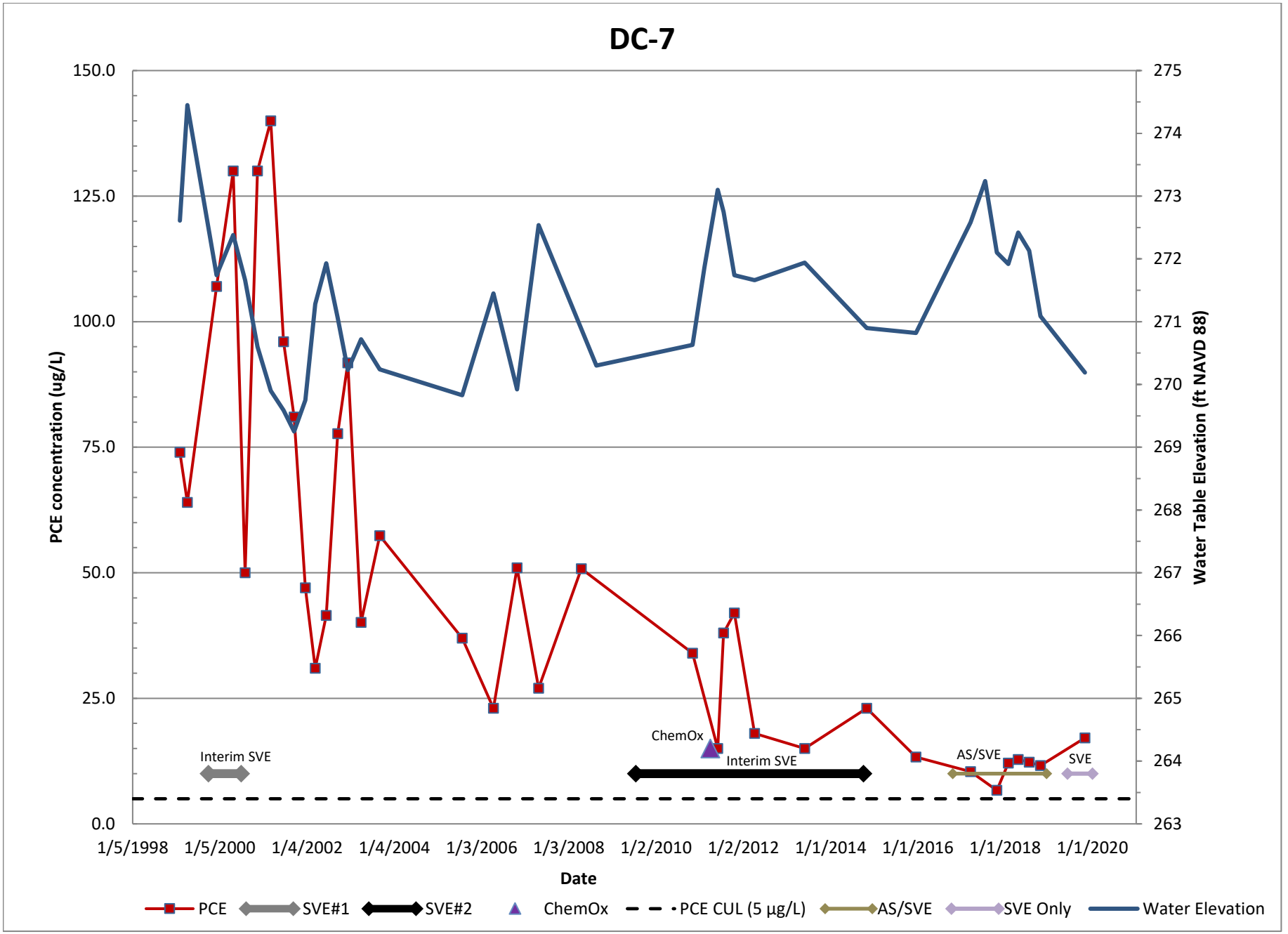

MW-7
PCE concentration (ug/L)
Water Table Elevation (ft NAVD88)
30.0
25.0
20.0
15.0
10.0
5.0
0.0
269
268
267
266
265
264
263
262
261
260
259
258
257
1/4/2008
1/3/2010
1/3/2012
1/2/2014
1/2/2016
1/1/2018
1/1/2020
Date
ChemOx
Interim SVE
AS/SVE
SVE
PCE
SVE#2
ChemOx
PCE CUL (5 µg/L)
AS/SVE
SVE Only
Water Elevation

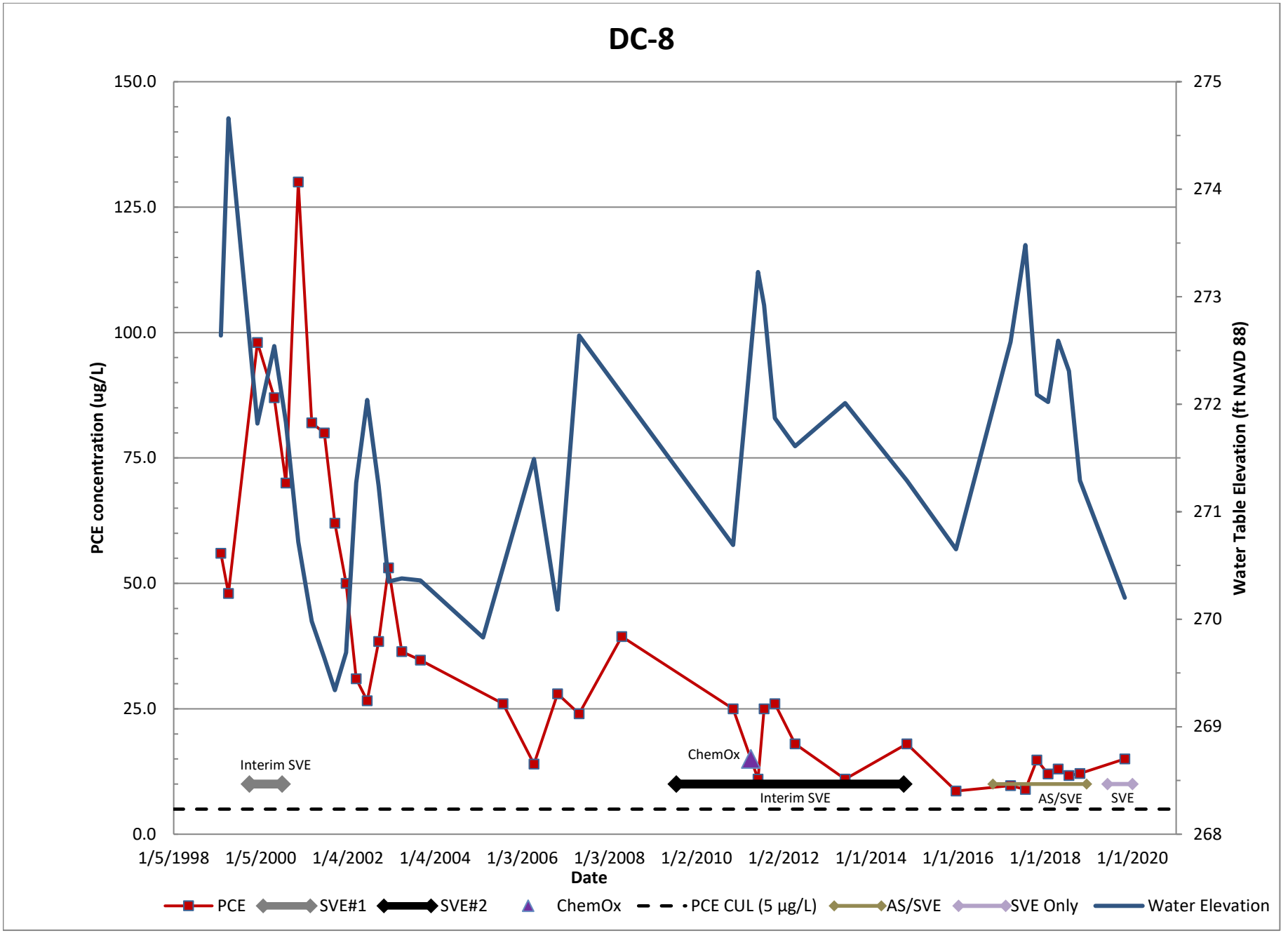

MW-10
Note: results that were not detected at the MRL are shown as hollow points at the MRL
PCE concentration (ug/L)
Water Table Elevation (ft NAVD88)
30.0
25.0
20.0
15.0
10.0
5.0
0.0
277
276
275
274
273
272
271
270
269
268
267
266
265
1/4/2008
1/3/2010
1/3/2012
1/2/2014
1/2/2016
1/1/2018
1/1/2020
Date
ChemOx
Interim SVE
AS/SVE
SVE
PCE
SVE#2
ChemOx
PCE CUL (5 µg/L)
AS/SVE
SVE Only
Water Elevation

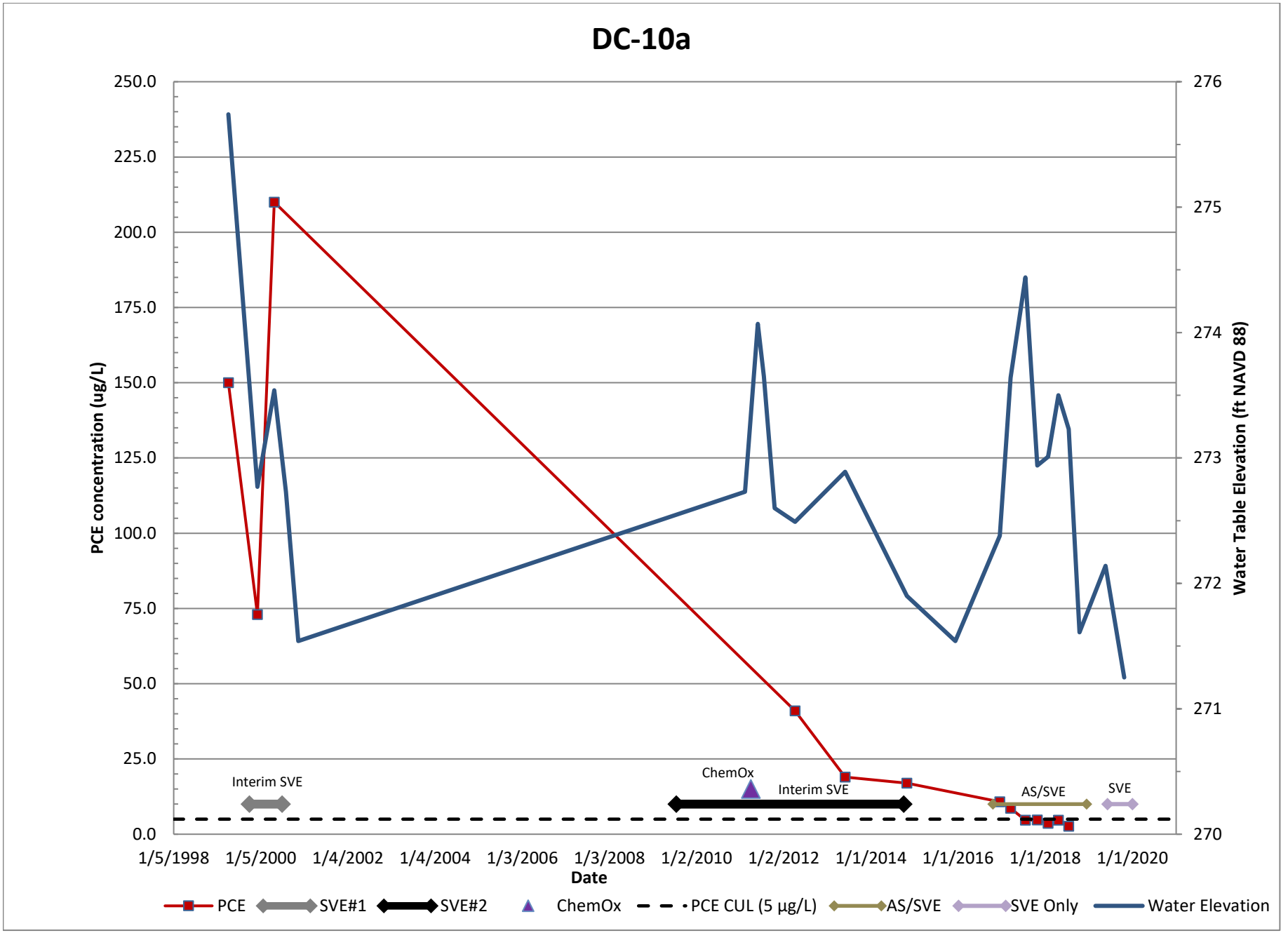

MW-11
Note: results that were not detected at the MRL are shown as hollow points at the MRL
PCE concentration (ug/L)
Water Table Elevation (ft NAVD88)
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
277
276
275
274
273
272
271
270
269
268
267
266
265
1/4/2008
1/3/2010
1/3/2012
1/2/2014
1/2/2016
1/1/2018
1/1/2020
Date
ChemOx
Interim SVE
AS/SVE
SVE
PCE
SVE#2
ChemOx
PCE CUL (5 µg/L)
AS/SVE
SVE Only
Water Elevation

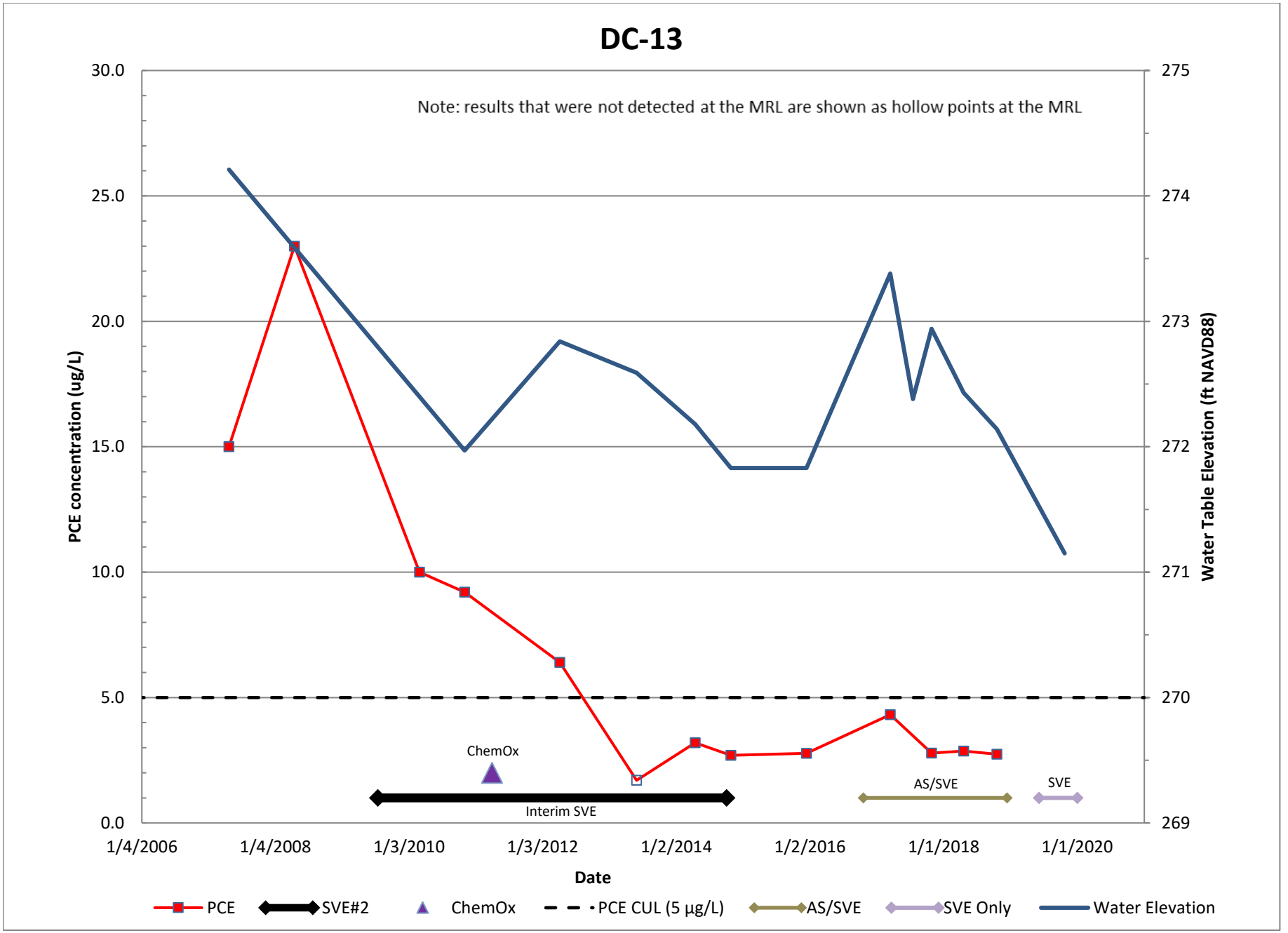

DC-3
Note: results that were not detected at the MRL are shown as hollow points at the MRL
PCE concentration (ug/L)
Water Table Elevation (ft NAVD88)
100.0
75.0
50.0
25.0
0.0
276
275
274
273
272
271
270
269
268
1/5/1998
1/5/2000
1/4/2002
1/4/2004
1/3/2006
1/3/2008
1/2/2010
1/2/2012
1/1/2014
1/1/2016
1/1/2018
1/1/2020
Date
Interim SVE
ChemOx
Interim SVE
AS/SVE
SVE
PCE
SVE#1
SVE#2
ChemOx
PCE CUL (5 µg/L)
AS/SVE
SVE Only
Water Elevation

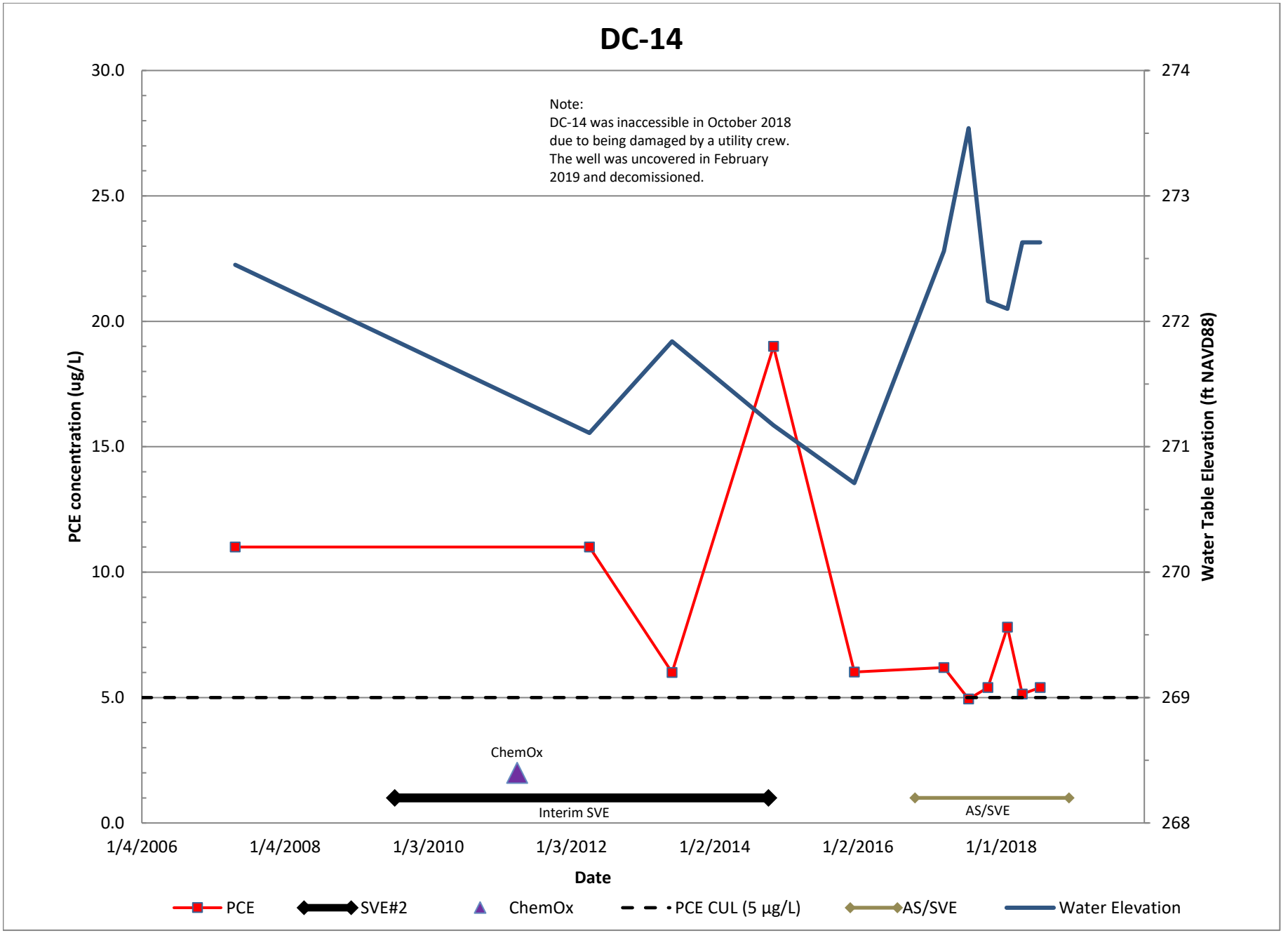

DC-4
Note: results that were not detected at the MRL are shown as hollow data points at the MRL
PCE concentration (ug/L)
Water Table Elevation (ft NAVD 88)
250.0
200.0
150.0
100.0
50.0
0.0
276
275
274
273
272
271
270
269
268
267
266
1/5/1998
1/5/2000
1/4/2002
1/4/2004
1/3/2006
1/3/2008
1/2/2010
1/2/2012
1/1/2014
1/1/2016
1/1/2018
1/1/2020
Date
Interim SVE
ChemOx
Interim SVE
AS/SVE
SVE
PCE
SVE#1
SVE#2
ChemOx
PCE CUL (5 µg/L)
AS/SVE
SVE Only
Water Elevation

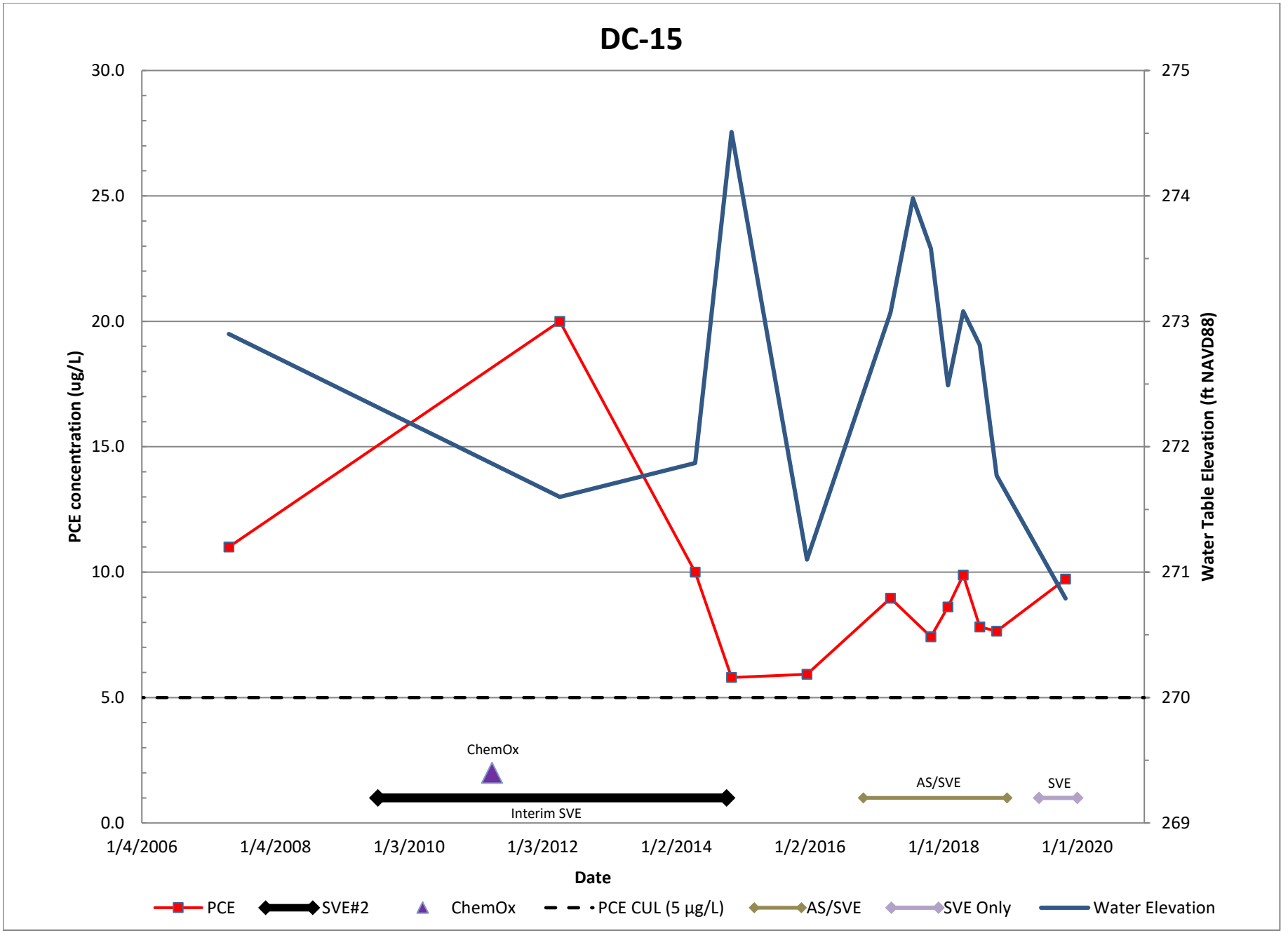

DC-7
150.0
125.0
100.0
75.0
50.0
25.0
0.0
PCE concentration (ug/L)
275
274
273
272
271
270
269
268
267
266
265
264
263
Water Table Elevation (ft NAVD 88)
1/5/1998
1/5/2000
1/4/2002
1/4/2004
1/3/2006
1/3/2008
1/2/2010
1/2/2012
1/1/2014
1/1/2016
1/1/2018
1/1/2020
Date
Interim SVE
ChemOx
Interim SVE
AS/SVE
SVE
PCE
SVE#1
SVE#2
ChemOx
PCE CUL (5 µg/L)
AS/SVE
SVE Only
Water Elevation

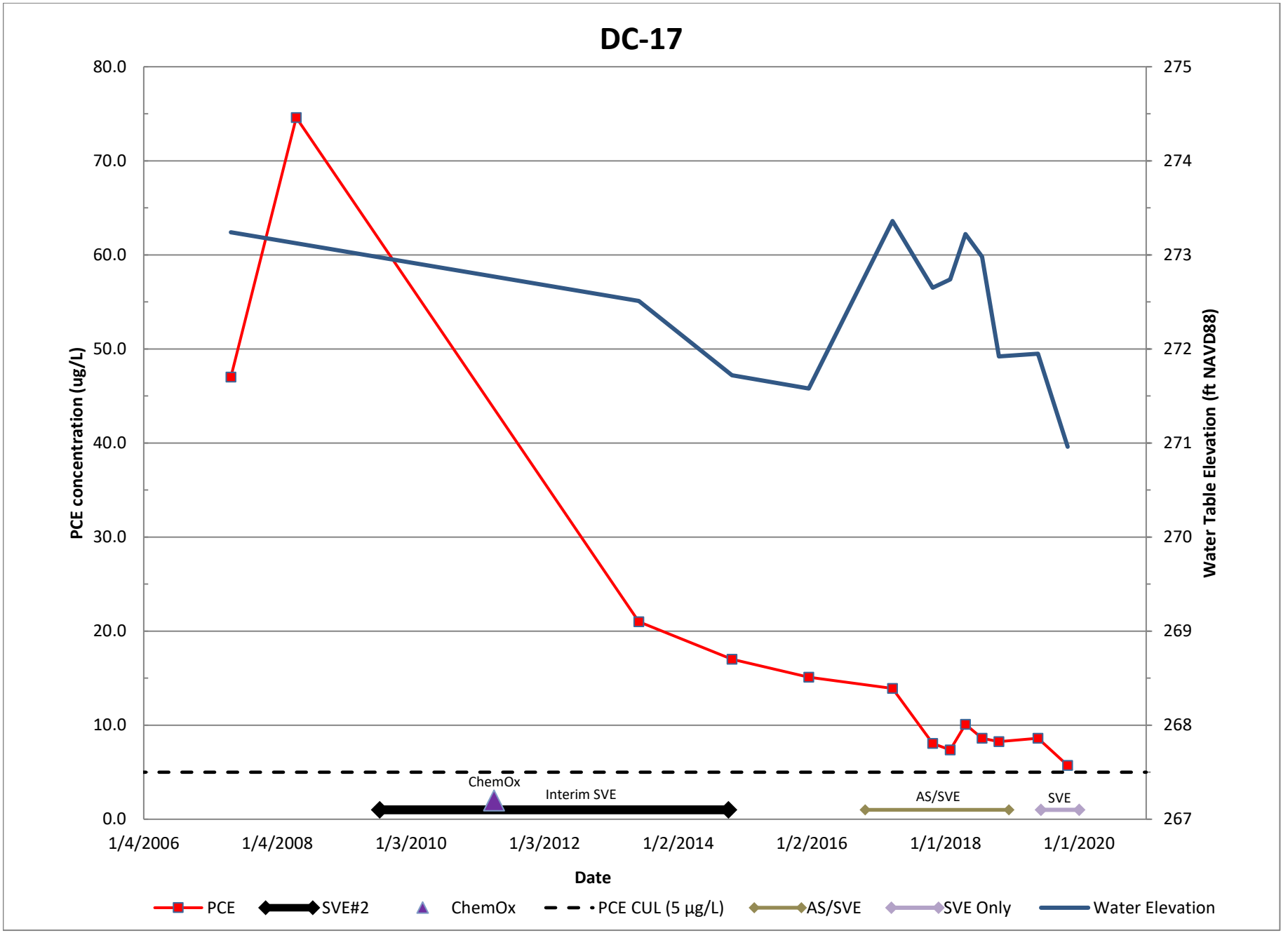

DC-8
150.0
125.0
100.0
75.0
50.0
25.0
0.0
PCE concentration (ug/L)
275
274
273
272
271
270
269
268
Water Table Elevation (ft NAVD 88)
1/5/1998
1/5/2000
1/4/2002
1/4/2004
1/3/2006
1/3/2008
1/2/2010
1/2/2012
1/1/2014
1/1/2016
1/1/2018
1/1/2020
Date
Interim SVE
ChemOx
Interim SVE
AS/SVE
SVE
PCE
SVE#1
SVE#2
ChemOx
PCE CUL (5 µg/L)
AS/SVE
SVE Only
Water Elevation

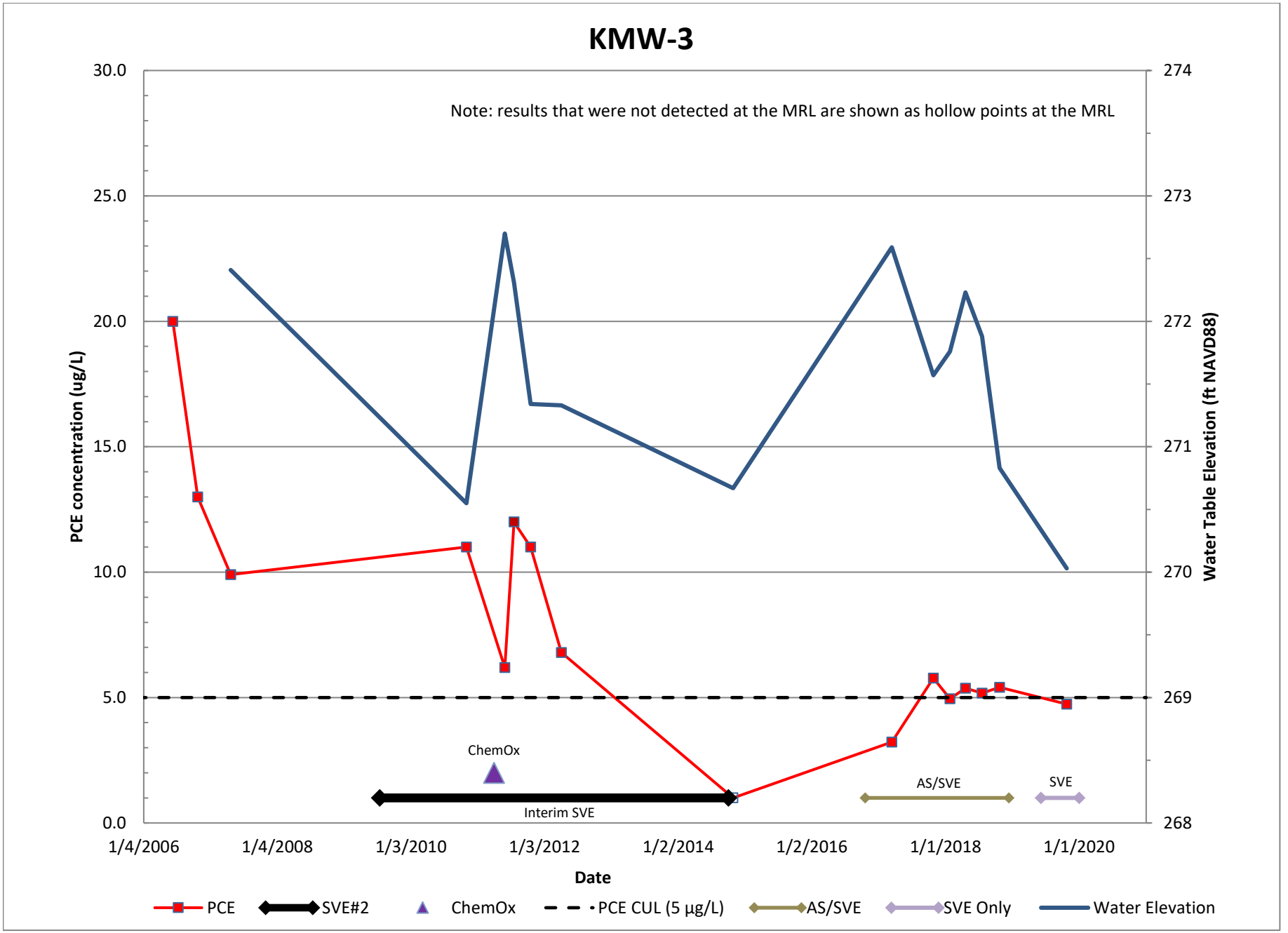

DC-10a
PCE concentration (ug/L)
Water Table Elevation (ft NAVD 88)
Date
250.0
225.0
200.0
175.0
150.0
125.0
100.0
75.0
50.0
25.0
0.0
276
275
274
273
272
271
270
1/5/1998
1/5/2000
1/4/2002
1/4/2004
1/3/2006
1/3/2008
1/2/2010
1/2/2012
1/1/2014
1/1/2016
1/1/2018
1/1/2020
Interim SVE
ChemOx
Interim SVE
AS/SVE
SVE
PCE
SVE#1
SVE#2
ChemOx
PCE CUL (5 µg/L)
AS/SVE
SVE Only
Water Elevation

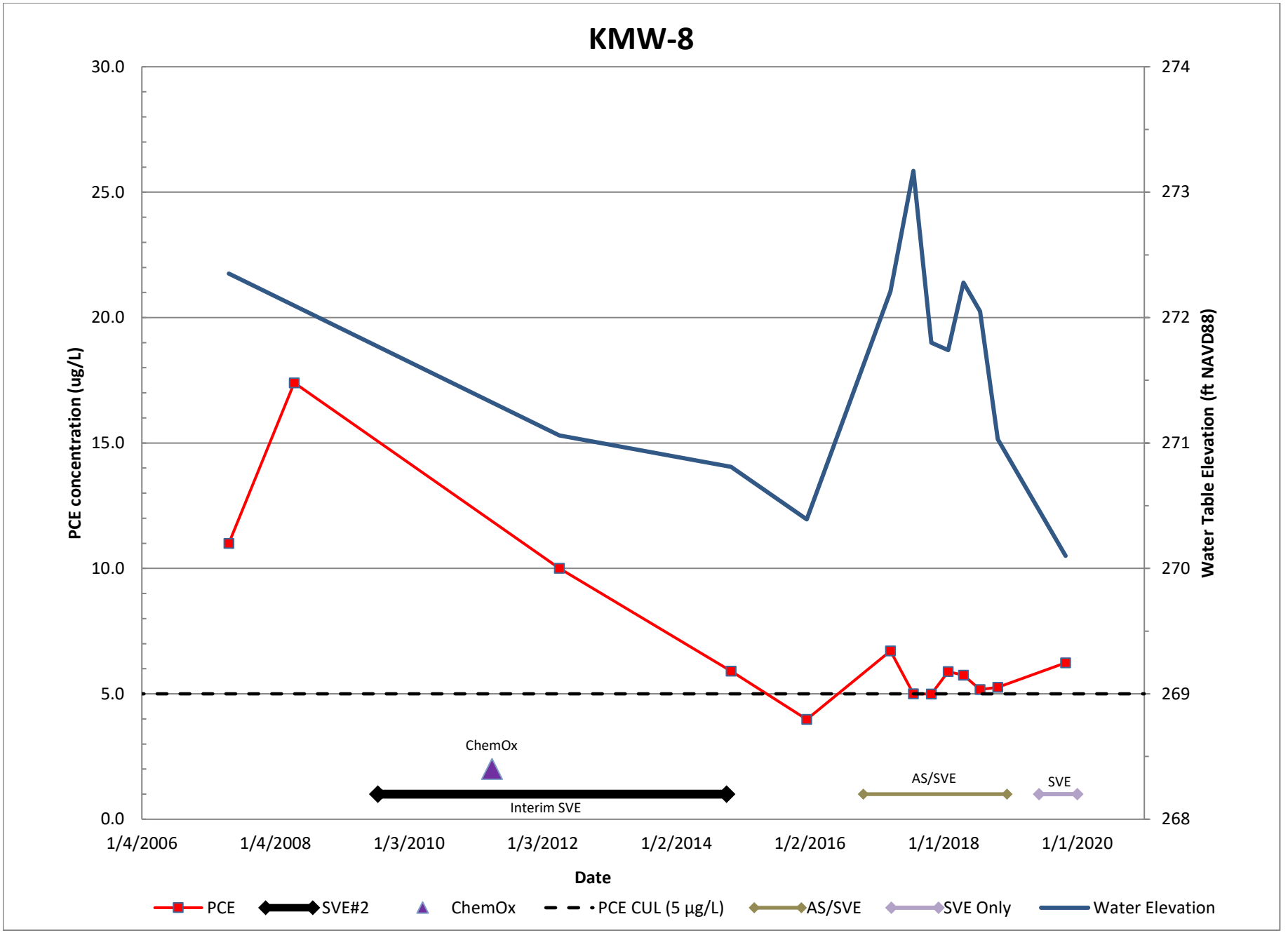

DC-13
Note: results that were not detected at the MRL are shown as hollow points at the MRL
PCE concentration (ug/L)
Water Table Elevation (ft NAVD88)
30.0
25.0
20.0
15.0
10.0
5.0
0.0
275
274
273
272
271
270
269
1/4/2006
1/4/2008
1/3/2010
1/3/2012
1/2/2014
1/2/2016
1/1/2018
1/1/2020
Date
ChemOx
Interim SVE
AS/SVE
SVE
PCE
SVE#2
ChemOx
PCE CUL (5 µg/L)
AS/SVE
SVE Only
Water Elevation

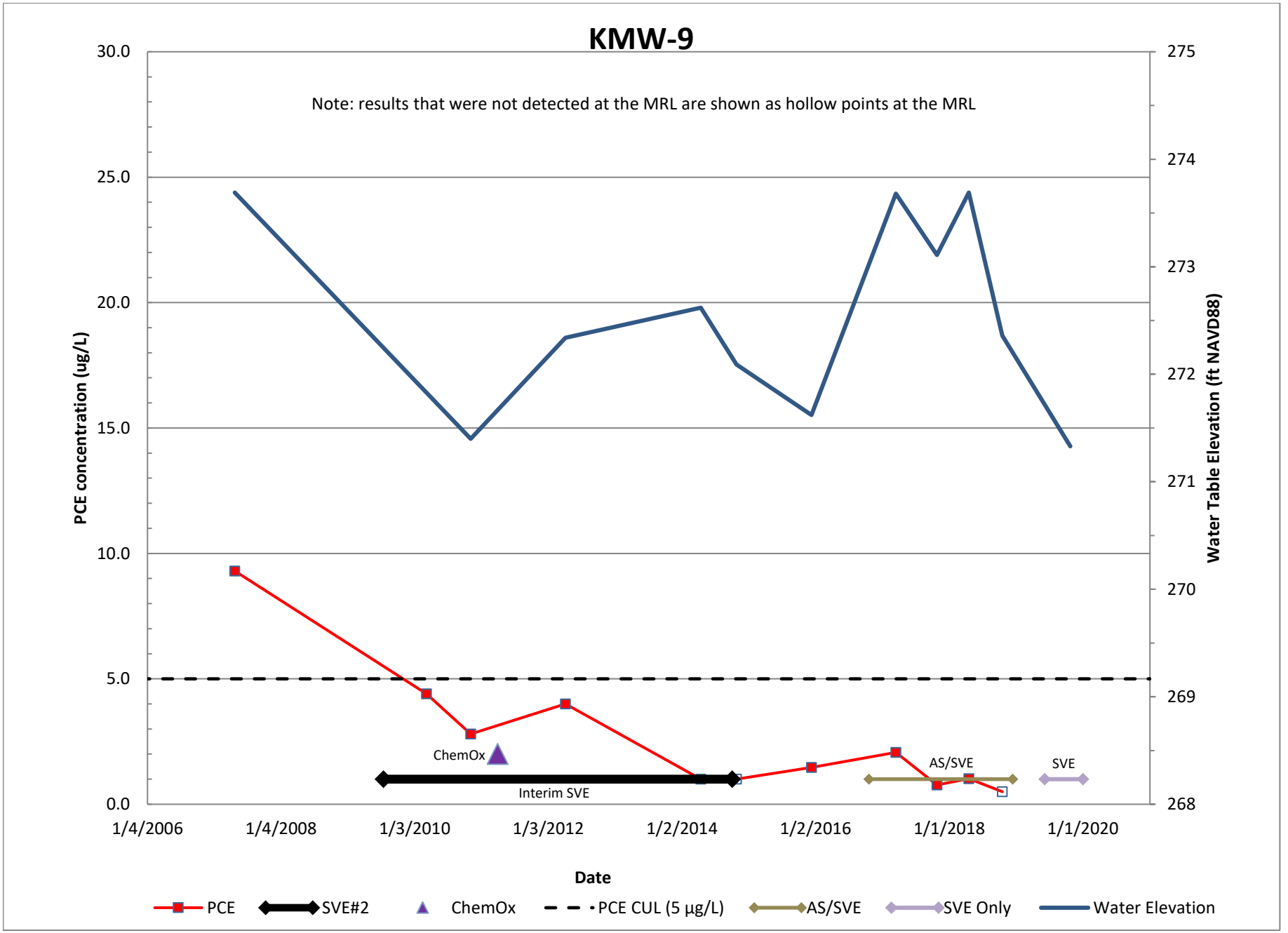

DC-14
Note:
DC-14 was inaccessible in October 2018
due to being damaged by a utility crew.
The well was uncovered in February
2019 and decomissioned.
PCE concentration (ug/L)
Water Table Elevation (ft NAVD88)
30.0
25.0
20.0
15.0
10.0
5.0
0.0
274
273
272
271
270
269
268
1/4/2006
1/4/2008
1/3/2010
1/3/2012
1/2/2014
1/2/2016
1/1/2018
Date
ChemOx
Interim SVE
AS/SVE
PCE
SVE#2
ChemOx
PCE CUL (5 µg/L)
AS/SVE
Water Elevation


DC-15
PCE concentration (ug/L)
Water Table Elevation (ft NAVD88)
30.0
25.0
20.0
15.0
10.0
5.0
0.0
275
274
273
272
271
270
269
1/4/2006
1/4/2008
1/3/2010
1/3/2012
1/2/2014
1/2/2016
1/1/2018
1/1/2020
Date
ChemOx
Interim SVE
AS/SVE
SVE
PCE
SVE#2
ChemOx
PCE CUL (5 µg/L)
AS/SVE
SVE Only
Water Elevation


DC-17
PCE concentration (ug/L)
Water Table Elevation (ft NAVD88)
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
275
274
273
272
271
270
269
268
267
1/4/2006
1/4/2008
1/3/2010
1/3/2012
1/2/2014
1/2/2016
1/1/2018
1/1/2020
Date
ChemOx
Interim SVE
AS/SVE
SVE
PCE
SVE#2
ChemOx
PCE CUL (5 µg/L)
AS/SVE
SVE Only
Water Elevation


KMW-3
Note: results that were not detected at the MRL are shown as hollow points at the MRL
PCE concentration (ug/L)
Water Table Elevation (ft NAVD88)
30.0
25.0
20.0
15.0
10.0
5.0
0.0
274
273
272
271
270
269
268
1/4/2006
1/4/2008
1/3/2010
1/3/2012
1/2/2014
1/2/2016
1/1/2018
1/1/2020
Date
ChemOx
Interim SVE
AS/SVE
SVE
PCE
SVE#2
ChemOx
PCE CUL (5 µg/L)
AS/SVE
SVE Only
Water Elevation


KMW-8
PCE concentration (ug/L)
Water Table Elevation (ft NAVD88)
30.0
25.0
20.0
15.0
10.0
5.0
0.0
274
273
272
271
270
269
268
1/4/2006
1/4/2008
1/3/2010
1/3/2012
1/2/2014
1/2/2016
1/1/2018
1/1/2020
Date
ChemOx
Interim SVE
AS/SVE
SVE
PCE
SVE#2
ChemOx
PCE CUL (5 µg/L)
AS/SVE
SVE Only
Water Elevation


KMW-9
Note: results that were not detected at the MRL are shown as hollow points at the MRL
PCE concentration (ug/L)
Water Table Elevation (ft NAVD88)
30.0
25.0
20.0
15.0
10.0
5.0
0.0
275
274
273
272
271
270
269
268
1/4/2006
1/4/2008
1/3/2010
1/3/2012
1/2/2014
1/2/2016
1/1/2018
1/1/2020
ChemOx
Interim SVE
AS/SVE
SVE
Date
PCE
SVE#2
ChemOx
PCE CUL (5 µg/L)
AS/SVE
SVE Only
Water Elevation

ATTACHMENT H
WASTE DISPOSAL INFORMATION

Please print or type. DI 1902847440 SC PPW 3/12/2019 Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: WAH000028116
2. Page 1 of: 1
3. Emergency Response Phone: (800) 483-3718
4. Manifest Tracking Number: 012577331 FLE

5. Generator's Name and Mailing Address
Harris Family LTD
1215 Fourth Avenue Suite 1350
Seattle, WA 98161
Generator's Phone:

Generator's Site Address (if different than mailing address)
17817 1st Avenue South
Normandy Park, WA 98148

6. Transporter 1 Company Name: Clean Harbors Environmental Services, Inc.
U.S. EPA ID Number: MAD039322250

7. Transporter 2 Company Name: STEVE FORCIER
U.S. EPA ID Number: [illegible]

8. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain LLC
3 Miles East 7 Miles North of Knolls
Grantsville, UT 84029
Facility's Phone: (435) 884-8900
U.S. EPA ID Number: UTD991301748

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (TETRACHLOROETHYLENE), 9, PG III RQ (F002)	007	DM	3,500	P	F002		
X	2. NA3082, HAZARDOUS WASTE, LIQUID, N.O.S., (TETRACHLOROETHYLENE), 9, PG III RQ(F002)	002	DM	1,000	P	F002		
X	3. NA3082, HAZARDOUS WASTE, LIQUID, N.O.S., (TETRACHLOROETHYLENE), 9, PG III RQ(F002)	002	DF	900	P	F002		
	4.							

14. Special Handling Instructions and Additional Information
1. CH1669342 ERG#171 7X55
2. CH1669366 ERG#171 2X55
3. CH1669366 ERG#171 2X55

Contract retained by generator confers agency authority on initial transporter to add or substitute additional transporters on generator's behalf for purposes of transportation efficiency, compliance or safety.

GENERATOR

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Karsten Sprigstead on Behalf of Harris Family LTD
Signature:
Month: 6 Day: 6 Year: 19

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Jeang Keo
Signature:
Month: 06 Day: 06 Year: 19
Transporter 2 Printed/Typed Name: GEORGE NOBLE
Signature:
Month: 6 Day: 7 Year: 19

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☒ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H132	H132	H132	

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a 7019 0360
Printed/Typed Name: Cathy Stec
Signature:
Month: 6 Day: 19 Year: 19

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.
Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.
DESIGNATED FACILITY TO GENERATOR

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)	21. Generator ID Number	22. Page	23. Manifest Tracking Number
	WAH000028116	2	012577331FLE

24. Generator's Name: HARRIS FAMILY LTD — SAME

25. Transporter 3 Company Name: Clean Harbors Environmental Services, Inc. — U.S. EPA ID Number: MAD039322250

26. Transporter 4 Company Name — U.S. EPA ID Number

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes		
	TPO							

32. Special Handling Instructions and Additional Information

GENERATOR

33. Transporter 3 Acknowledgment of Receipt of Materials

Printed/Typed Name: May Boyd — Signature: MBoyd — Month: 06 Day: 10 Year: 19

34. Transporter 4 Acknowledgment of Receipt of Materials

Printed/Typed Name — Signature — Month — Day — Year

TRANSPORTER

35. Discrepancy

DESIGNATED FACILITY

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

EPA Form 8700-22A (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

DI 1906713298 SC PPW 12/9/2008 Form Approved. OMB No. 2050-0039

Please print or type.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: WAH000028116
2. Page 1 of: 1
3. Emergency Response Phone: (800) 483-3718
4. Manifest Tracking Number: 014164506 FLE

GENERATOR

5. Generator's Name and Mailing Address
Harris Family LTD
1215 Fourth Avenue Suite 1360
Seattle, WA 98161
Generator's Phone:

Generator's Site Address (if different than mailing address)
17817 1st Avenue South
Normandy Park, WA 98148

6. Transporter 1 Company Name: Clean Harbors Environmental Services, Inc.
U.S. EPA ID Number: MAD039322260

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain LLC
3 Miles East 7 Miles North of Knolls
Grantsville, UT 84029
Facility's Phone: (435) 884-8900
U.S. EPA ID Number: UTD991301748

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (TETRACHLOROETHYLENE), 9, PG III	5	DM	2500	P	F002
X	2. NA3082, HAZARDOUS WASTE, LIQUID, N.O.S., (TETRACHLOROETHYLENE), 9, PG III	12	DT	4800	P	F002
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1. CH1669342 ERG#171 5X55
2. CH1669366 ERG#171 ~~13X66~~ 12 X 55

Contract retained by generator confers agency authority on initial transporter to add or substitute additional transporters on generator's behalf for purposes of transportation efficiency convenience or safety

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name | Signature | Month | Day | Year

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: Date leaving U.S.:
Transporter signature (for exports only):

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Joel Silva | Signature | Month: 12 | Day: 20 | Year: 19
Transporter 2 Printed/Typed Name | Signature | Month | Day | Year

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number: U.S. EPA ID Number

18b. Alternate Facility (or Generator)
Facility's Phone: | Month | Day | Year
18c. Signature of Alternate Facility (or Generator)

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H132 2. H132 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name | Signature | Month | Day | Year

GENERATOR'S INITIAL COPY

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

Clean Harbors Manifest Addendum

Generator ID Number:		Sales Order Number:
W A H 0 0 0 0 2 8 1 1 6	014164506FLE	1906713298

Harris Family LTD
17817 1st Avenue South
Normandy Park, WA98148

Line #:	Profile No:	Profile Description:	Waste Codes:
1.	CH1669342	HAZARDOUS WASTE SOLID	

CH Container #	Customer Container #
C000000032	
C000000033	
C000000034	
C000000035	
C000000036	

Line #:	Profile No:	Profile Description:	Waste Codes:
2.	CH1669366	HAZARDOUS WASTE LIQUID	

CH Container #	Customer Container #
C000000037	
C000000038	
C000000039	
C000000040	
C000000041	
C000000042	
C000000043	
C000000044	
C000000045	
C000000046	
C000000047	
C000000048	
C000000049	

CleanHarbors
ENVIRONMENTAL SERVICES®

Land Disposal Restriction Notification Form

Printed Date :Dec 18, 2019

MANIFEST INFORMATION

Generator : Harris Family LTD

Address: 17817 1st Avenue South
Normandy Park,WA 98148

EPA ID #: W A H 0 0 0 0 2 8 1 1 6

Manifest Tracking Info.

014164506FLE

Sales Order No: 1906713298

LINE ITEM INFORMATION

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category
1.	1	CH1669342	NON-WASTEWATER	4 (Meets LDR Standards)

EPA Waste Code	EPA Waste SubCategory
F002	NONE

LDR Chemical Data

Chemical	Underlying Hazardous Constituents	Constituents of Concern	Contaminants Subject to Treatment
TETRACHLOROETHYLENE	N	Y	N

LINE ITEM INFORMATION

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category
2.	1	CH1669366	NON-WASTEWATER	4 (Meets LDR Standards)

EPA Waste Code	EPA Waste SubCategory
F002	NONE

LDR Chemical Data

Chemical	Underlying Hazardous Constituents	Constituents of Concern	Contaminants Subject to Treatment
CHLOROFORM	N	Y	N
TETRACHLOROETHYLENE	N	Y	N

Certification	Applies to Manifest Line Items
I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR part 268 subpart D. I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.	1. 2.

Waste analysis data, where available, is attached.

Signature : _____ Print Name _____

Title : _____ Date : _____

STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. 20662

Carrier No. 126

Page 1 of 4

Marine Vacuum Service Inc.
(Name of carrier) (SCAC)

Date 7-8-19

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee Marine Vacuum Service Inc.
Street 1516 South Graham Street
City Seattle State WA Zip Code 98108

FROM:
Shipper PES Environmental
Street 7617 7th Ave S
City Normandy Park State WA Zip Code
24 hr. Emergency Contact Tel. No. ChemTel 1-800-255-3924
Contract MIS3627926

Route

Vehicle Number 126

No. of Units & Container Type	HM	BASIC DESCRIPTION UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
1 TT	X	(DOT Spec Tank Required) UN1863 Fuel, Aviation, Turbin Engine, Class 3, PG I				
1 TT	X	(DOT Spec Tank Required) UN1203 Gasoline, Mixture Class 3, PG II				
1 TT	X	(DOT Spec Tank Required) UN1203 Gasoline, Class 3, PG II				
1 TT	X	NA1993 Diesel Mixture, Class 3, PG III				
1 TT	X	NA1993 Diesel, Class 3, PG III				
1 TT	X	NA1270 Petroleum Oil, Class 3, PG I				
1 TT	X	NA1270 Petroleum Oil, Mixture, Class 3, PG I				
1 TT		Oily Waste Water Non Reg by DOT				
1 TT		Waste Water Non Reg by DOT	850	gallons		
1 TT		Used Oil Non Reg by DOT				
1 TT		Used Coolant Non Reg by DOT				

PLACARDS TENDERED: YES ☐ NO ☒

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO: ADDRESS

COD Amt: $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER PES ENVIRO
PER X SHANNON MCKERNAN FOR HARRIS FAMILY LTD
DATE 7.8.19

CARRIER Marvac
PER
DATE 7.8.19

Permanent post-office address of shipper.

ATTACHMENT I
REMEDIATION SYSTEM DESIGN

PES Environmental, Inc.
Engineering & Environmental Services

MEMORANDUM

TO: **Ken Bloch – Keller Rohrback LLP.**
Harry Grant – Fox Rothschild LLP

FROM: **Matt Dahl, P.E.**



DATE: **October 22, 2019**

SUBJECT: **Soil Vapor Extraction System Expansion and Soil Excavation Design**
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

PROJECT NO.: 1358.001.02

PES Environmental, Inc. (PES) has prepared this technical memorandum to present the engineering design for conducting additional cleanup actions at 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" (Figures 1 and 2). The "Site" as used in this memorandum refers to the locations where contaminants originating from the Property have come to be located. This memorandum has been prepared in accordance with the Washington Model Toxics Control Act (MTCA) Chapter 173-340 of the Washington Administrative Code (WAC).

This design includes the basis and plans for treating tetrachloroethylene (PCE) in soil exceeding the MTCA Method A cleanup level (CUL) of 0.05 milligrams per kilogram (mg/kg) by: (1) expanding the existing soil vapor extraction (SVE) system near the Four Star Cleaners and the former Manhattan Cleaners and Coin-op Laundry (Manhattan Cleaners), and (2) excavating shallow impacted soil in the unpaved area west of the former Manhattan Cleaners. The SVE expansion includes installing six new wells to provide additional SVE coverage. The design includes the SVE and excavation layouts, details for well and wellhead construction, system manifolds, piping, and trenches. The existing 10 horsepower SVE system blower and condensate management equipment has adequate capacity for the expanded SVE system.

The following information is attached to this memorandum:

- Attachment A includes Site figures:
    - Figure 1 – Subject Property Location Map
    - Figure 2 – Site Plan
    - Figure 3 – Existing Remediation Well Locations
    - Figure 4 – Supplemental Investigation - Soil Results April 2018
    - Figure 5 – Soil Gas Sampling Locations on Manhattan Village Property
    - Figure 6 – Soil Gas Sampling Locations on Harris Property
- Attachment B includes the construction drawings:
    - Sheet T-1 – Cover Sheet
    - Sheet G-1 - General Notes
    - Sheet G-2 – Temporary Erosion Control Notes and Details
    - Sheet C-1 – Existing Site Plan
    - Sheet C-2 – SVE Expansion and Excavation Layout
    - Sheet C-3 – SVE Expansion and Excavation Details
    - Sheet C-4 – Well Construction Details
    - Sheet C-5 – Trench and Lateral Sections
    - Sheet C-6 – SVE Manifold Details
- Attachment C includes SVE pipe pressure loss calculations.

The design drawings are schematics, and as such do not show all potential construction conditions. Modifications to this design may occur due to minor interferences and/or structural obstructions encountered during the construction work.

BACKGROUND

There have been multiple rounds of remediation at the Site beginning in 1999. An interim SVE system operated on the MVSC property between October 1999 through July 2000 and was decommissioned shortly after the operating period. Follow-up remedial investigations lead to commissioning a second interim SVE system in 2009 (10-wells, SVE-1 through SVE-10). Confirmation soil sampling performed in 2011 and 2012 indicated that the interim SVE system had removed PCE to below CUL in most areas, although not all locations and depths that had previously exceeded the soil CUL were tested. Groundwater sampling indicated that PCE remained above the groundwater CUL; therefore, the current air sparging and SVE system (Figure 3) was commissioned in October 2016 for the primary purpose of groundwater remediation in areas along the western side of the Property. The SVE system consists of the 10 interim SVE wells, 9 SVE wells screened near the water table to capture the air sparging off-gas,

and 3 shallow-screened SVE wells to remediate vadose zone PCE behind the QFC building (an area that was beyond the influence of the interim SVE system).

Confirmation soil samples were collected in April 2018 (Figure 4) to test locations not evaluated in 2011 and 2012. The results showed that PCE concentrations had declined through operation of the interim and current SVE systems. However, vadose zone soil continued to exceed the CUL in three areas including: (1) west of the QFC building, (2) northeast of the Four Star Cleaners, and (3) west and northwest of the former Manhattan Cleaners. Area 1 is near SVE wells operating since 2016 and appears to need a longer period of SVE to reduce PCE concentrations to below the CUL at a depth of 5 to 6 feet (ft) below ground surface (bgs). In Area 2, PCE exceeds the CUL at 10 ft bgs and deeper. In Area 3, PCE exceeds the CUL at two depth intervals: 2 ft bgs and at 20 ft bgs and deeper. Areas 2 and 3 are near interim SVE wells that have been operating since 2009; it appears that the unpaved ground surface on the Harris property coupled with heterogeneous lithology may have limited the extent of the SVE influence in these areas.

Lithologic samples collected during the April 2018 investigation confirmed the presence of a variable fill material composed predominantly of silty sand and sandy silt with some areas of silt in the upper 3 to 10 ft bgs. The fill is underlain by fine to medium sand with varying degrees of silt. The sand layer contains discontinuous layers of silty sand and silt and becomes denser below approximately 20 to 25 ft bgs. Coarser sand and pockets of gravel have been encountered below 20 to 25 ft bgs. This unit has been interpreted as recessional outwash and includes gradational grain size variation, bedding, and fining upward sequences.

Soil sample results indicate that PCE exceeding the soil CUL extends down to groundwater in Areas 2 and 3. However, groundwater sampling over multiple quarterly events has shown that PCE concentrations in groundwater are below the MTCA Method A CUL of 5 micrograms per liter (µg/L) in these areas. Groundwater elevation fluctuates seasonally by approximately 3 ft and is roughly 3 to 4 ft deeper on MVSC property due to a retaining wall along a shared property line with the Harris property. Groundwater depth is roughly 38 to 41 ft in the alley on the MVSC property, 35.5 to 38.5 ft north of the retaining wall on Harris property, and 36.5 to 39.5 ft near the former Manhattan Cleaners.

Soil gas sampling was performed in March and June 2019 to evaluate the potential for vapor intrusion beneath the Four Star Cleaners, in the alley near the Four Star Cleaners, and beneath the former Manhattan Cleaners. The sampling was conducted while the air sparging and soil vapor extraction systems were off-line for groundwater rebound monitoring. Results indicated that PCE exceeded the modified MTCA Method B screening level for commercial occupancy in one soil gas probe (SVS-17) in the alley behind Four Star Cleaners (Figure 5) and in subslab soil gas probe (SVS-13) beneath the middle of the former Manhattan Cleaners suite (Figure 6).

Groundwater samples were collected in May 2019 to evaluate potential rebound near the downgradient edge of the air sparging zone of influence (ZOI). The results indicated that PCE concentrations remained below the CUL in two wells at the downgradient edge of the air sparging ZOI (MW-10 and MW-11) and remained relatively stable in monitoring well DC-17, which is located approximately 60 ft downgradient (north) of MW-10. The air sparging system

was left off-line to allow for a second round of rebound monitoring later in 2019. The SVE system was restarted in June 2019, and the SVE system coverage was reduced to 13 wells to continue to address three areas where PCE exceeded the CUL in the April 2018 soil samples.

SUMMARY OF ADDITIONAL CLEANUP ACTIONS

SVE System Expansion

A total of six new SVE wells will be installed to supplement the existing 22-well SVE system. Three wells each will be installed near the Four Star Cleaners and near the former Manhattan Cleaners. The purpose of the new wells is to expedite treatment of vadose zone PCE below 10 ft bgs in both areas. The six new SVE wells will operate in tandem with four nearby existing SVE wells including SVE-6, SVE-7, SVE-8, and SVE-10. The existing shallow SVE wells SVE-11A and SVE-12A (see sheet C-1) will also to continue to operate to treat remaining shallow PCE impacted soil (at 5 to 6 ft bgs) west of the QFC building.

The existing SVE blower and condensate management equipment have sufficient capacity to handle the planned expansion. The expanded system is expected to operate at a total flow rate of approximately 500 standard cubic ft per minute (scfm). The existing SVE blower is controlled by a variable speed drive and has an operating capacity of between approximately 500 scfm to more than 900 scfm, with between 30 and 40 inches of water column (in-wc) vacuum available at the manifold. The new SVE wells are expected to operate similar to the existing SVE wells that have operated between roughly 20 and 60 scfm with an estimated 40 to 50 ft ZOI.

The locations of the new SVE wells are shown on Sheets C-2 and C-3. The basis for the new SVE wells is described below:

- SVE-20 and SVE-21. These wells will be installed beneath asphalt pavement in the alley near SVE-6 to address PCE vadose zone impacts observed in SB-13, SB-13B, and SB-14 in April 2018 (Figure 4). The new wells will be screened from 10 to 25 ft bgs and 25 to 37 ft bgs, respectively.

- SVE-22. This well will be installed in an unpaved area between the locations of SVE-7 and SVE-8 to address the deeper PCE vadose zone impacts observed in SB-14 and SB-15. The new well will be screened from 20 to 35 ft bgs.

- SVE-23. This well will be installed in an unpaved area near SVE-10 to address the deeper PCE vadose zone impacts observed in SB-16, SB-26, SB-27, and SB-28. The new well will be screened from 20 to 35 ft bgs.

- SVE-24 and SVE-25: These wells will be installed on a 45 degree angle and extend from an unpaved gravel area to beneath the former Manhattan Cleaners slab to address PCE impacts beneath the building. The vertical depths of the angled well screens will be from 10 to 22.5 ft bgs and 22.5 to 35 ft bgs, respectively. The actual length of each angled well screen will be approximately 17.6 ft, and the screens will be located entirely beneath the slab footprint to reduce the potential for short circuiting to the unpaved area on the west side of the building.

Operation of the expanded SVE system will continue until PCE concentrations become asymptotic. Confirmation soil samples will be collected near the end or following SVE system operation to evaluate the removal of residual soil contamination to below the MTCA Method A soil CUL for PCE of 0.05 mg/kg.

Excavation

Excavation will be conducted to remove PCE impacts exceeding the CUL in shallow soil in an unpaved area west of the former Manhattan Cleaners (see Sheet C-3). PCE impacts are expected to be within the upper 2 to 3 ft bgs, so the excavation is expected to be no deeper than approximately 4 ft bgs. Soil samples will be collected prior to excavation to further delineate the extents of PCE exceeding the CUL. Confirmation soil samples will be collected to document conditions at the bottom and sidewalls of the completed excavation.

SVE SYSTEM EXPANSION AND SHALLOW EXCAVATION DESIGN

SVE System Expansion

The SVE system expansion includes six new SVE wells and lateral piping, upgrading the existing 4-inch diameter piping manifold to 6-inch diameter, and installing a spare lateral pipe for a potential future SVE wells (if needed) near the former Manhattan Cleaners. The new wells are expected to operate with an average flow rate of approximately 40 scfm per well at 10 to 20 in-wc wellhead vacuum. The operating parameters and well spacing are based on providing an anticipated ZOI of approximately 40 ft or more based on performance of the existing SVE wells.

The expanded SVE system is expected to remain exempt from vapor treatment per Puget Sound Clean Air Agency (PSCAA) Regulation I, Article 6, Section 6.03(C)(94) and the Ecology toxic pollutant source control regulations WAC 173-460. The SVE effluent will continue to be discharged directly to the atmosphere, and quarterly stack samples will be collected to confirm regulatory compliance.

Construction drawings including layout, details, and sections are included in Attachment B, and calculation of pressure loss in the longest SVE well run (SVE-25) is included in Attachment C.

Soil Vapor Extraction Wells. The six new wells will be constructed with 4-inch diameter Schedule 40 polyvinyl chloride (PVC) and include a 0.020-inch slot PVC screen. Wellheads will be completed in flush-with-grade traffic rated monuments and lateral piping will be connected to the well casing below the monuments. A threaded end cap will be fitted to the bottom of each well screen, and the screened interval will be backfilled with a 10-20 silica sand filter pack which extends 2 ft above the top of screen. A 1.5- to 2-foot bentonite chip seal will be constructed above the sand and the remaining well annulus will be filled with cement bentonite grout. The 45 degree casings for the two angled wells will be cut-off several feet below ground surface, and vertical rises will be installed. Compression well caps will be installed to seal the top of the SVE well casings. Well construction details are included on Sheet C-4.

Piping, Manifolds, and Trenches. Extracted soil vapors will be conveyed from the wells through lateral pipes, manifold, and header pipes to the existing moisture knockout and blower. Schedule 40 PVC will be used for all pipes. The existing 4-inch header pipe, which serves SVE-4 through SVE-10, will be replaced with a 6-inch header accommodate the additional flow from the six new wells. The 6-inch header has been sized to accommodate flow from SVE-4, SVE-5, and SVE-9 if needed to provide additional makeup air for the positive displacement blower. Layout of SVE piping is shown on Sheets C-2 and C-3, pipe and trench sections are included on Sheet C-5, and manifold details are included on Sheet C-6.

New 2-inch PVC lateral pipes will extend to the six new wells, and a spare lateral will be extended to near the near SVE-25 for potential future use. Each lateral will be connected to the 6-inch header and include a 2-inch PVC ball valve for shut-off and flow control, a PVC labcock valve for sampling and vacuum monitoring, and a brass threaded plug for monitoring flow using a thermal anemometer. The header will be secured to the retaining wall with supports and pipe clamps. Above-ground laterals will be mounted on metal supports as needed to provide slope back towards the SVE wells.

The aboveground laterals for existing wells SVE-4, SVE-5, SVE-7, SVE-8, and SVE-10 will be replaced due to degradation of these PVC pipes over the last 10 years, which has created locations for moisture collection. All pipes will be sloped downward at a minimum of 1 percent towards the SVE wells to prevent moisture buildup in the lines.

Below ground laterals will be installed in trenches and buried a minimum of 18 inches bgs. The trench depths and width will vary by location. The lateral trenches are expected to be up to 3 ft deep to accommodate the 1 percent pipe slope requirement.

Based on historical soil sampling in this area of the Site, the majority of the trench spoils are expected to be non-detect for PCE except for the area within 20 ft of the former Manhattan Cleaners within 20 ft north of the MVSC strip mall. Test pit samples will be collected every 20 to 30 ft along the trench alignment to delineate the presence of PCE. Soil that does not contain PCE will be managed onsite as fill material and spread in a thin layer on the Harris property near the trench or, if suitable, be used as trench backfill. Soil containing PCE above the method reporting limit will be managed as Contained-In waste under approval from Ecology.

Shallow Soil Excavation

Shallow soil will be excavated west of the former Manhattan Cleaners to remove PCE-impacted soil above the CUL to the extent practicable. The PCE impacted soil will be managed as Contained-In waste under approval from Ecology.

Based on prior soil sampling in 2008 and 2018 in this area, the excavation is anticipated to be approximately 300 square ft by up to 4 ft deep. Four test pits will be excavated and sampled prior to excavation to delineate the extent of PCE above the CUL and to help determine the excavation dimensions. The excavation will extend as close to the buildings as practicable so as not to damage the structures. Additional samples may be needed if PCE exceeds the CUL at the outermost test pits.

Confirmation soil samples will be collected from the bottom and sidewalls to document the conditions of the completed excavation. A minimum of one sample will be collected on each sidewall and on the bottom of the excavation.

CONSTRUCTION

Construction tasks include permitting, site preparation, well installation, excavation, trenching and piping, and equipment installation.

Permitting. Anticipated permits include a local grading permit. A pre-application review conference with the City of Normandy Park is required to implement the additional cleanup actions.

Site Preparation. Underground utility locations will be cleared prior to any drilling, trenching, and excavation activities. The proposed locations of the remediation wells and trenches will be marked with white spray paint. At least five days prior to any subsurface work, a One-Call ticket will be submitted to mark the locations of utilities in the public right-of-way. A private locating company will also be contracted to mark the locations of utilities outside of the right-of-way.

Due to presence of buried utilities near the buildings, the drilling locations near the buildings will be cleared using an air knife/vacuum truck rig. Well SVE-22, located in an undeveloped area of Harris property will be cleared with hand tools. Clearing will be performed to a minimum depth of 4 ft bgs. If a planned well location interferes with underground utilities, the well will be relocated a safe distance away, but as close to the original location as possible.

Locations of buried utilities in the plans are approximate; the contractor will be required to pothole and verify the exact location of buried utilities in the trench and excavation area. The contractor shall protect the utilities and repair if damaged.

Test Pit Sampling. Test pit samples will be collected along the trench alignment every 20 to 30 ft to delineate the presence of PCE prior to trenching. Test pit samples will also be collected to delineate the extent of PCE prior to excavation as shown on Sheet C-3. Test pit soil will be screened with a photoionization detector, and depths with the highest concentrations will be analyzed for VOCs by EPA Method 8260, with reporting limits low enough to document the presence or absence of PCE. Selected ion monitoring or low-level analysis may be required if the standard method reporting limits are not low enough. Samples will be analyzed on rush turn-around.

Well Installation. The SVE wells will be installed by a Washington-licensed driller using a limited access rotary sonic drill rig. Continuous samples will be collected for lithology and waste disposal profiling. Discrete soil samples will be collected from the angled wells (SVE-24 and SVE-25) in order to delineate PCE impacts beneath the former Manhattan Cleaners suite. The drilling work will be observed by a field geologist who will log samples, monitor drilling activities, record well construction information, and prepare boring logs and well construction diagrams for each well.

The wells will be completed below grade and temporarily covered with a metal plate until the construction contractor locates the wells and constructs the wellhead completions as shown in the plans. Wells SVE-20 and SVE-22, located in the alley north of Four Star Cleaners, will include an asphalt patch covering over the metal plate.

Trenching and Piping. Trenches will be constructed a minimum of 12 inches wide and excavated to a minimum depth of three inches deeper than the bottom of the lowest installed pipe. The SVE pipes will be buried at least 18 inches deep, covered with a minimum of 8 inches of compacted sand overlain by compacted backfill. The trenches on the MVSC property will be paved to match the existing ground surface. Trenches on the Harris property will be graded and covered with black weed barrier shields and three inches of compacted gravel to match surrounding grades. The trench alignment will be determined in the field to avoid conflict with trees on the Harris property.

Approximately 210 ft of trenching is estimated to generate up to 80 to 90 tons of excavated soil. The actual trench quantities will be determined in the field based on trench alignment.

Above-ground piping will be secured to supports using pipe clamps and sloped at 1 percent minimum towards the SVE wells. Manifold supports shall be mounted to the concrete retaining wall. The SVE lateral penetrations through the retaining wall will be sealed with non-shrink grout.

Excavation. PCE impacted soil will be excavated west of the former Manhattan Cleaners to a depth of up to 4 ft bgs. An approximate 300 square ft area is based on existing soil samples and is expected to generate up to 80 tons of excavated soil. The actual excavation area and volumes will be determined following test pit sampling. Excavations will be backfilled with crushed rock, compacted, and graded to match existing grades.

The contractor will develop an Excavation and Shoring plan to protect the slab-on-grade Harris property buildings during the excavation and backfilling work.

Survey. The new SVE wells will be surveyed by a licensed surveyor. Horizontal coordinates will be surveyed to the Washington State Plane coordinate system, and elevations surveyed to NAVD 88.

Residuals Management

Drill cuttings, excavation spoils, decontamination water, and SVE condensate water generated during system construction, monitoring, and operations and maintenance (O&M) activities will be contained in segregated approved waste containers (55-gallon drums, roll-off containers, etc.). Waste containers will be clearly labeled with a description of contents and the accumulation date. The waste will be sampled, profiled, and properly disposed of at an approved facility.

Decontamination water from drilling is expected to contain PCE and will be managed as a dangerous waste. Decontamination water will be stored in 55-gallon steel drums.

Excavated soil within 20 feet of the buildings is assumed to contain PCE above the laboratory method reporting limit and will be managed as Contained-In waste under approval from Ecology. This includes the entire area excavated behind the Manhattan Cleaners and trenches within 20 feet of buildings on both the Harris and MVSC properties.

A request for a Contained-In determination from Ecology will be submitted prior to beginning the work using; this request will use existing soil data so that excavated soil and drill cuttings containing PCE may be disposed at a Subtitle D landfill.

- The drill cuttings will be stored in 55-gallon steel drums and disposed off-site as Contained-in waste.

- Excavated soil containing PCE will be segregated from non-detect soil, temporarily stored on the property in lined and covered stockpiles (as needed), and loaded into lined trucks for transport and disposal at an approved facility.

    - Excavated soil within 20 feet of the buildings is assumed to contain PCE above the laboratory method reporting limit and will be managed as Contained-In waste under approval from Ecology. This includes the entire area excavated behind the Manhattan Cleaners and trenches within 20 feet of buildings on both the Harris and MVSC properties.

    - Excavated soil from trenches located more than 20 feet from the buildings will be tested prior to excavation to characterize for the presence or absence of PCE above the laboratory method reporting limit. Soil containing PCE above the method reporting limit will be managed as Contained-In waste under approval from Ecology.

- Excavated non-detect soil will remain on the Harris property and be managed as clean fill. The clean fill will be spread in a thin layer on the Harris property near the trench or, if suitable, be used as trench backfill.

OPERATION AND MAINTENANCE

The existing O&M plan will be updated with as-built drawings. Initial operation of the new SVE wells will include multiple rounds of balancing over two to three weeks until conditions stabilize. After stabilization, routine O&M will be conducted on a monthly basis, and preventative maintenance will be performed in accordance with the O&M plan.

REPORTING

The project Health and Safety Plan (HASP) will be updated to incorporate the drilling and construction work. Following completion, as-built drawings will be updated and inserted into the O&M manual. Documentation of construction, startup, and O&M activities will be included in semi-annual progress reports.

LIMITATIONS

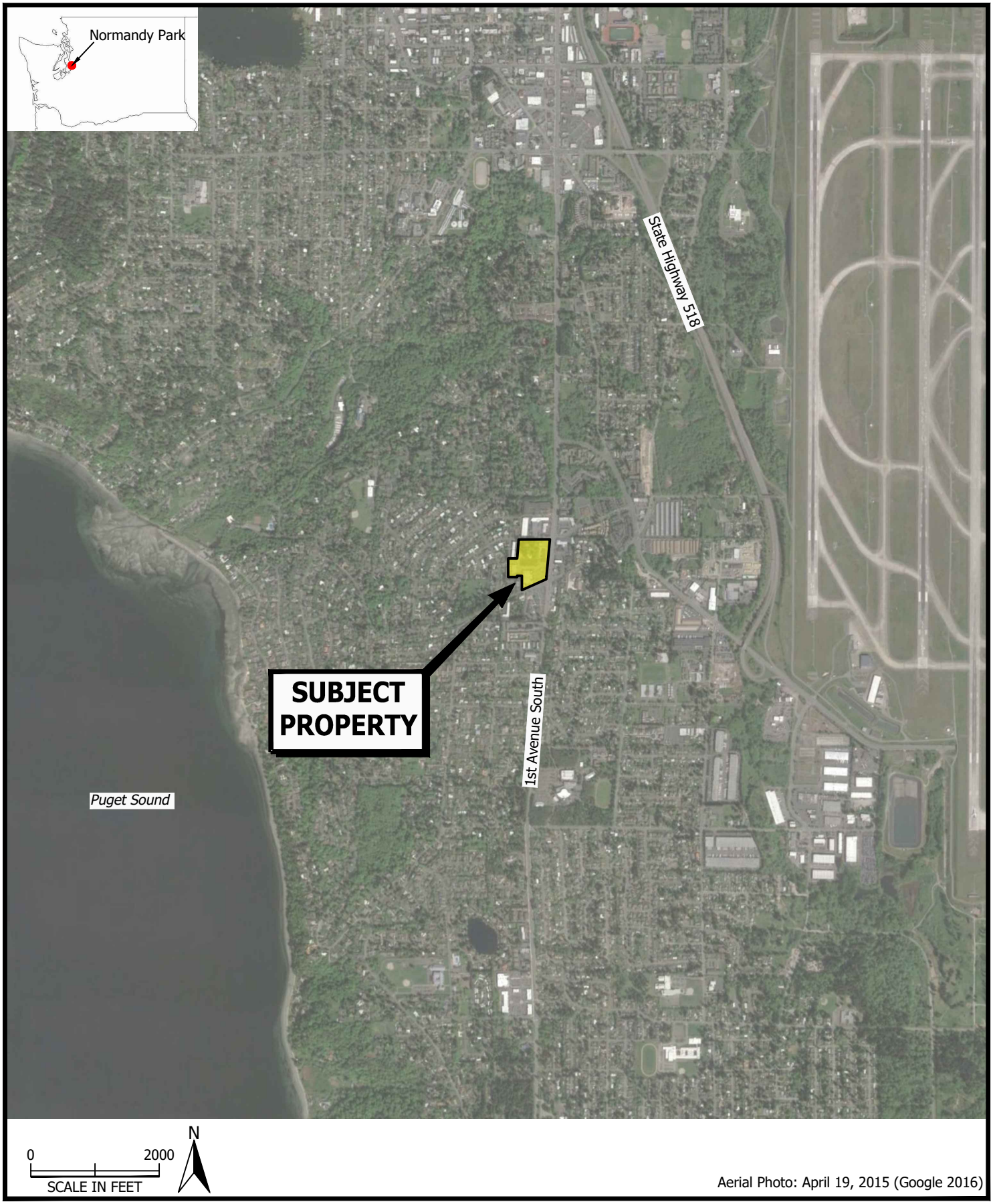
The services described in this technical memorandum will be performed consistent with generally accepted professional consulting principles and practices. No other warranty, expressed or implied, is made. These services were performed consistent with our agreement with our client. This technical memorandum is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this technical memorandum apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

Enclosures: Attachment A – Site Figures
Attachment B – Construction Drawings
Attachment C – Calculations

ATTACHMENT A

SITE FIGURES

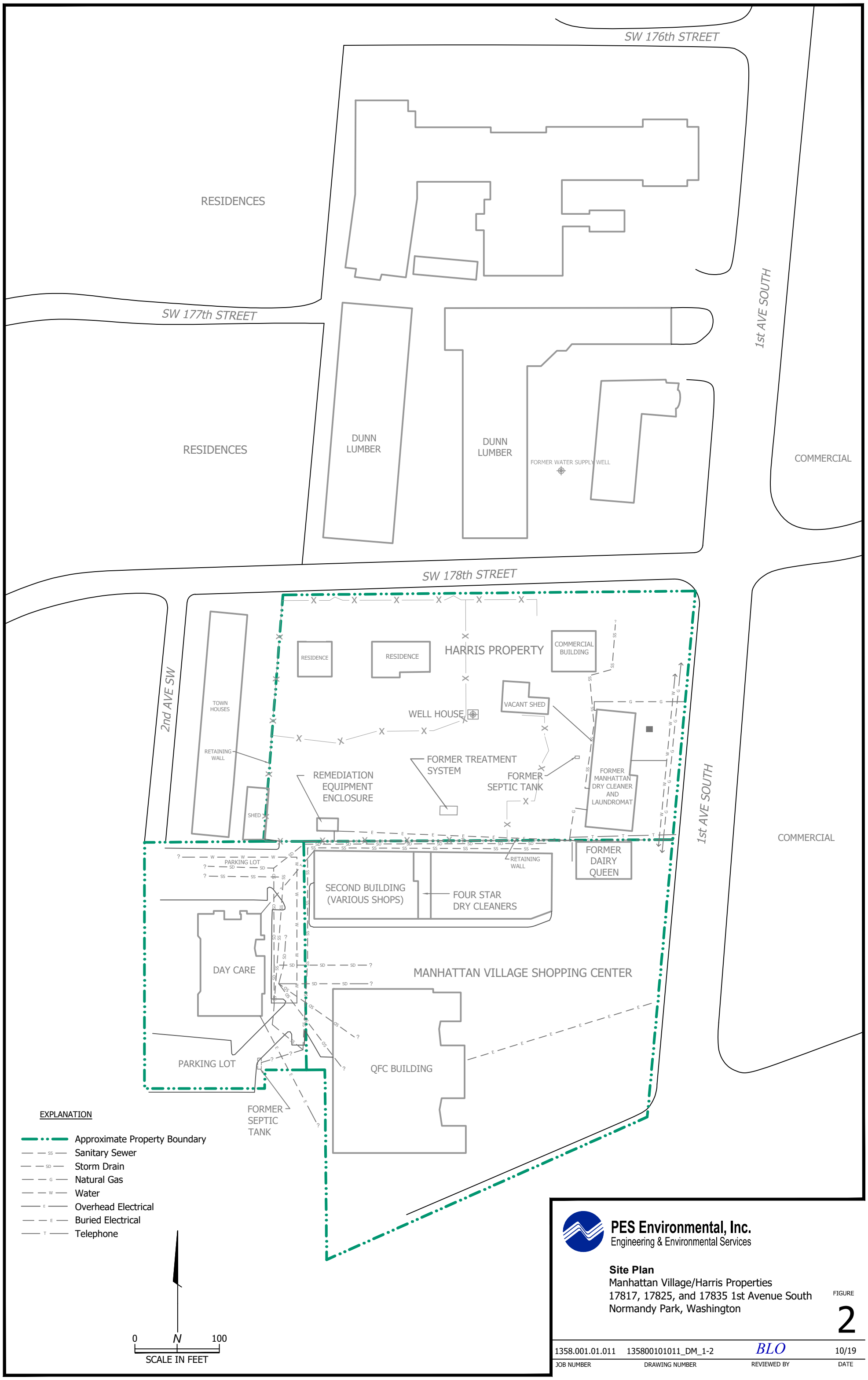


PES Environmental, Inc.
Engineering & Environmental Services

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

FIGURE
1

1358.001.01.011	135800101011_DM_1-2	BLO	10/19
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

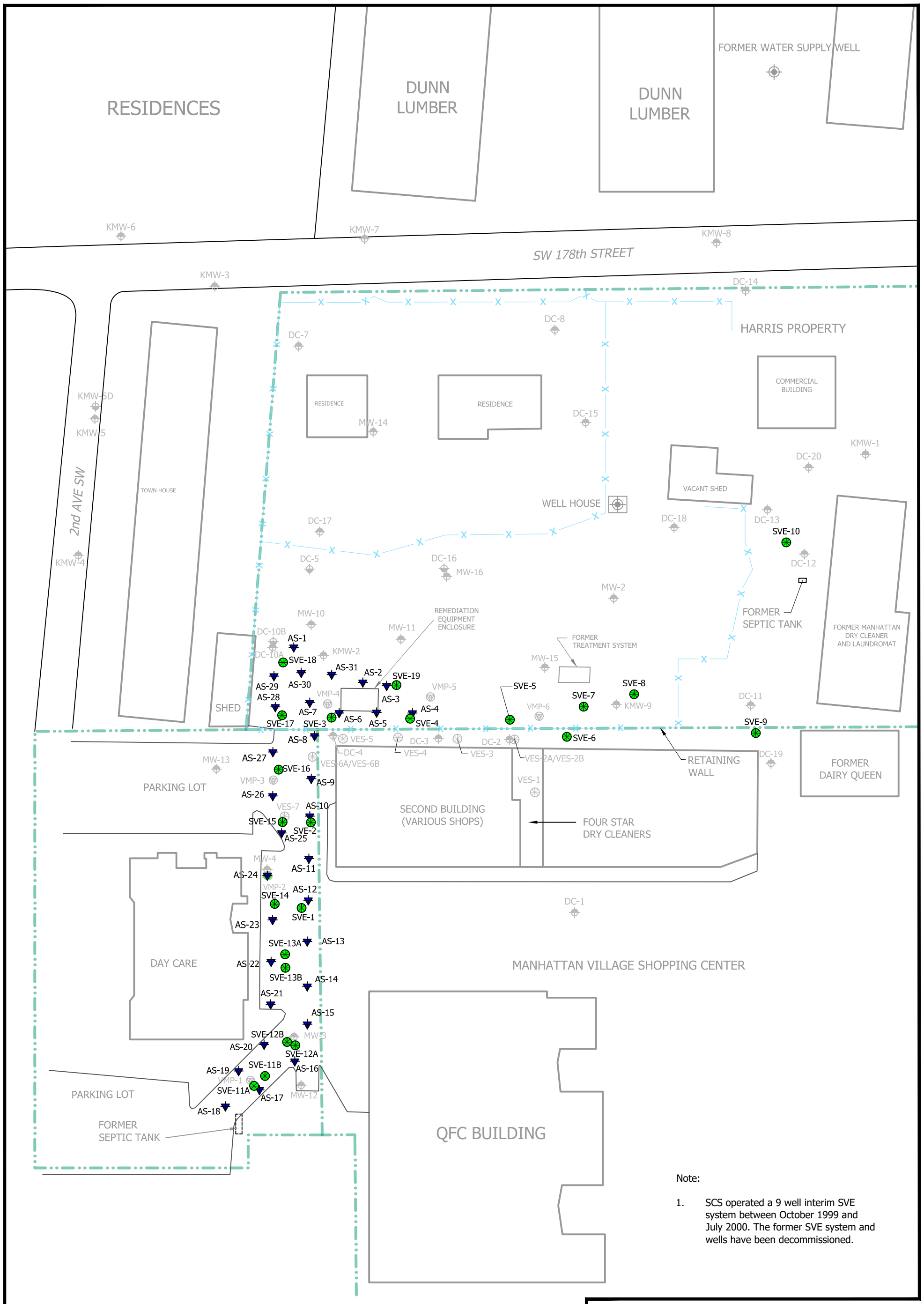


PES Environmental, Inc.
Engineering & Environmental Services

Site Plan
Manhattan Village/Harris Properties
17817, 17825, and 17835 1st Avenue South
Normandy Park, Washington

FIGURE
2

1358.001.01.011	135800101011_DM_1-2	BLO	10/19
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



Note:

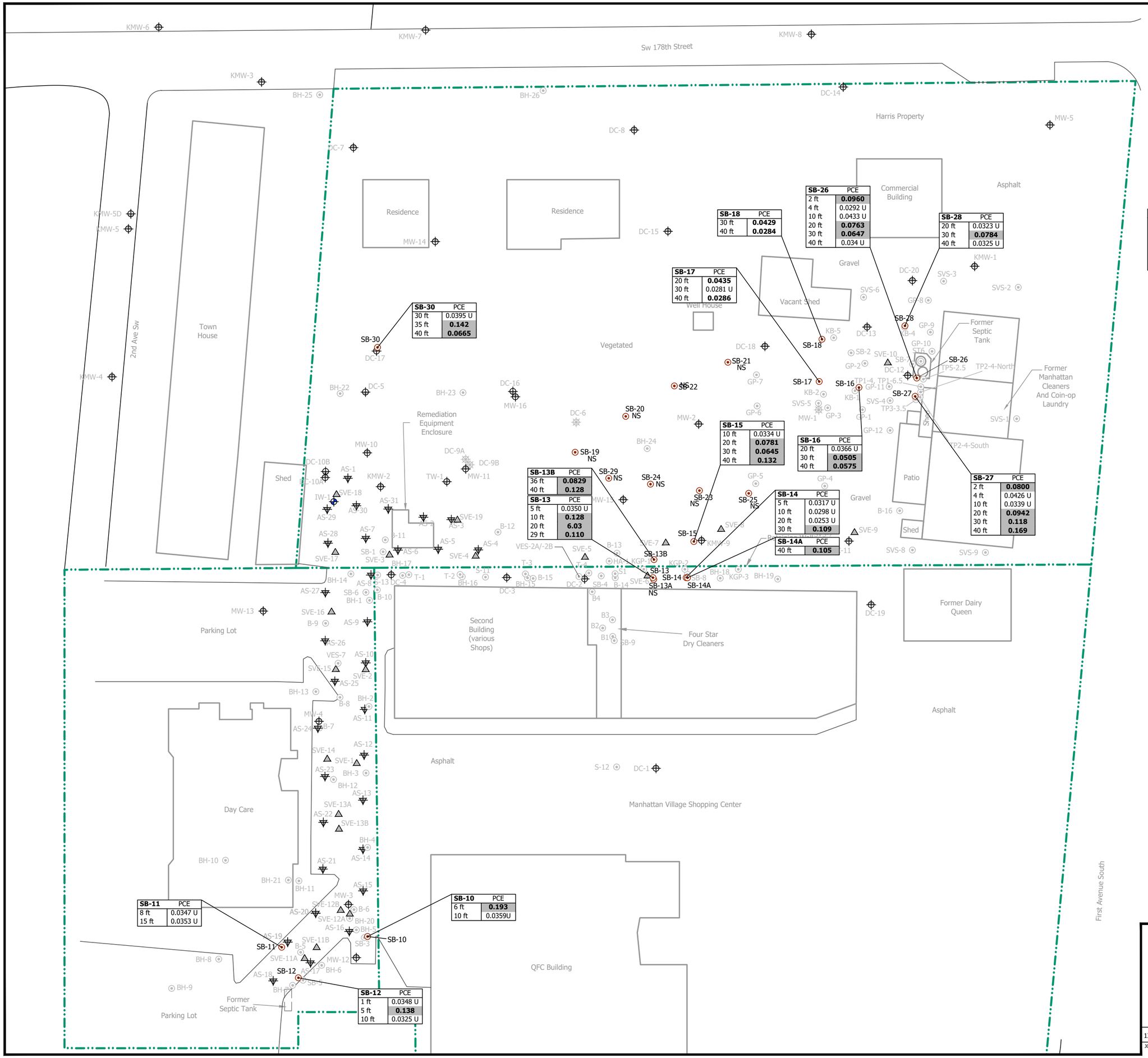
1. SCS operated a 9 well interim SVE system between October 1999 and July 2000. The former SVE system and wells have been decommissioned.

PES Environmental, Inc.
Engineering & Environmental Services

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

FIGURE
3

1358.001.01.011	135800101011_DM_3	BLO	10/19
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



SB-18	PCE
30 ft	**0.0429**
40 ft	**0.0284**

SB-26	PCE
2 ft	**0.0960**
4 ft	0.0292 U
10 ft	0.0433 U
20 ft	**0.0763**
30 ft	**0.0647**
40 ft	0.034 U

SB-28	PCE
20 ft	0.0323 U
30 ft	**0.0784**
40 ft	0.0325 U

SB-17	PCE
20 ft	**0.0435**
30 ft	0.0281 U
40 ft	**0.0286**

SB-30	PCE
30 ft	0.0395 U
35 ft	**0.142**
40 ft	**0.0665**

SB-15	PCE
10 ft	0.0334 U
20 ft	**0.0781**
30 ft	**0.0645**
40 ft	**0.132**

SB-16	PCE
20 ft	0.0366 U
30 ft	**0.0505**
40 ft	**0.0575**

SB-13B	PCE
36 ft	**0.0829**
40 ft	**0.128**

SB-13	PCE
5 ft	0.0350 U
10 ft	**0.128**
20 ft	**6.03**
29 ft	**0.110**

SB-14	PCE
5 ft	0.0317 U
10 ft	0.0298 U
20 ft	0.0253 U
30 ft	**0.109**

SB-14A	PCE
40 ft	**0.105**

SB-27	PCE
2 ft	**0.0800**
4 ft	0.0426 U
10 ft	0.0339 U
20 ft	**0.0942**
30 ft	**0.118**
40 ft	**0.169**

SB-11	PCE
8 ft	0.0347 U
15 ft	0.0353 U

SB-10	PCE
6 ft	**0.193**
10 ft	0.0359U

SB-12	PCE
1 ft	0.0348 U
5 ft	**0.138**
10 ft	0.0325 U

EXPLANATION

- Approximate Property Boundary
- DC-6 Decommissioned or Missing Monitoring Well
- DC-15 Shallow Monitoring Well
- DC-16 Deep Monitoring Well
- SVE-1 Soil Vapor Extraction Well
- AS-1 Air Sparge Well
- TW-1 Pilot Test Well (Kane 2006, ERM 2011)
- KB-3 Boring Location by Others (See Identification List)
- SB-24 Soil Boring (PES, 2018)

Boring Identification List

Consultant	Boring IDs	Year
SCS	B1 - B4 / S1 - S13 / BH-1 - BH-26 / T-1 - T-4	1998-2000
ADAPT	HA-1	1999
Farallon	SVS-1 - SVS-9 / GP-1 - GP-12 / TP1 - TP5	2005 - 2008
Kane	KB-1 - KB-5 / KGP-1 - KGP-3 / ST6	2005 - 2007
ERM	B-5 - B-18 / SB-1 - SB-9	2008 - 2012
PES	SB-10 - SB-30	2018

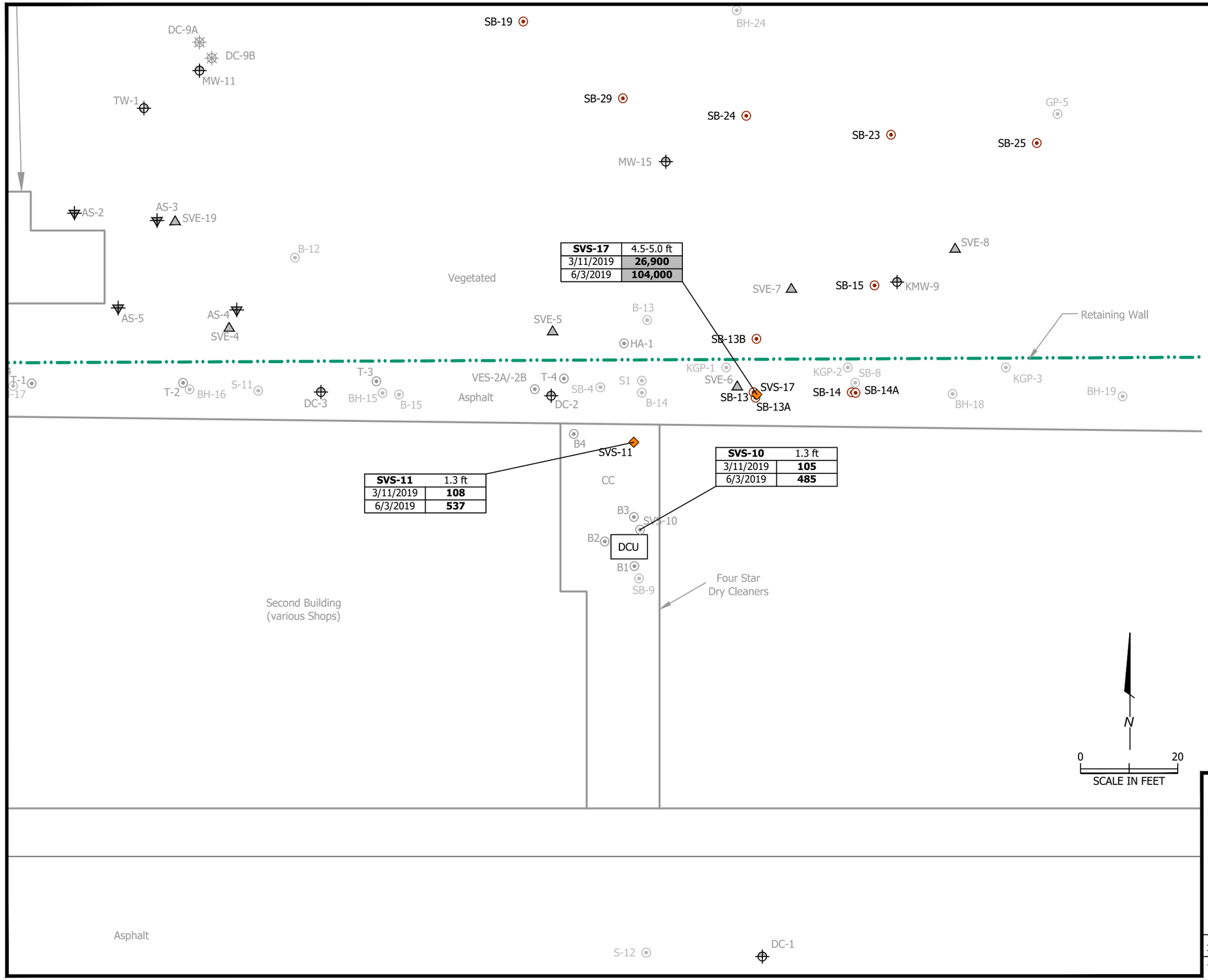
Notes:
Detections are shown in **bold**
U = Not Detected
Detections above CUL are shaded
CUL = MTCA Method A Cleanup Level (0.050 mg/kg)
PCE = Tetrachloroethene (mg/kg)
30 ft = Depth of Sample in Feet Below Ground Surface

PES Environmental, Inc.
Engineering & Environmental Services

Supplemental Investigation - Soil Results April 2018
Manhattan Village/Harris Properties
17817, and 17825, and 17835 1st Avenue South
Normandy Park, Washington

FIGURE
4

1358.001.01.011	135800101011_DM_4	BLO	10/19
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



SVS-17	4.5-5.0 ft
3/11/2019	**26,900**
6/3/2019	**104,000**

SVS-11	1.3 ft
3/11/2019	**108**
6/3/2019	**537**

SVS-10	1.3 ft
3/11/2019	**105**
6/3/2019	**485**

EXPLANATION

- Approximate Property Boundary
- DC-6 Decommissioned or Missing Monitoring Well
- DC-15 Shallow Monitoring Well
- DC-16 Deep Monitoring Well
- SVE-1 Soil Vapor Extraction Well
- AS-1 Air Sparge Well
- TW-1 Pilot Test Well (Kane 2006, ERM 2011)
- KB-3 Boring Location by Others (See Identification List)
- SB-24 Soil Boring (PES, 2018)
- SVS-10 Soil Gas Probe (PES, 2019)

Boring Identification List

Consultant	Boring IDs	Year
SCS	B1 - B4 / S1 - S13 / BH-1 - BH-26 / T-1 - T-4	1998-2000
ADAPT	HA-1	1999
Farallon	SVS-1 - SVS-10 / GP-1 - GP-12 / TP1 - TP5	2003 - 2008
Kane	KB-1 - KB-5 / KGP-1 - KGP-3 / ST6	2005 - 2007
ERM	B-5 - B-18 / SB-1 - SB-9	2008 - 2012
PES	SB-10 - SB-30 / SVS-11 - SVS-17	2018 - 2019

CC = Concrete
DCU = Dry Cleaning Unit
SL = Modified MTCA Method B Screening Level (1,070 µg/m^3)
PCE = Tetrachloroethene

Detections are shown in bold
U = Not Detected
PCE detections above the SL are shaded
1.3 ft = Depth of sample in feet below ground surface

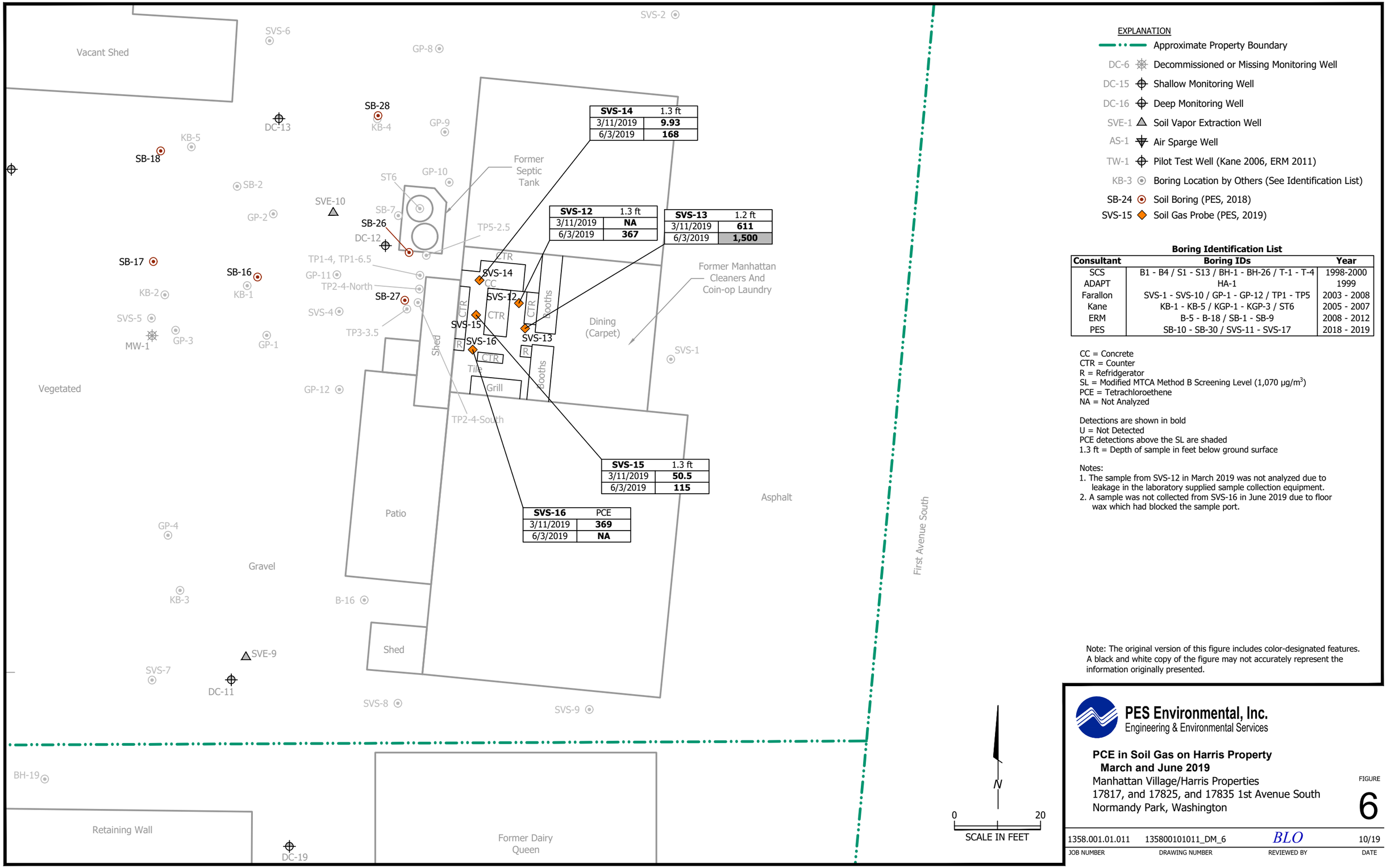
The original version of this figure includes color-designated features. A black and white copy of the figure may not accurately represent the information originally presented.

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Soil Gas Sampling Locations on Manhattan Village Property - March and June 2019
Manhattan Village/Harris Properties
17817, and 17825, and 17835 1st Avenue South
Normandy Park, Washington

FIGURE
5

1358.001.01.011	135800101011_DM_5	BLO	10/19
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



EXPLANATION

- Approximate Property Boundary
- DC-6 Decommissioned or Missing Monitoring Well
- DC-15 Shallow Monitoring Well
- DC-16 Deep Monitoring Well
- SVE-1 Soil Vapor Extraction Well
- AS-1 Air Sparge Well
- TW-1 Pilot Test Well (Kane 2006, ERM 2011)
- KB-3 Boring Location by Others (See Identification List)
- SB-24 Soil Boring (PES, 2018)
- SVS-15 Soil Gas Probe (PES, 2019)

Boring Identification List

Consultant	Boring IDs	Year
SCS	B1 - B4 / S1 - S13 / BH-1 - BH-26 / T-1 - T-4	1998-2000
ADAPT	HA-1	1999
Farallon	SVS-1 - SVS-10 / GP-1 - GP-12 / TP1 - TP5	2003 - 2008
Kane	KB-1 - KB-5 / KGP-1 - KGP-3 / ST6	2005 - 2007
ERM	B-5 - B-18 / SB-1 - SB-9	2008 - 2012
PES	SB-10 - SB-30 / SVS-11 - SVS-17	2018 - 2019

CC = Concrete
CTR = Counter
R = Refridgerator
SL = Modified MTCA Method B Screening Level (1,070 µg/m^3)
PCE = Tetrachloroethene
NA = Not Analyzed

Detections are shown in bold
U = Not Detected
PCE detections above the SL are shaded
1.3 ft = Depth of sample in feet below ground surface

Notes:
1. The sample from SVS-12 in March 2019 was not analyzed due to leakage in the laboratory supplied sample collection equipment.
2. A sample was not collected from SVS-16 in June 2019 due to floor wax which had blocked the sample port.

Note: The original version of this figure includes color-designated features. A black and white copy of the figure may not accurately represent the information originally presented.

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Engineering & Environmental Services

PCE in Soil Gas on Harris Property
March and June 2019
Manhattan Village/Harris Properties
17817, and 17825, and 17835 1st Avenue South
Normandy Park, Washington

FIGURE 6

1358.001.01.011	135800101011_DM_6	BLO	10/19
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

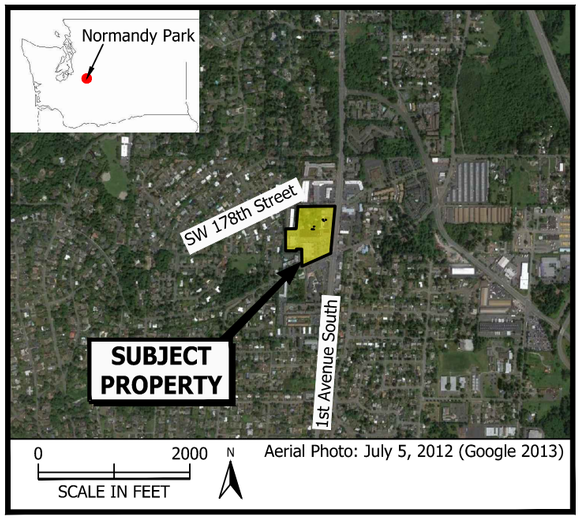
ATTACHMENT B

CONSTRUCTION DRAWINGS

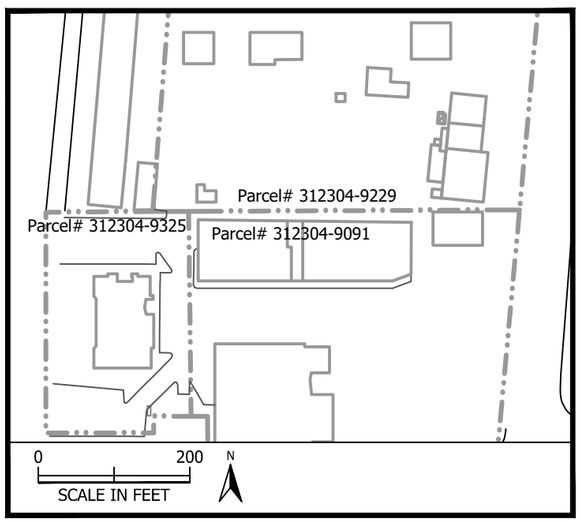
SOIL VAPOR EXTRACTION SYSTEM EXPANSION AND EXCAVATION DESIGN
MANHATTAN VILLAGE SHOPPING CENTER / HARRIS PROPERTIES

17817, 17825, AND 17835 1ST AVENUE SOUTH
NORMANDY PARK, WASHINGTON

SUBJECT PROPERTY LOCATION MAP



SITE PLAN



Parcel # 312304-9229
Owner: Harris Family LTD
POR OF N 1/2 OF SE 1/4 OF NE 1/4 OF NE 1/4
BEG NXN OF SLY MGN OF SW 178TH ST & WLY MGN OF 1ST AVE S TH N 89-26-45 W ALG SD SLY MGN S TH W ALG SD SLY MGN OF SW 178TH ST E LN OF WESTVIEW TOWNHOUSES CONDO TH S ALG SD E LN 288 FT M/L TO S LN SD SUBD TH E ALG SD S LN TO W MGN OF 1ST AVE S TH N ALG SD MGN TO POB

Parcel # 312304-9091
Owner: Top Flight Investments, LLC
PARCEL B OF NORMANDY PARK LOT LINE ADJUSTMENT NO NP 00-004 RECORDING NO 20010123001962 BEING A PORTION OF E 1/2 OF NE 1/4 LY NLY OF SW NORMANDY ROAD AND ELY OF PLAT MANHATTAN VIEW AND PLAT RAY BELL ADDITION AND SLY OF SW 178TH ST

Parcel # 312304-9325 (no construction on parcel)
Owner: Top Flight Investments, LLC
PARCEL A OF NORMANDY PARK LOT LINE ADJUSTMENT NO NP 00-004 RECORDING NO 20010123001962 BEING A PORTION OF E 1/2 OF NE 1/4 LY NLY OF SW NORMANDY ROAD AND ELY OF PLAT MANHATTAN VIEW AND PLAT RAY BELL ADDITION AND SLY OF SW 178TH ST

DRAWING INDEX

SHEET NUMBER	SHEET TITLE
T-1	COVER SHEET
G-1	GENERAL NOTES
G-2	TEMPORARY EROSION CONTROL NOTES AND DETAILS
C-1	EXISTING SITE PLAN
C-2	SVE EXPANSION AND EXCAVATION LAYOUT
C-3	SVE EXPANSION AND EXCAVATION DETAILS
C-4	WELL CONSTRUCTION DETAILS
C-5	TRENCH AND LATERAL SECTIONS
C-6	SVE MANIFOLD DETAILS

No.	Date	Revisions	By

Scale: AS NOTED
Designed by: MD
Drawn by: BP
Checked by: BLO
Approved by: MD

MATTHEW V. DAHL
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Engineering & Environmental Services

Cover Sheet
Manhattan Village/Harris Properties
17817, 17825, and 17835 1st Avenue South
Normandy Park, Washington

Sheet T-1

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GENERAL NOTES:

1. LOCATIONS AND DESCRIPTIONS OF UTILITIES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND ARE COMPILED FROM AVAILABLE RECORDS AND/OR LIMITED FIELD SURVEYS.
2. FIELD LOCATE AND POTHOLE TO VERIFY EXACT LOCATIONS OF EXISTING UTILITIES TO DETERMINE THE EXTENT OF PROTECTION REQUIRED AND/OR CHANGES THAT MAY BE REQUIRED PRIOR TO SUBSURFACE WORK. USE CARE WHEN EXCAVATING OR DRILLING NEAR UTILITIES, AND REPAIR ANY DAMAGED AT CONTRACTORS EXPENSE.
3. UTILITY LOCATES: CALL MINIMUM 5 DAYS AND MAXIMUM 10 DAYS BEFORE EXCAVATION AND DRILLING (1-800-424-5555).
4. COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL REQUIREMENTS TO PERFORM WORK.
5. OBTAIN ALL PERMITS, INSURANCES, AND LICENSES TO PERFORM WORK.
6. CONSTRUCTION WORK AREA SHALL BE SECURED AGAINST UNAUTHORIZED ENTRY. MAINTAIN PEDESTRIAN ACCESS TO ALL BUILDING ENTRANCES AND EXITS, AND POST TEMPORARY SIGNAGE FOR DIRECTING PEDESTRIAN AND VEHICLE TRAFFIC AROUND THE CONSTRUCTION AREA.
7. ALL STREETS AND PARKING AREAS ADJACENT TO THE PROJECT SHALL BE KEPT CLEAN OF ALL MATERIAL DEPOSITS RESULTING FROM THE CONTRACTORS OPERATIONS.
8. PROTECT ALL EXISTING STRUCTURES, EXISTING WELLS, AND OTHER EXISTING SITE FEATURES, AND REPAIR ANY DAMAGED AS A RESULT OF THE WORK AT THE CONTRACTORS EXPENSE.
9. DEVELOP AN EXCAVATION AND SHORING PLAN TO PROTECT EXISTING STRUCTURES.
10. UPON COMPLETION OF WORK, RESTORE AREA TO ORIGINAL CONDITION.
11. TOPOGRAPHIC CONTOURS ARE BASED ON SPOT ELEVATION SURVEYS AT MONITORING WELLS. DATUM NAVD 88.

CONSTRUCTION NOTES:

1. VERIFY ALL FIELD CONDITIONS AND DIMENSIONS PRIOR TO WORK.
2. CUT ASPHALT, CONCRETE, AND CURBS IN A STRAIGHT LINE PRIOR TO REMOVAL FOR TRENCHING OR DRILLING. FIELD LOCATE TRENCHES TO AVOID CONFLICTS WITH TREES.
3. EXCAVATE TRENCHES MINIMUM OF 3 INCHES DEEPER THAN BOTTOM OF LOWEST PIPE. COVER ALL PIPES WITH AT LEAST 8 INCHES OF COMPACTED SAND. MINIMUM BURIAL DEPTHS: 18 INCHES FOR REMEDIATION PIPES. MULTIPLE PIPES: MAINTAIN 1-INCH MINIMUM OF SAND AROUND ALL PIPES.
4. BACKFILL TRENCHES WITH CLEAN SAND AND BACKFILL EXCAVATION WITH CRUSHED ROCK. MAXIMUM LOOSE LIFT OF 8 INCHES BEFORE COMPACTION. COMPACT ABOVE PIPE ZONE TO AT LEAST 95% OF MAXIMUM DENSITY AND WITHIN +/- 3% OF OPTIMUM MOISTURE (ASTM D-1557).
5. INSTALL TRACEABLE WARNING TAPE IN ALL TRENCHES AT LEAST 6-INCHES ABOVE HIGHEST PIPE.
6. MATCH SURFACE MATERIALS AND THICKNESS TO SURROUNDING UNLESS NOTED. PRIOR TO ASPHALTING, APPLY TACK COAT TO SURFACES. UPON COMPLETION, APPLY SEAL COAT AND RESTRIPE.
7. SVE PIPE AND FITTINGS TO BE SCHEDULE 40 PVC. CONTROL BALL VALVES TO BE SPEARS 2000 COMPACT -FKM.
8. SUPPORT ALL ABOVE GROUND PIPES WITH UNISTRUT AND SECURE WITH PIPE CLAMPS. 5 FT MAXIMUM SPACING BETWEEN SUPPORTS.
9. PRESSURE TEST ALL PIPING TO A MINIMUM OF 50 PSI PRIOR TO BACKFILLING AND/OR USE.
10. SECURE EXCAVATION AND STOCKPILE AREAS WITH TEMPORARY FENCE. COVER TRENCHES IN DRIVE AREAS WITH STEEL PLATES OVERNIGHT AND SECURE TRENCHES IN OTHER AREAS WITH TEMPORARY FENCE.

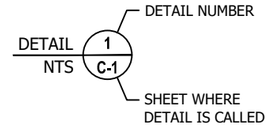
PLAN SYMBOLS:

- MW-12 — SHALLOW MONITORING WELL
- DC-16 — DEEP MONITORING WELL
- VMP-1 — VAPOR MONITORING PROBE
- SVE-14 — SVE WELL - NEW
- SVE-1 — SVE WELL - EXISTING
- AS-2 — AS WELL
- ANGLE SVE WELL CASING AND SCREEN
- SB-24 — SOIL BORING (PES 2018)
- SVS-11 — SOIL GAS PROBE (PES 2019)
- CHAIN LINK FENCE
- ABOVEGROUND SVE PIPE - NEW
- ABOVE GROUND SVE PIPE - EXISTING
- ABOVE GROUND AS PIPE - EXISTING
- REMEDIATION PIPE TRENCH NEW
- REMEDIATION PIPE TRENCH - EXISTING
- APPROXIMATE PROPERTY BOUNDARY
- E — OVERHEAD ELECTRICAL LINE
- E — UNDERGROUND ELECTRICAL LINE
- T — OVERHEAD TELEPHONE LINE
- T — UNDERGROUND TELEPHONE LINE
- G — NATURAL GAS LINE
- SD — STORM DRAIN
- SS — SANITARY SEWER LINE
- W — WATER LINE
- 310 — TOPOGRAPHIC CONTOUR
- SOIL SAMPLE ABOVE CLEANUP LEVEL (0.05 mg/kg)
- APPROXIMATE EXCAVATION AREA
- TP — TEST PIT FOR EXCAVATION DELINEATION

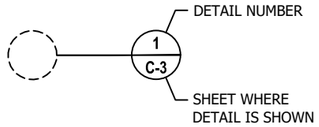
FILL PATTERNS:

- PAVEMENT
- SAND
- AGGREGATE
- SOIL
- CONCRETE
- BENTONITE CHIPS
- COMPACTED FILL
- CEMENT BENTONITE GROUT

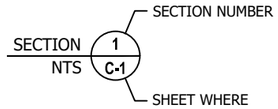
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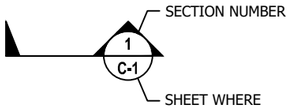
SHEET WHERE DETAIL IS CALLED:



SHEET WHERE SECTION IS SHOWN:



SHEET WHERE SECTION IS CALLED:



ABBREVIATIONS:

ø	DIAMETER	MVSC	MANHATTAN VILLAGE SHOPPING CENTER
'	FEET	MW	MONITORING WELL (ALSO DC AND KMW)
"	INCHES	NTS	NOT TO SCALE
#	NUMBER	SDMH	STORM DRAIN MANHOLE
APPROX	APPROXIMATE	SSMH	SANITARY SEWER MANHOLE
AS	AIR SPARGING	SVE	SOIL VAPOR EXTRACTION
CB	CATCH BASIN	PCE	TERACHLOROETHENE
EL	ELEVATION	PSI	POUNDS PER SQUARE INCH
ES	ESTIMATED	PVC	POLYVINYL CHLORIDE
FH	FIRE HYDRANT	SCH	SCHEDULE
MAX	MAXIMUM	TYP	TYPICAL
MIN	MINIMUM	WC	WATER COLUMN
MPT	MALE PIPE THREAD	XFMR	TRANSFORMER

No.	Date	Revisions	By

Scale: AS NOTED
Designed by: MD
Drawn by: BP
Checked by: BLO
Approved by: MD

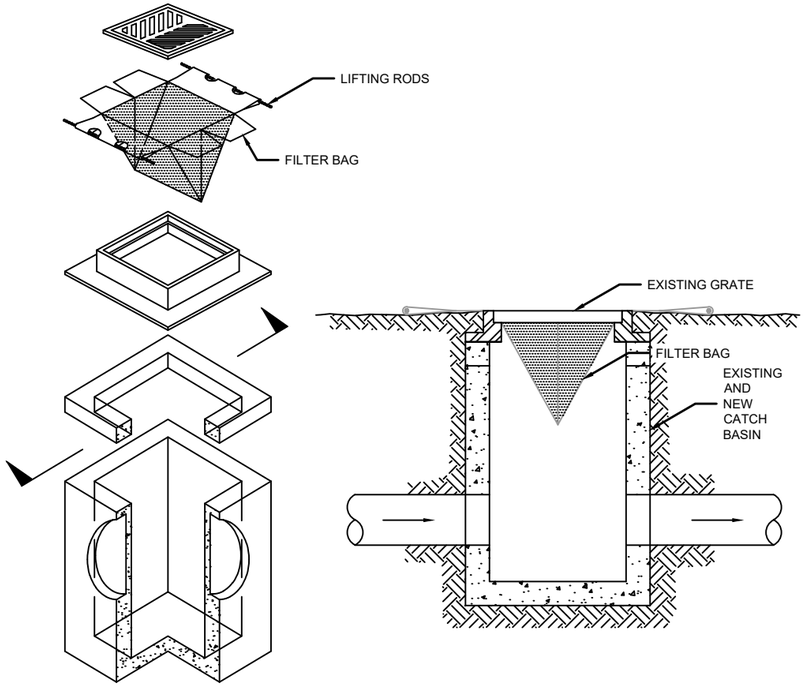
MATTHEW V. DAHL
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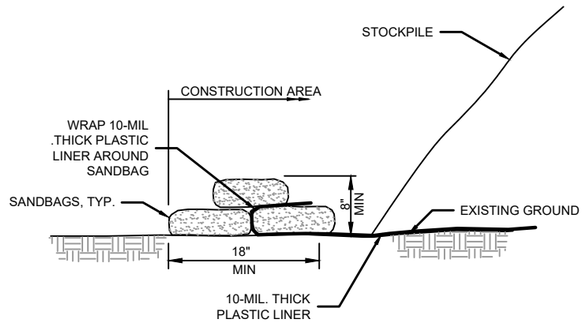
General Notes
Manhattan Village/Harris Properties
17817, 17825, and 17835 1st Avenue South
Normandy Park, Washington

Sheet
G-1

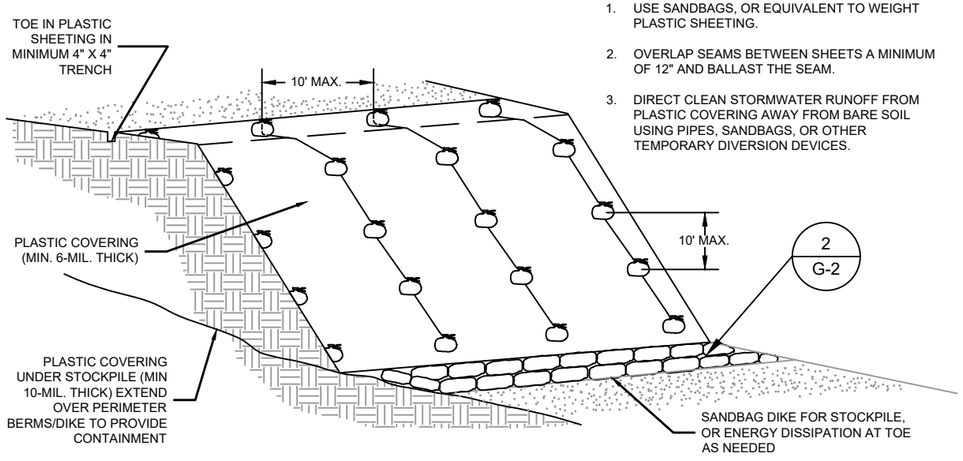
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DETAIL 1 G-2 N.T.S. TYP. INLET PROTECTION



DETAIL 2 G-2 N.T.S. TYP. DIKE



DETAIL NOTES:

1. USE SANDBAGS, OR EQUIVALENT TO WEIGHT PLASTIC SHEETING.
2. OVERLAP SEAMS BETWEEN SHEETS A MINIMUM OF 12" AND BALLAST THE SEAM.
3. DIRECT CLEAN STORMWATER RUNOFF FROM PLASTIC COVERING AWAY FROM BARE SOIL USING PIPES, SANDBAGS, OR OTHER TEMPORARY DIVERSION DEVICES.

DETAIL 3 G-2 N.T.S. STOCKPILES

TEMPORARY EROSION/SEDIMENTATION CONTROL (TESC) NOTES

1. THE IMPLEMENTATION OF THE TESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT AND UPGRADING OF THE TESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS APPROVED.
2. THE TESC FACILITIES SHOWN ON THIS PLAN MUST BE IMPLEMENTED IN CONJUNCTION WITH ALL CONSTRUCTION ACTIVITIES, AND IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT LADEN WATER DOES NOT ENTER THE NATURAL OR PUBLIC DRAINAGE SYSTEM, ADJACENT PROPERTIES OR VIOLATE APPLICABLE STANDARDS.
3. THE TESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, UPGRADE THESE TESC FACILITIES (E.G. ADDITIONAL SUMPS, ADDITION OF DITCHES AND SILT FENCES, ETC.) AS NEEDED TO MAINTAIN SITE CONDITIONS.
4. PROVIDE AND MAINTAIN TEMPORARY SEDIMENTATION COLLECTION FACILITIES TO ENSURE THAT SEDIMENT-LADEN WATER DOES NOT ENTER THE NATURAL OR PUBLIC DRAINAGE SYSTEM. AS CONSTRUCTION PROGRESSES AND UNEXPECTED (SEASONAL) CONDITIONS OCCUR, MORE SILTATION WATER QUALITY FACILITIES MAY BE REQUIRED TO ENSURE COMPLETE SILTATION CONTROL OF THE PROJECT. THEREFORE, DURING THE COURSE OF CONSTRUCTION, ADDRESS ANY NEW CONDITIONS THAT MAY BE CREATED BY HIS ACTIVITIES AND TO PROVIDE ADDITIONAL FACILITIES AND BMP'S THAT MAY BE NEEDED TO PROTECT ADJACENT PROPERTIES.
5. INSPECT THE TESC FACILITIES DAILY AND MAINTAINED AS NECESSARY OR AS DIRECTED BY THE ENGINEER TO ENSURE THEIR CONTINUED FUNCTIONING AND EFFECTIVENESS.
6. IF SEDIMENT IS TRANSPORTED ONTO ANY ROADWAY SURFACE, CLEAN THOROUGHLY AT THE END OF EACH DAY OR SOONER IF DEEMED NECESSARY BY THE ENGINEER. REMOVE SEDIMENT FROM ROADS BY SWEEPING AND TRANSPORT TO A CONTROLLED SEDIMENT DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED, AS REQUIRED BY THE ENGINEER.
7. IMMEDIATELY STABILIZE ANY AREAS OF EXPOSED SOILS, THAT WILL NOT BE DISTURBED FOR TWO DAYS DURING THE WET SEASON (OCTOBER 1 TO APRIL 30) OR SEVEN DAYS DURING THE DRY SEASON (MAY 1 TO SEPTEMBER 30) WITH PLASTIC COVERING.
8. DO NOT ALLOW MORE THAN ONE FOOT OF SEDIMENT TO ACCUMULATE WITHIN A CATCH BASIN. CLEAN ALL CATCH BASINS AND CONVEYANCE LINES PRIOR TO PAVING. DO NOT FLUSH SEDIMENT LADEN WATER INTO THE DOWNSTREAM SYSTEM.
9. REFER TO THE KING COUNTY SURFACE WATER DESIGN MANUAL, APPENDIX D, BEST MANAGEMENT PRACTICES IN THE STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON CONSTRUCTION, VOLUME II, AND ALL OTHER APPLICABLE REGULATIONS TO ACCOMPLISH CONTROL OF POTENTIALLY HAZARDOUS POLLUTANTS AND SEDIMENTS.
10. PASS ALL DRAINAGE WATER FROM DISTURBED AREAS THROUGH A SEDIMENT TRAP OR OTHER APPROPRIATE SEDIMENT REMOVAL BMPS BEFORE COLLECTING THE WATER FOR TREATMENT. DO NOT ALLOW UNTREATED WATER THAT HAS CONTACTED EXPOSED CONTAMINATED SITE SOIL TO LEAVE THE SITE. ESTABLISH SEDIMENT CONTROLS INTENDED TO TRAP SEDIMENT ON SITE BEFORE OTHER LAND DISTURBING ACTIVITIES TAKE PLACE.
11. DO NOT TRACK SITE SOIL OFF THE SITE BY ANY CONSTRUCTION TRAFFIC. MAINTAIN AN INSPECTION ACTIVITY TO QUICKLY IDENTIFY ANY POTENTIAL MATERIAL TRACKED OFF THE SITE. IN THE EVENT THAT SITE SOIL IS TRACKED ONTO SURROUNDING ROADWAYS, CLEAN THOROUGHLY IMMEDIATELY UPON DISCOVERY INCLUDING BUT NOT LIMITED TO ADJACENT DITCHES/DRAINAGES THAT MAY HAVE BECOME CONTAMINATED BY THE ACTIVITY. COMPLETE THIS WORK TO THE SATISFACTION OF THE OWNER AND AT NO ADDITIONAL COST TO THE CONTRACT (CONTRACTOR WILL BE RESPONSIBLE FOR ANY FINES IMPOSED AS A RESULT OF SOIL TRACKED OFF SITE). REMOVE ANY SPILLED SOIL FROM THE ROAD BY A METHOD TO BE APPROVED BY OWNER. PLACE COLLECTED SOILS IN THE SOIL STOCKPILING AREA FOR DISPOSAL. WASH STREETS AFTER SOIL IS REMOVED AS REQUIRED BY THE OWNER.
12. TREAT WATER THAT IS COLLECTED FROM SITE DEWATERING OPERATIONS OR COLLECTED SURFACE WATER THAT HAS COME IN CONTACT WITH ANY CONTAMINATED SURFACE PRIOR TO DISCHARGE.
13. MINIMIZE EROSION FROM SLOPES. DESIGN AND CONSTRUCT CUT AND FILL SLOPES IN A MANNER THAT WILL MINIMIZE EROSION. DIVERT STORMWATER RUN-ON AWAY FROM SLOPES AND UNDISTURBED AREAS.
14. PREVENT ON-SITE EROSION BY STABILIZING ALL EXPOSED AND UNWORKED SOILS, INCLUDING STOCKPILES. COVER STOCKPILES IF RAIN EVENTS ARE POSSIBLE, DURING PRECIPITATION EVENTS, AND DURING NON-WORKING HOURS. STABILIZE SOIL STOCKPILES FROM EROSION. PROTECT WITH SEDIMENT TRAPPING MEASURES AND LOCATE AWAY FROM STORM DRAIN INLETS, WATERWAYS, AND DRAINAGE CHANNELS. NON-STOCKPILED SOILS, SHALL BE COVERED FROM OCTOBER 1 TO APRIL 30, NO SOILS SHALL REMAIN EXPOSED AND UNWORKED FOR MORE THAN TWO DAYS. FOR NON-STOCKPILED SOILS, FROM MAY 1 TO SEPTEMBER 30, NO SOILS SHALL REMAIN EXPOSED FOR MORE THAN SEVEN DAYS. STABILIZE SOILS AT THE END OF THE SHIFT. BEFORE THE COMPLETION OF THE PROJECT, PERMANENTLY STABILIZE ALL EXPOSED SOILS THAT HAVE BEEN DISTURBED DURING CONSTRUCTION.
15. LOAD EXCAVATED SOIL INTO LINED TRUCKS OR INTO LINED AND COVERED SOIL BINS. IF SOIL BINS ARE USED, TIGHTEN THE CENTER STRAP SUPPORT ON THE SOIL BIN AND SECURELY SET THE COVER TARP WITH BUNGEE CORDS. FOR SOIL BINS TO BE STORED MORE THAN ONE DAY DURING THE WET SEASON (OCTOBER 1 TO APRIL 30) INSTALL A SECOND TARP WITH BUNGEE CORDS TO PREVENT RAINWATER INFILTRATION. MAINTAIN TARPS UNTIL SOIL BINS ARE HAULED OFFSITE.

No.	Date	Revisions	By

Scale: AS NOTED
Designed by: MD
Drawn by: BP
Checked by: BLO
Approved by: MD

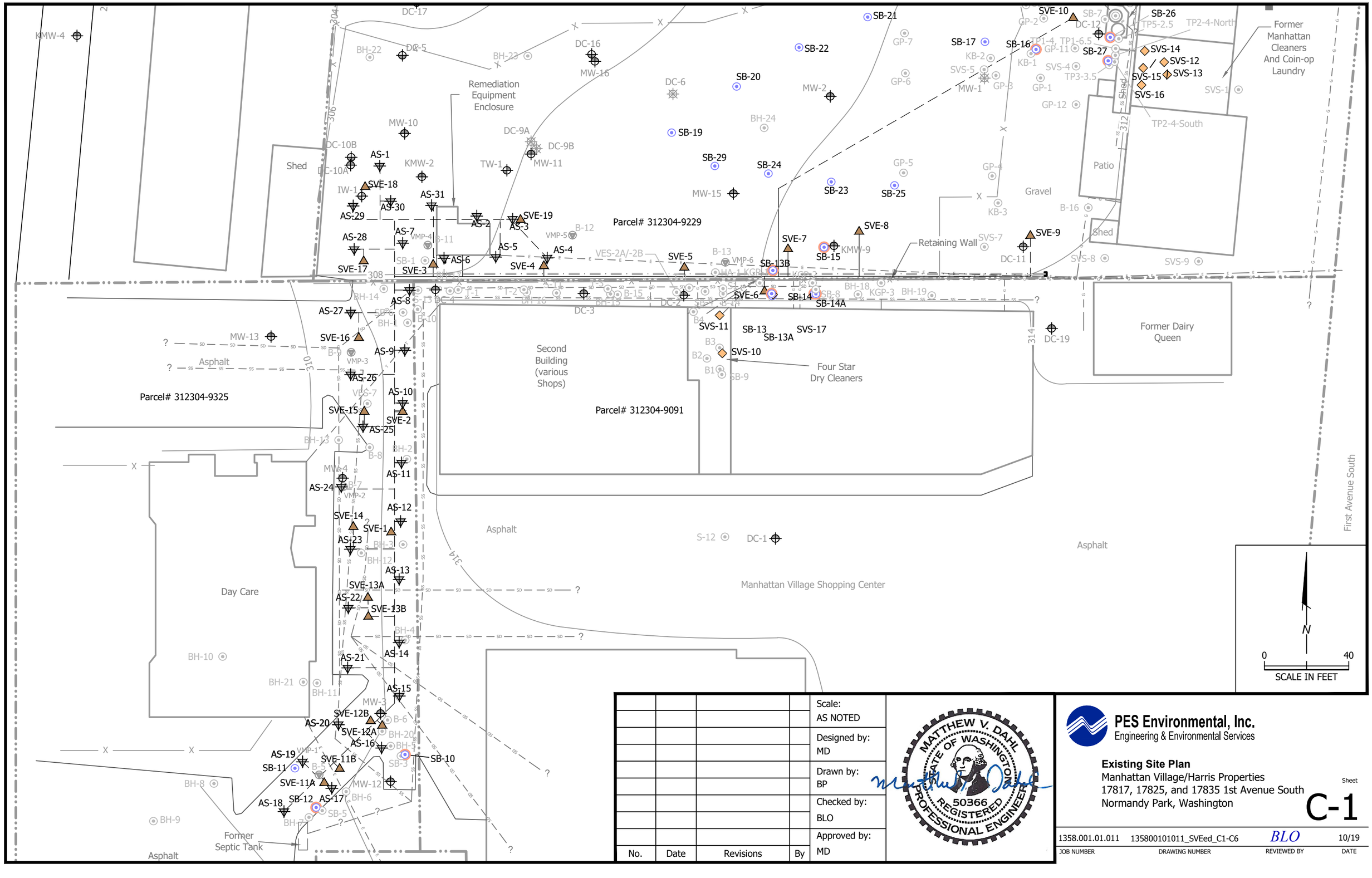
MATTHEW V. DAHL STATE OF WASHINGTON 50366 REGISTERED PROFESSIONAL ENGINEER

PES Environmental, Inc.
Engineering & Environmental Services

Temporary Erosion Control Notes and Details
Manhattan Village/Harris Properties
17817, 17825, and 17835 1st Avenue South
Normandy Park, Washington

Sheet G-2

1358.001.01.011	135800101011_SVEd_G2	BLO	10/19
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



No.	Date	Revisions	By

Scale: AS NOTED

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Checked by: BLO

Approved by: MD

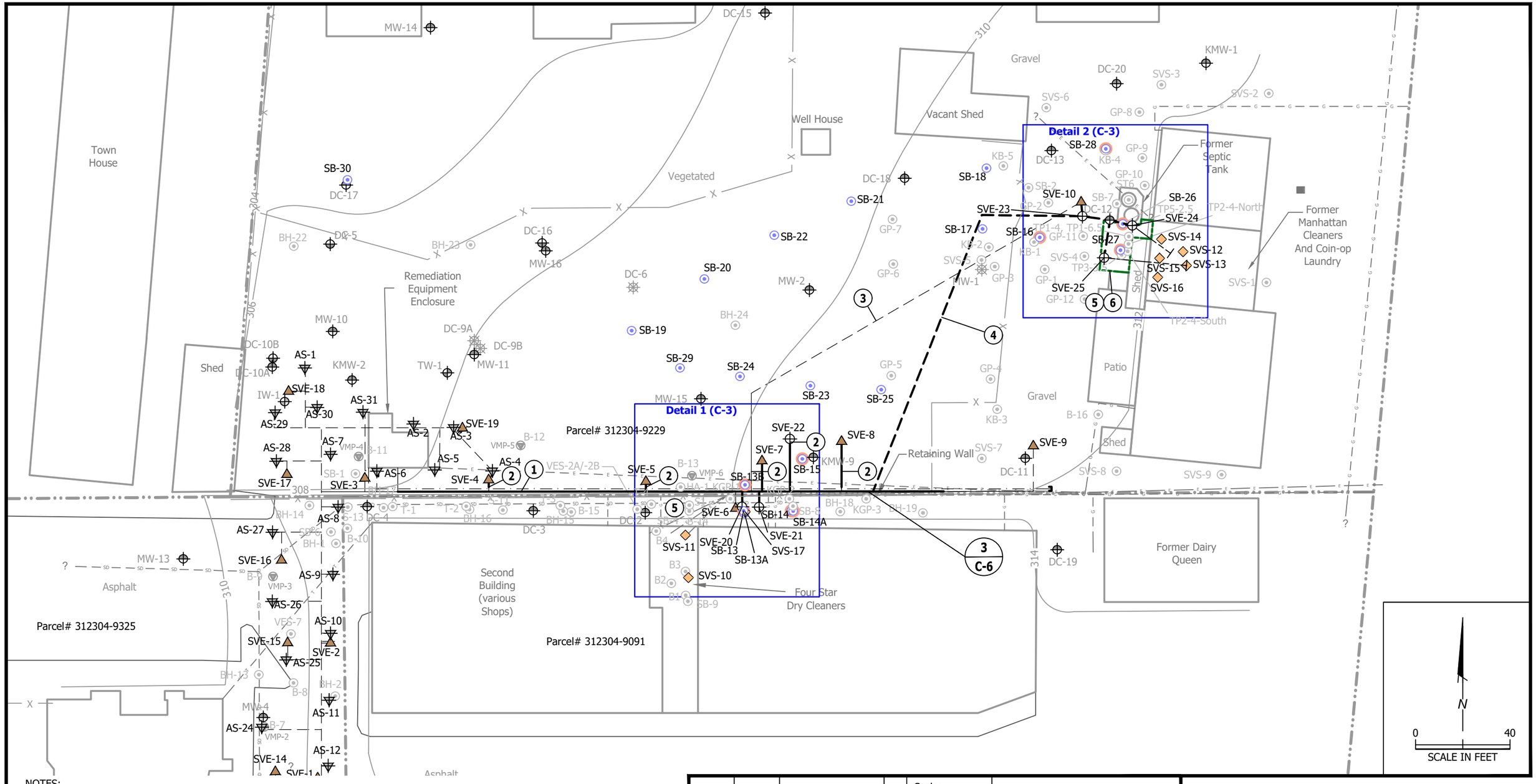
MATTHEW V. DAHL
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PROFESSIONAL ENGINEER

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Engineering & Environmental Services

Existing Site Plan
Manhattan Village/Harris Properties
17817, 17825, and 17835 1st Avenue South
Normandy Park, Washington

Sheet
C-1

1358.001.01.011	135800101011_SVEed_C1-C6	BLO	10/19
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



NOTES:

1. REPLACE 4-INCH HEADER PIPE WITH 6-INCH HEADER AT THE 8-INCH TEE. SECURE THE NEW HEADER PIPE TO THE RETAINING WALL. TIE-IN LATERALS FOR SVE-4 THROUGH SVE-10 AND SVE-20 THROUGH SVE-25.
2. INSTALL NEW ABOVE GROUND LATERAL TO SVE-22 AND REPLACE THE EXISTING 2-INCH ABOVE GROUND LATERALS TO SVE-4 THROUGH SVE-8. SLOPE LATERALS AT 1% TOWARDS THE WELLS. SECURE LATERALS TO UNISTRUT PIPE SUPPORTS AS NEEDED TO MAINTAIN SLOPE.
3. DECOMMISSION ABOVE GROUND AND BURIED LATERAL TO SVE-10. REPLACE WITH NEW LATERAL IN COMMON TRENCH WITH SVE-23, SVE-24, AND SVE-25.
4. CONSTRUCT NEW LATERAL TRENCH FOR SVE-10, SVE-23, SVE-24, AND SVE-25. FIELD LOCATE TO AVOID CONFLICT WITH TREES.
5. MANAGE EXCAVATED SOIL WITHIN APPROXIMATELY 20 FT OF THE BUILDINGS AS ECOLOGY APPROVED CONTAINED-IN WASTE. ASSUME SPOILS GENERATED FROM OUTSIDE OF THESE AREAS IS CLEAN FILL AND MAY BE THIN SPREAD ON THE GROUND INSIDE THE FENCED AREA PENDING SAMPLE CONFIRMATION. ENGINEER APPROVAL REQUIRED FOR USE AS TRENCH BACKFILL.
6. SHALLOW SOIL EXCAVATION AREA. EXCAVATE AND SAMPLE 4 TEST PITS TO DETERMINE THE EXCAVATION DIMENSIONS. ASSUME 300 SQUARE FT BY 4-FT DEEP.

No.	Date	Revisions	By

Scale: AS NOTED

Designed by: MD

Drawn by: BP

Checked by: BLO

Approved by: MD

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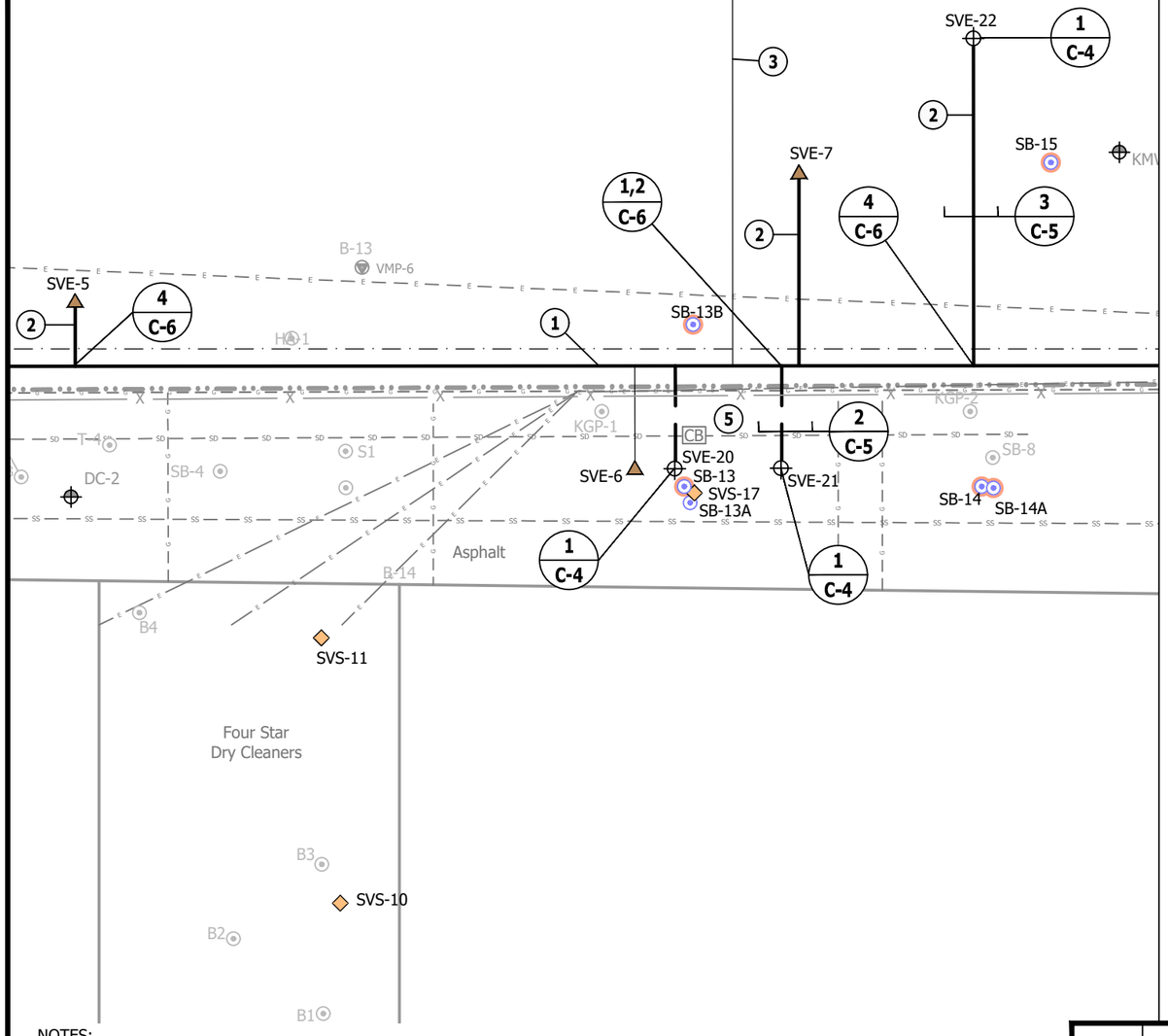
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SVE Expansion and Excavation Layout
Manhattan Village/Harris Properties
17817, 17825, and 17835 1st Avenue South
Normandy Park, Washington

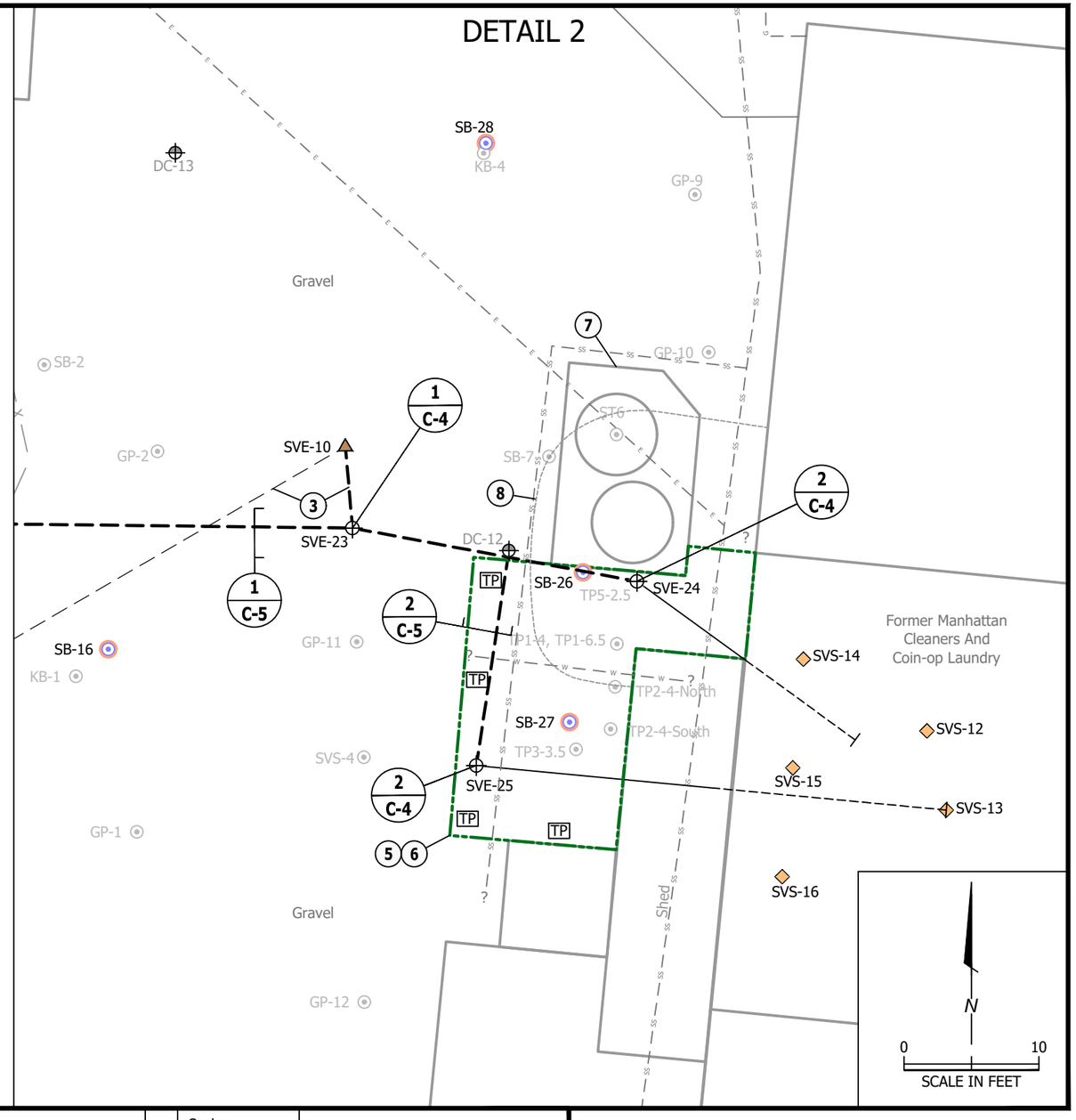
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1358.001.01.011	135800101011_SVEed_C1-C6	BLO	10/19
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

DETAIL 1



DETAIL 2



NOTES:
1. REPLACE 4-INCH HEADER PIPE WITH 6-INCH HEADER AT THE 8-INCH TEE. SECURE THE NEW HEADER PIPE TO THE RETAINING WALL. TIE-IN LATERALS FOR SVE-4 THROUGH SVE-10 AND SVE-20 THROUGH SVE-25.
2. INSTALL NEW ABOVE GROUND LATERAL TO SVE-22 AND REPLACE THE EXISTING 2-INCH ABOVE GROUND LATERALS TO SVE-4 THROUGH SVE-8. SLOPE LATERALS AT 1% TOWARDS THE WELLS. SECURE LATERALS TO UNISTRUT PIPE SUPPORTS AS NEEDED TO MAINTAIN SLOPE.
3. DECOMMISSION ABOVE GROUND AND BURIED LATERAL TO SVE-10. REPLACE WITH NEW LATERAL IN COMMON TRENCH WITH SVE-23, SVE-24, AND SVE-25.
4. CONSTRUCT NEW LATERAL TRENCH FOR SVE-10, SVE-23, SVE-24, AND SVE-25. FIELD LOCATE TO AVOID CONFLICTS WITH TREES.
5. MANAGE EXCAVATED SOIL WITHIN APPROXIMATELY 20 FT OF THE BUILDINGS AS ECOLOGY APPROVED CONTAINED-IN WASTE. ASSUME SPOILS GENERATED FROM OUTSIDE OF THESE AREAS IS CLEAN FILL AND MAY BE THIN SPREAD ON THE GROUND INSIDE THE FENCED AREA PENDING SAMPLE CONFIRMATION. ENGINEER APPROVAL REQUIRED FOR USE AS TRENCH BACKFILL.
6. SHALLOW SOIL EXCAVATION AREA. EXCAVATE AND SAMPLE 4 TEST PITS TO DETERMINE THE EXCAVATION DIMENSIONS. ASSUME 300 SQUARE FT BY 4-FT DEEP.
7. FORMER SEPTIC TANKS AND 2004 APPROXIMATE EXCAVATION LIMITS.
8. APPROXIMATE LOCATION OF CONCRETE AND ASPHALT PATCH IN GRAVEL PARKING AREA.

No.	Date	Revisions	By

Scale: AS NOTED

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Drawn by: BP

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Approved by: MD

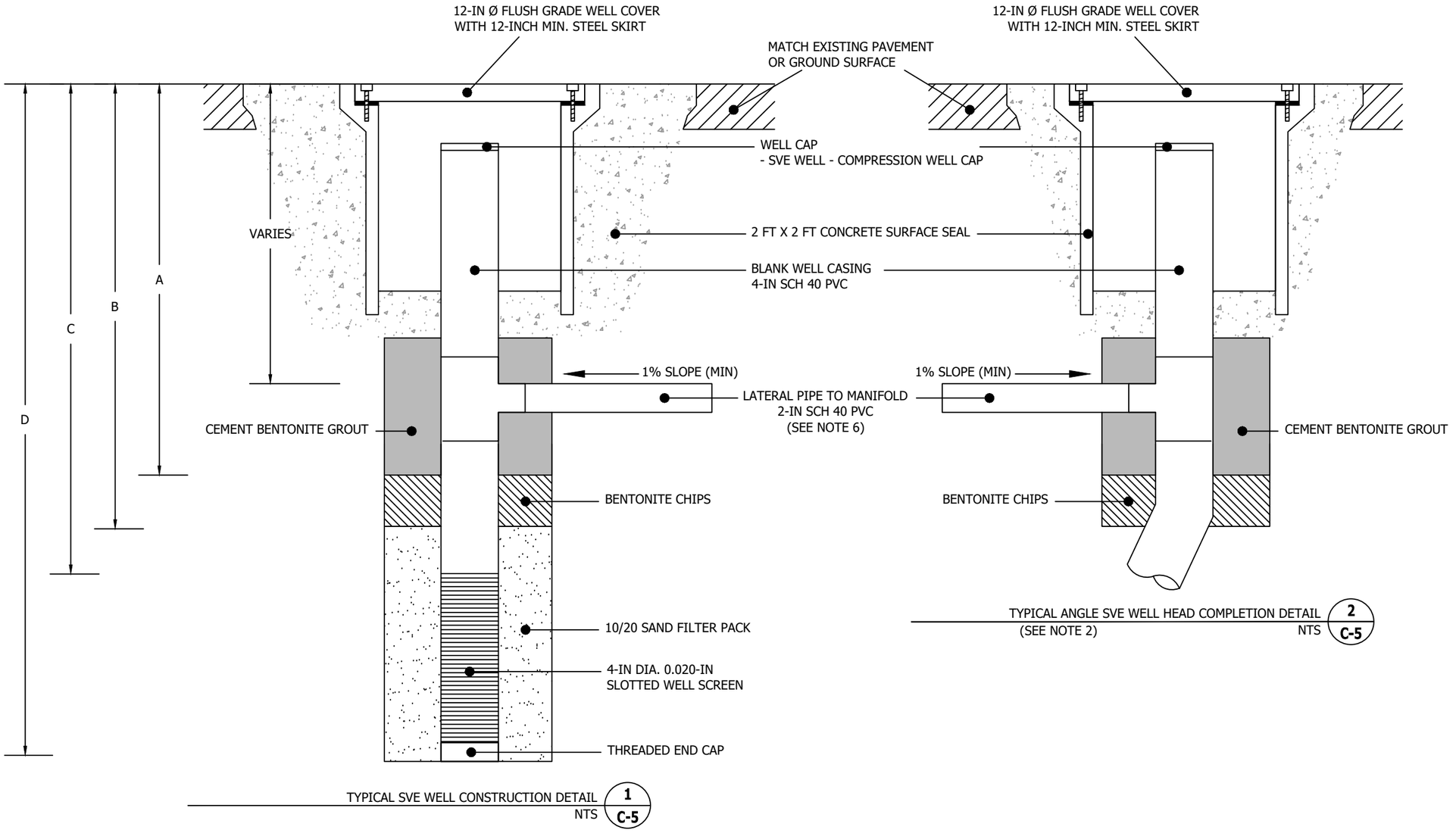
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SVE Expansion and Excavation Details
Manhattan Village/Harris Properties
17817, 17825, and 17835 1st Avenue South
Normandy Park, Washington

Sheet
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1358.001.01.011	135800101011_SVEed_C1-C6	BLO	10/19
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



TYPICAL SVE WELL CONSTRUCTION DETAIL 1 / C-5
NTS

TYPICAL ANGLE SVE WELL HEAD COMPLETION DETAIL 2 / C-5
(SEE NOTE 2) NTS

EXISTING SVE WELLS (FEET)				
WELL	**A**	**B**	**C**	**D**
SVE-1	6	8	10	35
SVE-2	6	8	10	35
SVE-3	6	8	10	35
SVE-4	6	8	10	35
SVE-5	6	8	10	35
SVE-6	6	8	10	35
SVE-7	2	4	5	10
SVE-8	6	8	10	35
SVE-9	6	8	10	35
SVE-10	6	8	10	35
SVE-11A	1.5	3	5	20
SVE-11B	2.5	18	20	35
SVE-12A	1.5	3	5	20
SVE-12B	2.5	18	20	35
SVE-13A	1.5	3	5	20
SVE-13B	2.5	18	20	35
SVE-14	16.2	18.3	19.6	34.6
SVE-15	15.9	19.3	20.6	35
SVE-16	16	18	20.5	34.8
SVE-17	16	18	19.9	29.9
SVE-18	16	17.9	19.8	29.8
SVE-19	16	18	20	30

NEW SVE WELLS (FEET)				
WELL	**A**	**B**	**C**	**D**
SVE-20	6	8	10	25
SVE-21	21	23	25	37
SVE-22	16	18	20	35
SVE-23	16	18	20	35
SVE-24	6	8	10	22.5
SVE-25	16	18	22.5	35

(SEE NOTES 1, 2, 3, AND 4)

NOTES:
1. VERTICAL WELLS: SVE-20, SVE-21, SVE-22, AND SVE-23.
2. ANGLED WELLS: SVE-24, AND SVE-25.
3. SVE WELL TABLE DEPTHS ARE IN VERTICAL FEET. THE LENGTH OF ANGLED WELL CASINGS AND SCREENS WILL BE DETERMINED IN THE FIELD BASED ON THE OPERATING ANGLE OF THE DRILL RIG.
4. ANGLE WELL CONSTRUCTION WILL BE CONSISTENT WITH THE VERTICAL WELL CONSTRUCTION DEPICTED ON DETAIL 1.
5. SLOPE ALL LATERALS 1% MINIMUM TOWARD THE WELL
6. THE LATERAL PIPE FOR SVE-22 WILL BE ROUTED TO THE MANIFOLD ABOVE GROUND.

No.	Date	Revisions	By

Scale: AS NOTED
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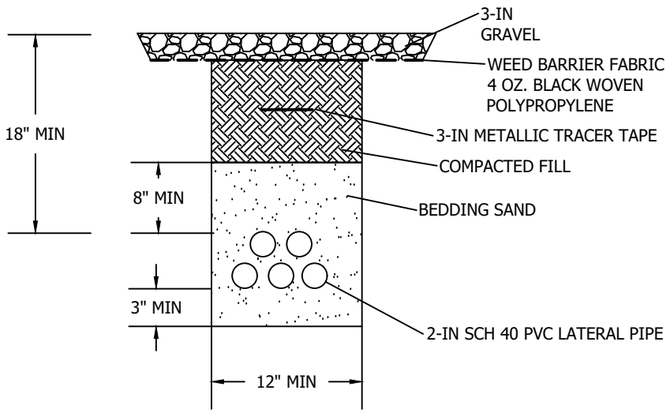
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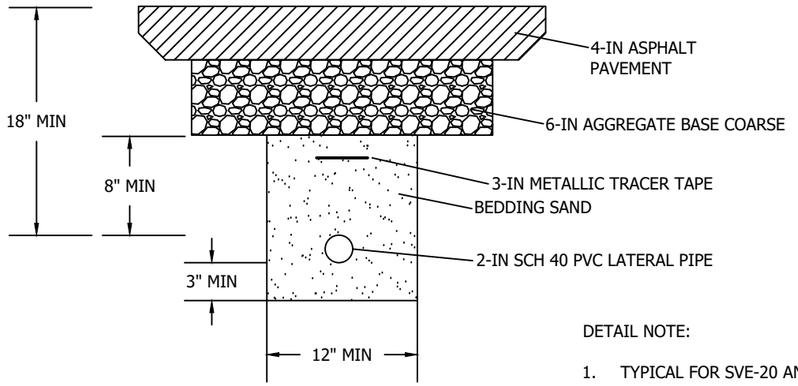
Well Construction Details
Manhattan Village/Harris Properties
17817, 17825, and 17835 1st Avenue South
Normandy Park, Washington

Sheet C-4

1358.001.01.011	135800101011_SVEed_C1-C6	BLO	10/19
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



LATERAL TRENCH - UNPAVED 1 / C-3
NTS



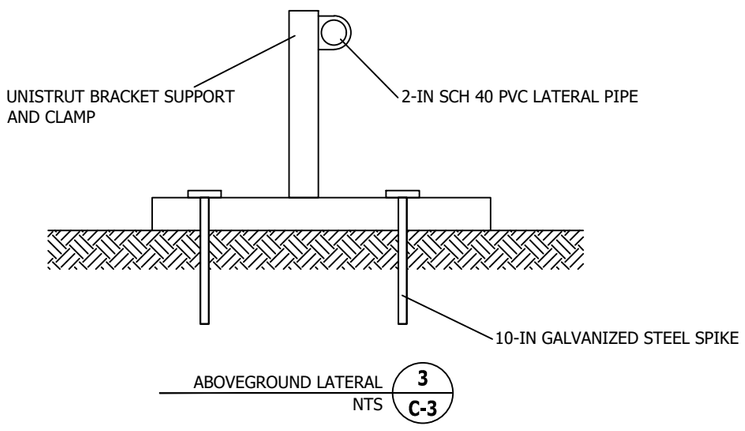
LATERAL TRENCH - PAVED 2 / C-3
NTS

DETAIL NOTE:

1. TYPICAL FOR SVE-20 AND SVE-21.

NOTES:

1. TRENCH DEPTH AND WIDTH WILL VARY BY LOCATION.
2. MULTIPLE PIPES: MAINTAIN 1-IN MIN. SAND AROUND ALL PIPES.
3. BACKFILL TRENCHES WITH BEDDING SAND WITH A MAXIMUM LOOSE LIFT OF 8-INCHES BEFORE COMPACTION.
4. COMPACT ABOVE THE PIPE ZONE TO PREVENT SETTLEMENT.
5. SLOPE LATERAL PIPES 1% MIN TOWARDS WELL.



ABOVEGROUND LATERAL 3 / C-3
NTS

DETAIL NOTE:

1. TYPICAL FOR SVE-4, SVE-5, SVE-7, SVE-8, AND SVE-22.

No.	Date	Revisions	By

Scale: AS NOTED
Designed by: MD
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Approved by: MD

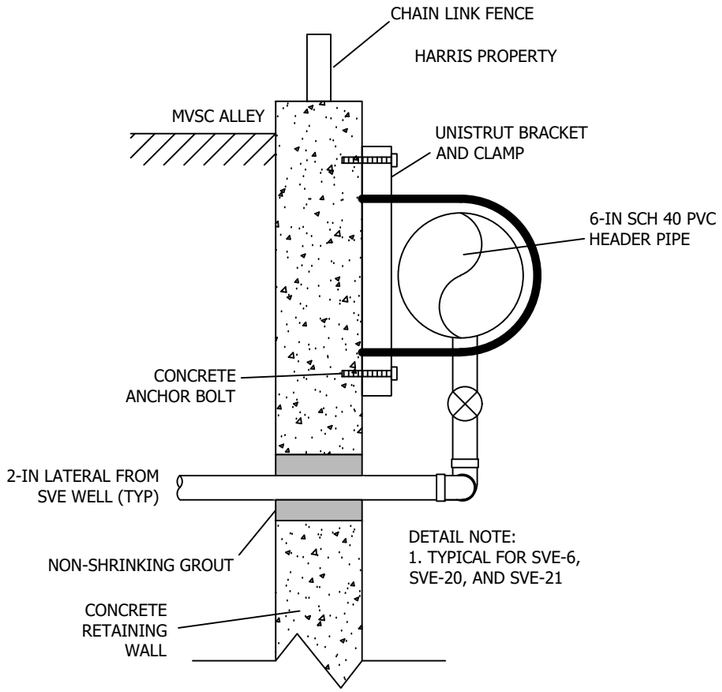
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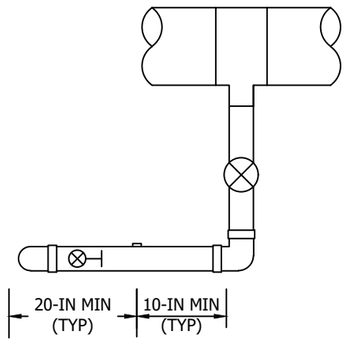
Trench and Lateral Sections
Manhattan Village/Harris Properties
17817, 17825, and 17835 1st Avenue South
Normandy Park, Washington

Sheet C-5

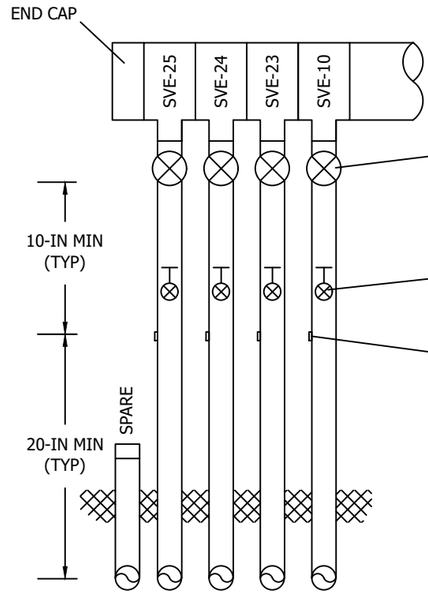
1358.001.01.005	135800101011_SVEed_C1-C6	BLO	10/19
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



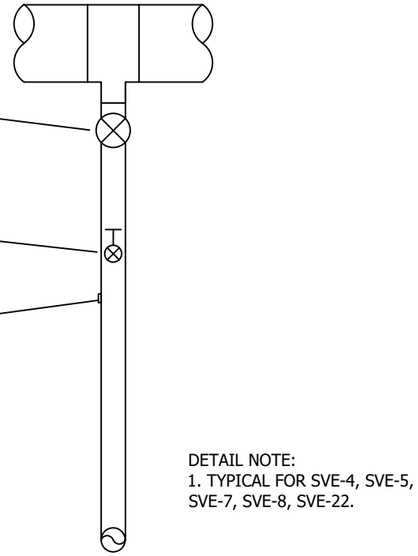
TIE-IN TO SVE WELL ON MVSC PROPERTY - SIDE VIEW (TYP) 1/C-3
NTS



TIE-IN TO SVE WELL ON MVSC PROPERTY - FRONT VIEW (TYP) 2/C-3
NTS



SVE MANIFOLD FRONT VIEW 3/C-2
NTS



TIE-IN TO ABOVE GRADE SVE WELL - FRONT VIEW (TYP) 4/C-3
NTS

NOTES:
1. FLOW CONTROL BALL VALVE: 2-IN PVC SPEARS COMPACT MODEL 2000 WITH TEFLON SEAT.
2. SVE MANIFOLD PIPE AND FITTING MATERIALS: SCHEDULE 40 PVC.
3. SECURE SVE LATERAL PENETRATIONS, SVE MANIFOLD PIPES, AND SVE HEADER PIPES TO RETAINING WALL USING UNISTRUT BRACKETS AND CLAMPS. 5 FT MIN. SPACING BETWEEN PIPE SUPPORTS.
4. INSTALL ONE SPARE 2-IN PVC LATERAL PIPE FROM NEAR SVE-25 WELLHEAD AND TERMINATE ABOVE GROUND AT THE MANIFOLD.
5. SLOPE 6-IN SVE HEADER PIPE 1% MINIMUM TOWARD WELLS.

No.	Date	Revisions	By

Scale: AS NOTED
Designed by: MD
Drawn by: BP
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SVE Manifold Details
Manhattan Village/Harris Properties
17817, 17825, and 17835 1st Avenue South
Normandy Park, Washington

Sheet C-6

1358.001.01.003	135800101011_SVEed_C1-C6	BLO	10/19
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

ATTACHMENT C

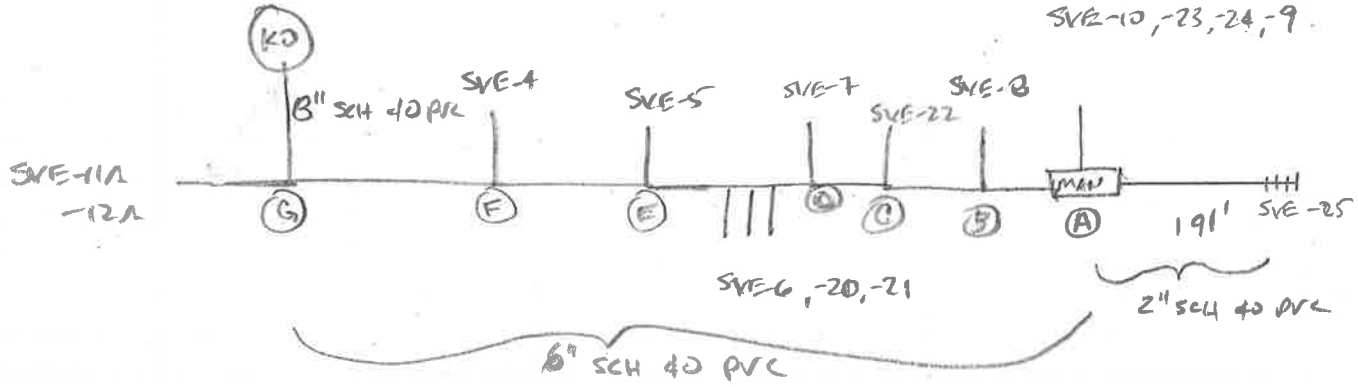
CALCULATIONS

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SHEET 1 OF 2	
JOB NO. 1358-001.01.007	
FILE NAME	
PROJECT HARRIS/MWSC SVE EXPANSION	COMPUTED BY MVD DATE 01/18/19
SUBJECT PIPE LOSSES	CHECKED BY DATE

GIVEN SVE LAYOUT

ASSUME 40 SCFM PER WELL



	LONGEST RUN	DIST	FITTINGS	LEQ	FLOW	LOSS
1.	SVE-25 to (A)	191'	4EL @ 5.5'	213'	40 scfm	8.5" wc
2.	(A) to (B)	44'	4T @ 9'	80'	200 scfm	0.28" wc
3.	(B) to (C)	23'	T @ 9'	32'	240 scfm	0.15" wc
4.	(C) to (D)	13'	T @ 9'	22'	280 scfm	0.13" wc
5.	(D) to (E)	48'	4T @ 9'	94'	440 scfm	1.4" wc
6.	(E) to (F)	67'	T @ 9'	76'	480 scfm	1.3" wc
7.	(F) to (G)	35'	T @ 9'	44'	520 scfm	0.95" wc
8.	(G) to (KO)	13'	T_S @ 40'	53'	600 scfm	0.35" wc

~ 13.1 " wc

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SHEET 2 OF 2	
JOB NO. 1358.001.01.007	
FILE NAME	
PROJECT HARRIS / MUSC SVE EXPANSION	COMPUTED BY NWP DATE 8/17/19
SUBJECT PIPE LOSSES	CHECKED BY DATE

TYPICAL VACUUM AT KO = 30 - 40" wc

VACUUM AT FURTHEST POINT ≈ 17 to 27 "wc OK ✓

TO ACHIEVE ~40 SCFM PER EXISTING WELL OPERATIONS

Notes

1. Vacuum losses estimated using Mears Gas flow calculator (Model # 64)
   - Assume (A) SG = 1
   (B) CI pipe for conservatism
   (C) 60 DEG F

CROSS CHECK USING NOMOGRAPH

1. 0.185 "Hg x 213'/100' = 0.394 "Hg
2. 0.026 "Hg x 80'/100' = 0.0208 "Hg
3. 0.036 "Hg x 32'/100' = 0.0115 "Hg
4. 0.05 "Hg x 22'/100' = 0.011 "Hg
5. 0.13 "Hg x 94'/100' = 0.1222 "Hg
6. 0.15 "Hg x 76/100' = 0.114 "Hg
7. 0.17 "Hg x 44/100' = 0.0748 "Hg
8. 0.05 "Hg x 53/100' = 0.0265 "Hg

= 0.7748 "Hg x 13.63 "wc / "Hg = 10.6 "wc

Note

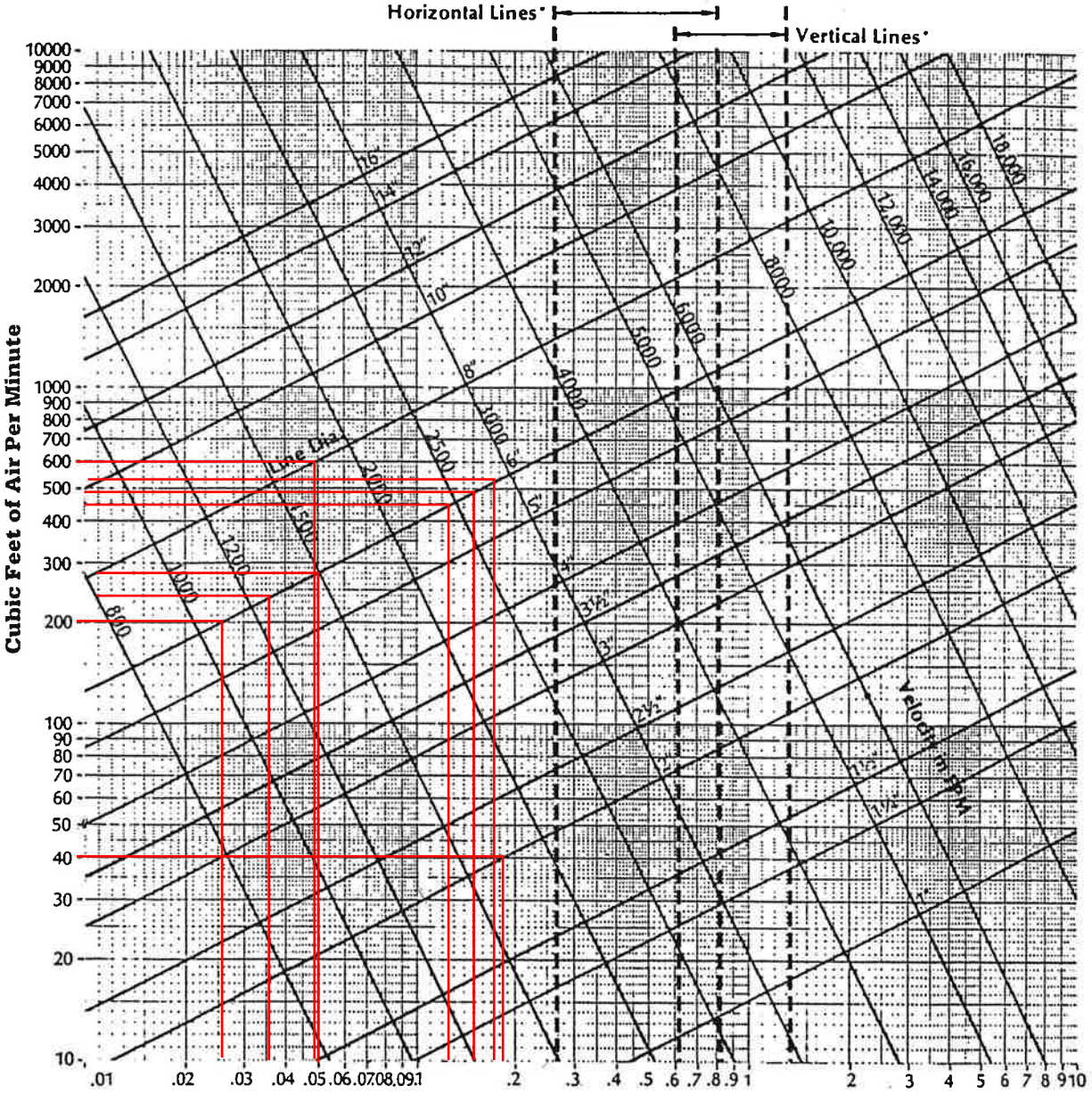
2" SCH 40 PVC

6" SCH 40 PVC

8" SCH 40 PVC

10.6 "wc < 13.1 "wc. OK ✓

FRICTION LOSS PER 100 FEET – SCHEDULE 40 STEEL PIPE
AIR DENSITY 0.075 POUNDS PER CUBIC FEET



*MAINTAIN VELOCITIES WITHIN THE PARAMETERS SHOWN

1 INCH HG = 0.4912 PSI
= 13.63 INCHES WATER
= 1.136 FEET WATER
$V = VK\sqrt{P}$

V = VELOCITY IN FEET PER MINUTE
VK = CONSTANT BASED ON AIR DENSITY OF .07495 POUNDS PER CUBIC FEET

VK = 14,786 WHEN P = INCHES H G
= 21,094 WHEN P = PSI
= 4,005 WHEN P = INCHES WATER
P = PRESSURE