PES Environmental, Inc.
Engineering & Environmental Services
AN NV5 COMPANY

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1358.001.03

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STATUS REPORT – JANUARY 2022 THROUGH JUNE 2023
MANHATTAN VILLAGE SHOPPING CENTER AND HARRIS PROPERTIES
NORMANDY PARK, WASHINGTON

Dear Ms. Mitchell and Mr. Bloch:

PES Environmental, Inc. (PES), has prepared this letter to summarize the remediation activities performed during the January 2022 through June 2023 reporting period 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." The location and current features of the Property are shown on Figures 1 and 2. The work was conducted in accordance with the Remedial Action Work Plan (RAWP[1]), addendum to the RAWP[2] (RAWP Addendum No. 1), and the Operations and Maintenance Plan (O&M Plan).[3] A Sampling and Analysis Plan (SAP) is included as Appendix H to the RAWP.

The following work was completed during the reporting period in accordance with the RAWP Addendum No. 1 and is described in greater detail in the following sections:

- Soil vapor extraction (SVE) system O&M including stack sampling, SVE well sampling, sub-slab soil vapor probe monitoring, installation of a new sub-slab soil vapor probe inside the Kintsugi Physical Therapy suite in the MVSC strip mall (adjacent to Four Star Cleaners), decommissioning of two sub-slab soil vapor probes

[1] PES Environmental, Inc. 2016. *Remedial Action Work Plan, Manhattan Village Shopping Center and Harris Properties, VCP NW1873, Normandy Park, Washington*. October.
[2] PES, 2021. Remedial Action Workplan Addendum No. 1, *Manhattan Village Shopping Center and Harris Properties, VCP NW1873, Normandy Park, Washington*. June 29.
[3] PES Environmental, Inc. 2016. *Operations and Maintenance Plan, Manhattan Village Shopping Center and Harris Properties, VCP NW1873, Normandy Park, Washington.* December.

which had become unusable, disposal of SVE system condensate, and other related activities;

- The SVE system was taken off-line near the end of the reporting period so that rebound monitoring may be conducted in the sub-slab soil vapor probes as described in the RAWP Addendum No. 1;

- Decommissioning of 30 groundwater monitoring wells due to tetrachloroethene (PCE) concentrations being consistently below the Model Toxics Control Act (MTCA) Method A cleanup level; and

- Implementation of a permeable reactive barrier (PRB) was initiated during the third quarter of 2022. The work was temporarily stopped due to difficult injection conditions. Following evaluation of an alternate injection approach, implementation of the PRB was resumed on July 10, 2023 following Washington Department of Ecology (Ecology) notification on June 16, 2023.

REMEDIATION SYSTEM O&M

Remediation System Description

The expanded SVE system consists of 28 SVE wells (Figure 3). The SVE system consists of two well manifolds, positive displacement blower, inline silencers, moisture knockout, condensate storage and transfer pumps, and a discharge stack installed on a concrete pad inside a locked-fence enclosure. Each leg of the SVE 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 SVE blower is mounted inside a galvanized steel and insulated enclosure to dampen the equipment noise.

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 or 35 ft bgs depending on location) target the lower vadose zone. Detailed descriptions of the AS and SVE systems and O&M procedures are included in the O&M Plan.

The air sparging (AS) system was shut down in December 2018.

Operations and Maintenance

O&M activities during the reporting period included field inspections, testing, and O&M of SVE system components. Specific work included documenting and maintaining the operational status of the SVE equipment, documenting general operating conditions, and responding to system alarms.

The SVE system continued to operate at 13 wells in three areas.

- **Four Star Cleaners Area Wells.** There are seven operating wells including SVE-5, SVE-6, SVE-7, SVE-8, SVE-20, SVE-21, and SVE-22.

- **Former Manhattan Cleaners Area Wells.** There are four operating wells including SVE-10, SVE-23, SVE-24, and SVE-25.

- **QFC Area Wells.** There are two operating wells including SVE-11A and SVE-12A.

The SVE system operated with 111 days downtime during the reporting period (81 percent uptime). System shutdowns during this period were caused by power outages (8 days), failure and replacement of the blower variable frequency drive in July (VFD; 22 days), condensate system alarms high storage tank levels (7 days), pump fail to start (2 days), failure and replacement of the low-level switch in the condensate knockout vessel in March/April (28 days), and high-level in condensate storage tank pending approval of hazardous waste disposal profile approval (32 days). Other maintenance work included servicing the blower in February 2022, September 2022, and April 2023 (oil change, check/replace belts), reconnection of the auto-dialer phone service (utility mistakenly shut-off service), replacing the auto-dialer battery backup, replacing a cooling fan inside the control panel, and conducting brush and weed management on the Harris Property in 2022. The SVE system went offline in late June 2023 due to a blower low-flow alarm. The blower was inspected on July 7 (after the reporting period), briefly restarted to confirm operation after the low-flow alarm was fixed, and then shut down again.

The remediation system has operated with 89 percent uptime since start-up in 2016 (excluding the 6-month shut-down for rebound testing in 2019). The SVE system operating data is summarized in Table 1.

The SVE system operated with an average total flow rate of approximately 585 standard cubic feet per minute (scfm), with an average vacuum of 32 inches of water column (in. w.c.) at the SVE well manifold. Individual SVE wells operated with an average flow of 44 scfm per well.

SVE Sampling. Performance vapor samples are collected periodically from the SVE discharge stack and analyzed by ALS Environmental (an accredited laboratory) for volatile organic compounds (VOCs) by EPA Method TO-15 to evaluate mass removed and to verify compliance with Puget Sound Clean Air Agency (PSCAA) and Ecology discharge criteria. Samples were collected in March, June, September, and December.

Performance samples were collected from the 13 operating SVE wells in June. The PCE concentrations ranged from 36 micrograms per cubic meter ($\mu g/m^3$) to 660 $\mu g/m^3$ in the SVE wells. The highest concentrations were observed in the long-time operating wells including SVE-5 (660 $\mu g/m^3$) and SVE-6 (340 $\mu g/m^3$), and SVE-12A (330 $\mu g/m^3$). The PCE concentrations in the newer SVE wells installed in 2021 (SVE-20 through SVE-25 located adjacent to the commercial buildings) were slightly lower compared to 2021 (100 to 200 $\mu g/m^3$).

SVE well flow rates during sampling were between 13 and 56 scfm; and the flow and PCE concentrations were used to adjust the SVE well flow rates to optimize PCE mass removal. A summary of 2022 SVE well sampling results is included in Table 2.

PCE Mass Removal. PCE concentrations in the SVE stack were highest in August 2022 (370 $\mu g/m^3$) and lowest in March 2023 (86 $\mu g/m^3$), and on average were slightly lower than the

prior reporting period. The PCE removal rates were also lower with an average mass removal rate of 0.07 pounds per day. A total of 3.9 pounds of PCE was removed during the reporting period, and a total of 130.8 pounds of PCE have been removed throughout the lifetimes of the SVE systems that operated from September 2009 through June 2023.

Charts showing SVE effluent PCE concentrations and cumulative PCE mass removal are included as Attachments A1 and A2, and historical SVE system data is included in Attachments A3 and A4. Copies of the validated laboratory analytical reports are included in Attachment B.

Regulatory Compliance. The SVE system discharge has remained in compliance with the PSCAA exemption limits of 500 pounds per year (lb/year) of total VOCs and is below the Ecology small quantity emission rate of 27 lb/year for PCE.

Sub-Slab Soil Vapor Probe Decommissioning and Installation. Two of the five sub-slab vapor monitoring points located inside Archies Mexican Restaurant, SVS-12 and SVS-16, had become unusable due to becoming clogged with floor wax. Both points were decommissioned on June 2 by extracting the vapor pin components and patching the borings flush with the slab using quick setting concrete.

Sub-slab vapor monitoring point SVS-18 was installed on September 28, 2022 within the employee break room of the Kintsugi Physical Therapy suite on MVSC Property. The physical therapy suite is located directly to the east of Four Star Cleaners near SVE-21. Installation involved drilling through the slab to a total depth of 12.5 inches below the top of the slab, assembling the vapor pin including screen, 5 extension pieces, and monitoring port.

Location of the decommissioned and new sub-slab vapor monitoring points are shown on Figure 4.

Sub-Slab Vacuum Monitoring. Sub-slab vapor monitoring points SVS-10, SVS-11, SVS-13, SVS-14, SVS-15, and SVS-18 were monitored for vacuum and field VOC concentrations multiple times throughout the reporting period (Figure 4). SVS-10 and SVS-11 are located inside the Four Star Dry Cleaners suite in the MVSC strip mall; SVS-13, SVS-14, and SVS-15 are located inside the former Manhattan Cleaners building; and SVS-18 is located inside the Kintsugi Physical Therapy suite in the MVSC strip mall.

Vacuum was recorded in all sub-slab vapor monitoring points and were between 0.1 to 0.9 in. w.c. Field VOC concentrations were measured with a photoionization detector (PID) and were generally low and within the range of typical indoor air background readings. Background adjusted PID readings were between 0 and 1 parts per million by volume (ppmv).

Soil vapor monitoring point SVS-17, located in the alley near SVE-6, was also monitored for comparison to sub-slab monitoring points. Vacuum ranged from 1.8 to 3.7 in. w.c. The field VOC concentration was 0.0 to 0.7 ppmv.

The monitoring results are included in Table 3 and historical results are included in Attachment A5.

MONITORING WELL DECOMMISSIONING

A total of 30 groundwater monitoring wells were decommissioned by Cascade Drilling, Inc. (Cascade; a Washington state licensed drilling company), in September in accordance with criteria developed in Section 5.1.1 of the RAWP Addendum No. 1. The work was coordinated with property owners including the Harris Family, Top Flight Investments (MVSC owner), City of Normandy Park, Westview Townhouses, Dunn Lumber, and the City of Normandy Park.

Three wells, MW-1, MW-2, and DC-5, required over drilling as their well identification tags were missing from Ecology's well construction database. The remaining wells were decommissioned in place by cutting the PVC well casing, filling the well with bentonite chips, capping the PVC casing with cement, and patching up to ground surface level with concrete. The thirteen wells located within paved areas including MW-3, MW-8, MW-12, MW-13, DC-1, DC-2, DC-3, KMW-4, KMW-5, KMW-5D, and KMW-6 also had their metal monuments completely removed prior to decommissioning in place. In asphalt areas, the concrete was dyed black to match asphalt. MW-6 on Dunn Lumber property was not able to be decommissioned because access approval was not secured until after Cascade was offsite. Table C1 and Figures 3 and 4 have been updated to reflect current conditions.

GROUNDWATER SAMPLING

Groundwater sampling was not conducted in 2022. The next round of sampling is scheduled to be completed after the PRB is installed in July 2023. Historical groundwater sampling results, soil sample analytical results, and soil vapor sampling results are included in Attachment C for reference.

RESIDUALS MANAGEMENT AND DISPOSAL

Residuals accumulated during the reporting period included SVE system condensate and soil and decontamination water from monitoring well decommissioning. 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. A total of 1,595 gallons of SVE system condensate were disposed of as non-hazardous wastewater by Marine Vacuum Service, Inc. in 2022; and 2,133 gallons of SVE system condensate, groundwater sampling purge water, and monitoring well decommissioning decontamination water was disposed as F-listed hazardous waste in February 2023. Eight (8) 55-gallon drums of soil from decommissioning groundwater monitoring wells were disposed of as F-listed hazardous waste after the reporting period on July 6, 2023.

Copies of disposal documentation including disposal manifests and copies of laboratory reports containing waste profile data are included in Attachment E. Manifest for the 2023 disposals were not available prior to preparing this report. The manifests and disposal profiling laboratory reports will be included in the next status report.

PERMEABLE REACTIVE BARRIER IMPLEMENTATION INITIATION

Implementation of the PRB on the Harris Property near the northern property line (Figure 5) was initiated in late August and September 2022 in accordance with the procedures described in Section 4.1.3 of the RAWP Addendum No. 1. The work included Underground Injection Control (UIC) program permitting, preparing the PRB work area (cutting down several trees and trimming back overgrown trees and brush), initiating injection of BOS 100© using both 2.25-inch and 1.5-inch injection tooling, and testing of an alternate two-step injection approach. Due to difficult injection conditions, a two-step injection technique was developed to facilitate more reliable injection of the BOS 100© PRB media. The two-step technique included pre-installing bentonite filled 2.25-inch diameter pilot borings to serve as conduits for injecting the PRB media into the saturated target zones using 1.5-inch diameter injection tooling.

Following field testing of the two-step injection technique, the PRB implementation work was temporarily stopped to allow time to evaluate and refine an injection program using the two-step technique. The PRB implementation has been scheduled to resume in July 2023. Per the conditional UIC approval (Attachment D), the minor changes to the injection program described in RAWP Addendum No. 1 were discussed with the Ecology Voluntary Cleanup Program (VCP) Site manager, Mr. Chris Maurer on June 16, 2023, documented in an e-mail, and followed-up with phone call on August 3, 2023 to discuss status of the PRB installation. Mr. Maurer agreed that the change in injection procedure appears to give the PRB a higher chance of success, and that if the PRB is not successful, that a modified approach will be evaluated. The two new PRB groundwater monitoring wells will be installed following completion of the PRB.

A detailed and comprehensive description of the PRB implementation work completed in 2022 and 2023 will be included in the next status report.

SUMMARY AND CONCLUSIONS

The following includes a brief summary and conclusions for the work completed during the reporting period.

- The SVE system continued to operate. SVE discharge stack concentrations and PCE mass removal rates are low (up to 370 µg/m^3 and 0.018 lb/day, respectively), even after the addition of the five SVE wells in 2021 near the Four Star Cleaners and the former Manhattan Cleaners. Sub-slab soil vapor monitoring probes inside Four Star Cleaners and Archies Mexican Restaurant continue to show vacuum influence from the nearby operating SVE wells.

- Due to declining and asymptotic PCE removal rates (see Attachments A1 and A2), the SVE system has been shutdown to conduct rebound testing by monitoring sub-slab vapors as described Section 5.1.5 of the RAWP Addendum No. 1. As shown in Table C5 in Attachment C, none of the prior sub-slab soil gas results from 2019 exceeded the current screening levels for commercial workers. We would recommend

leaving the SVE system offline if sub-slab soil gas results continue to stay below screening levels.

- Thirty groundwater monitoring wells were decommissioned due to PCE concentrations being consistently below the MTCA Method A cleanup level.

- Implementation of the BOS 100© PRB was initiated during the third quarter and then temporarily stopped to allow time for evaluating an alternative injection approach. Implementation of the PRB resumed in July 2023. Ecology has agreed that the modified injection procedure appears to give the PRB a higher chance of success.

PES appreciates the opportunity to work on this project. 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., an NV5 company

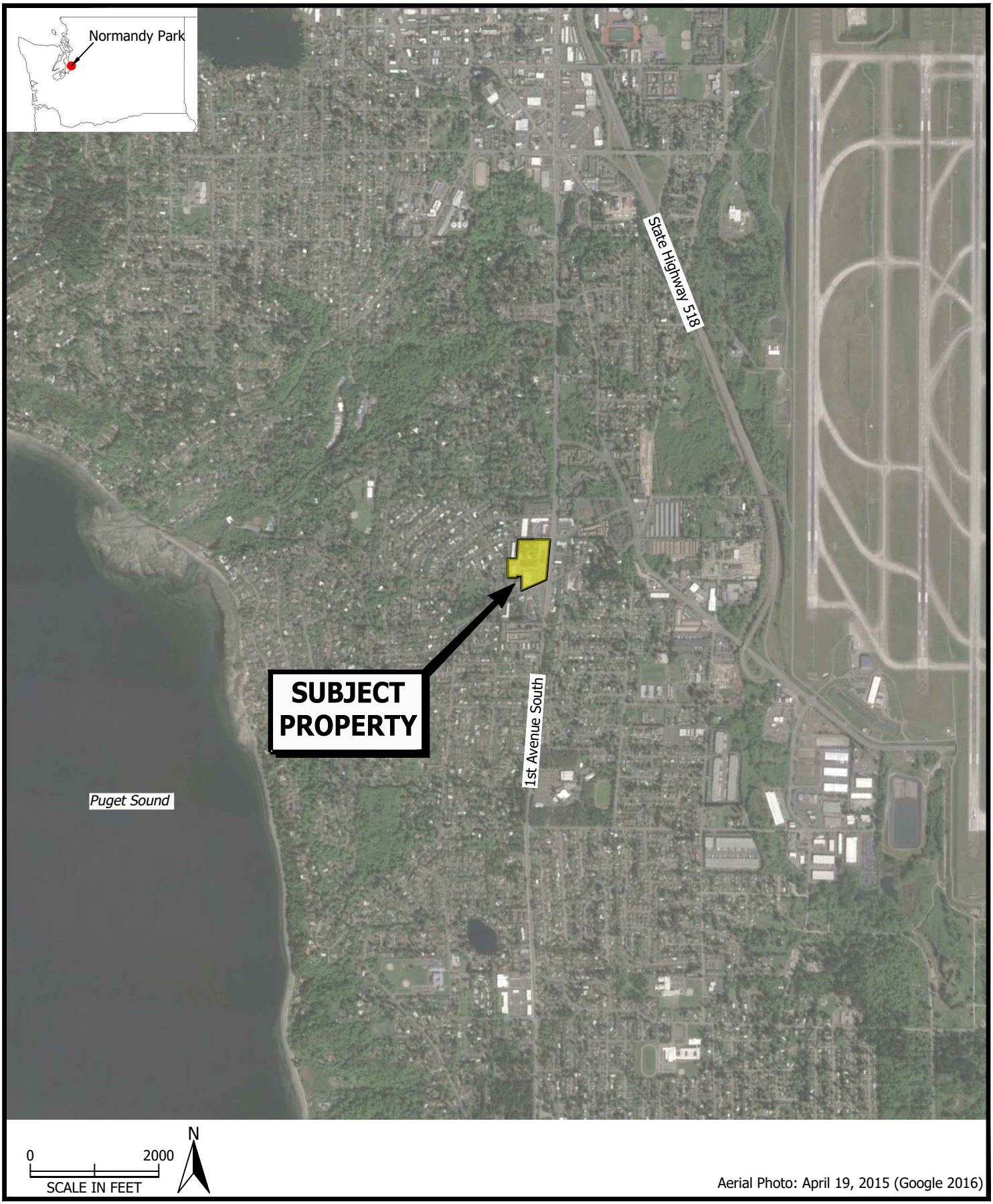
Matthew Dahl, P.E.
Associate Engineer

Attachments: List of Abbreviations
Figures 1 through 5
Tables 1 through 3
Attachment A through E

LIST OF ABBREVIATIONS

AS	Air Sparging
bgs	Below Ground Surface
CUL	MTCA Method A Cleanup Level
DO	Dissolved Oxygen
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)
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.
PID	Photoionization Detector
PQL	Practical Quantitation Limit
ppmv	Parts per Million by Volume
PRB	Permeable Reactive Barrier
PSCAA	Puget Sound Clean Air Agency
PVC	Polyvinyl Chloride
RAWP	Remedial Action Work Plan
SAP	Sampling and Analysis Plan
scfm	Standard Cubic Feet per Minute
SVE	Soil Vapor Extraction
TOC	Top of Casing
UIC	Underground Injection Control
VCP	Voluntary Cleanup Program
VOA	Volatile Organic Analysis
VOC	Volatile Organic Compound
WAC	Washington Administrative Code

LIST OF ILLUSTRATIONS



Aerial Photo: April 19, 2015 (Google 2016)

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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_2022SR_1-2	MVD	3/23
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

FORMER SEPTIC TANK

VACANT SHED

WELL HOUSE

RETAINING WALL

FORMER MANHATTAN CLEANERS AND COIN-OP LAUNDRY

FORMER TREATMENT SYSTEM

REMEDIATION EQUIPMENT ENCLOSURE

ARCHIE'S MEXICAN RESTAURANT

SHED

STARBUCKS

PARKING LOT

RETAINING WALL

FOUR STAR DRY CLEANERS

KINTSUGI PHYSICAL THERAPY

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

0 N 100

SCALE IN FEET

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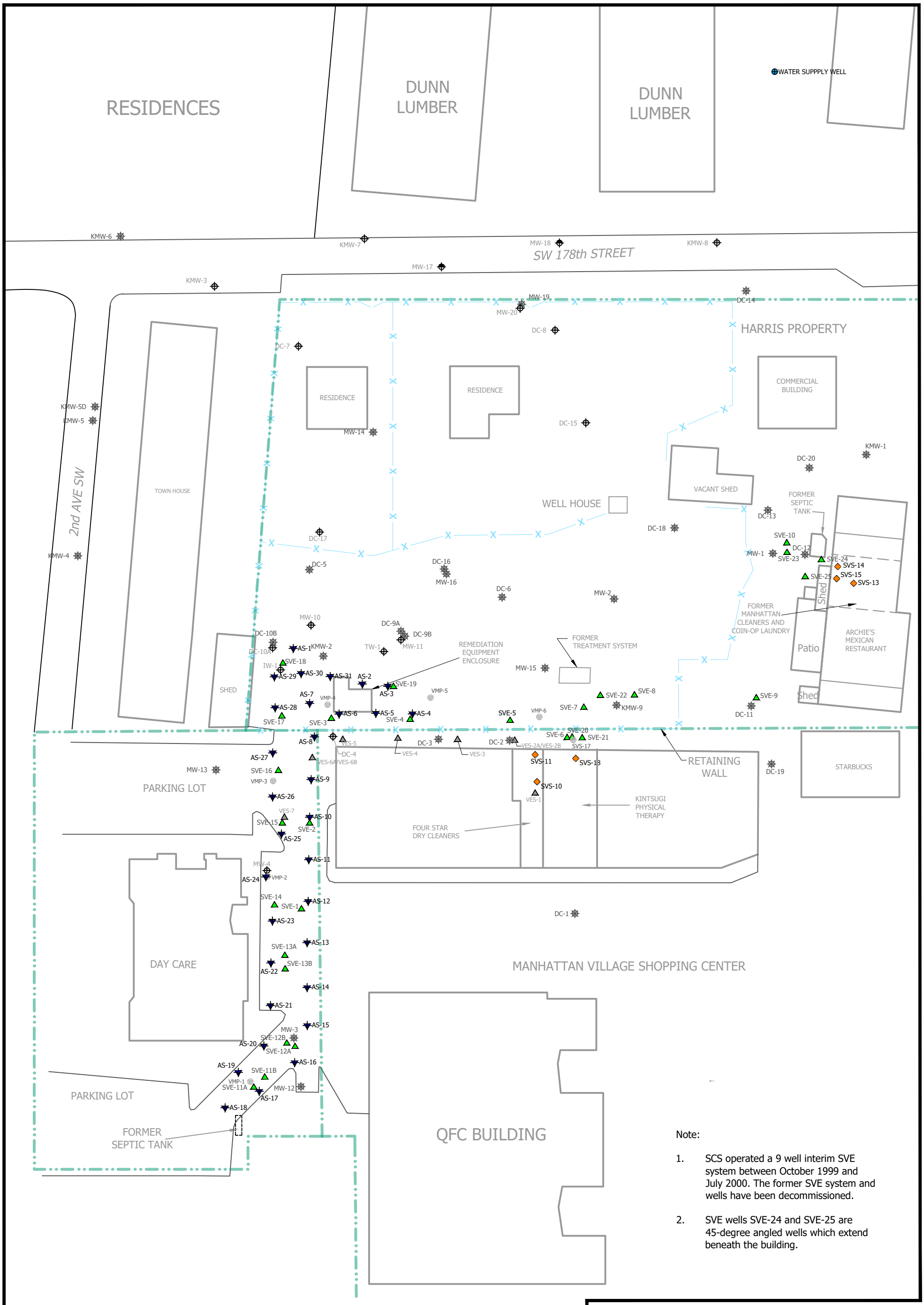
Site Plan
Manhattan Village/Harris Properties
17817, 17825, and 17835 1st Avenue South
Normandy Park, Washington

FIGURE 2

1358.001.02.016	135800102016_2022SR_1-2	MVD	3/23
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.

2. SVE wells SVE-24 and SVE-25 are 45-degree angled wells which extend beneath the building.

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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_2022SR_3	MVD	3/23
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

EXPLANATION

- Approximate Property Boundary
- SVE Trench
- 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, 2018-2021)
- SVS-11 Soil Gas Probe (PES, 2019)
- SG-12 Decommissioined Soil Gas Probe

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 / EX-1 - EX-27	2018 - 2021

- 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.
7. Borings EX-1 through EX-15 were advanced in September 2020 to evaluate conditions prior to excavation and constructing an SVE piping trench. The excavation was completed in January 2021 and confirmation samples were collected. The SVE trench was completed in February 2021. See Figure 5 for locations of borings EX-1 through EX-5 and excavation confirmation samples EX-16 through EX-27.

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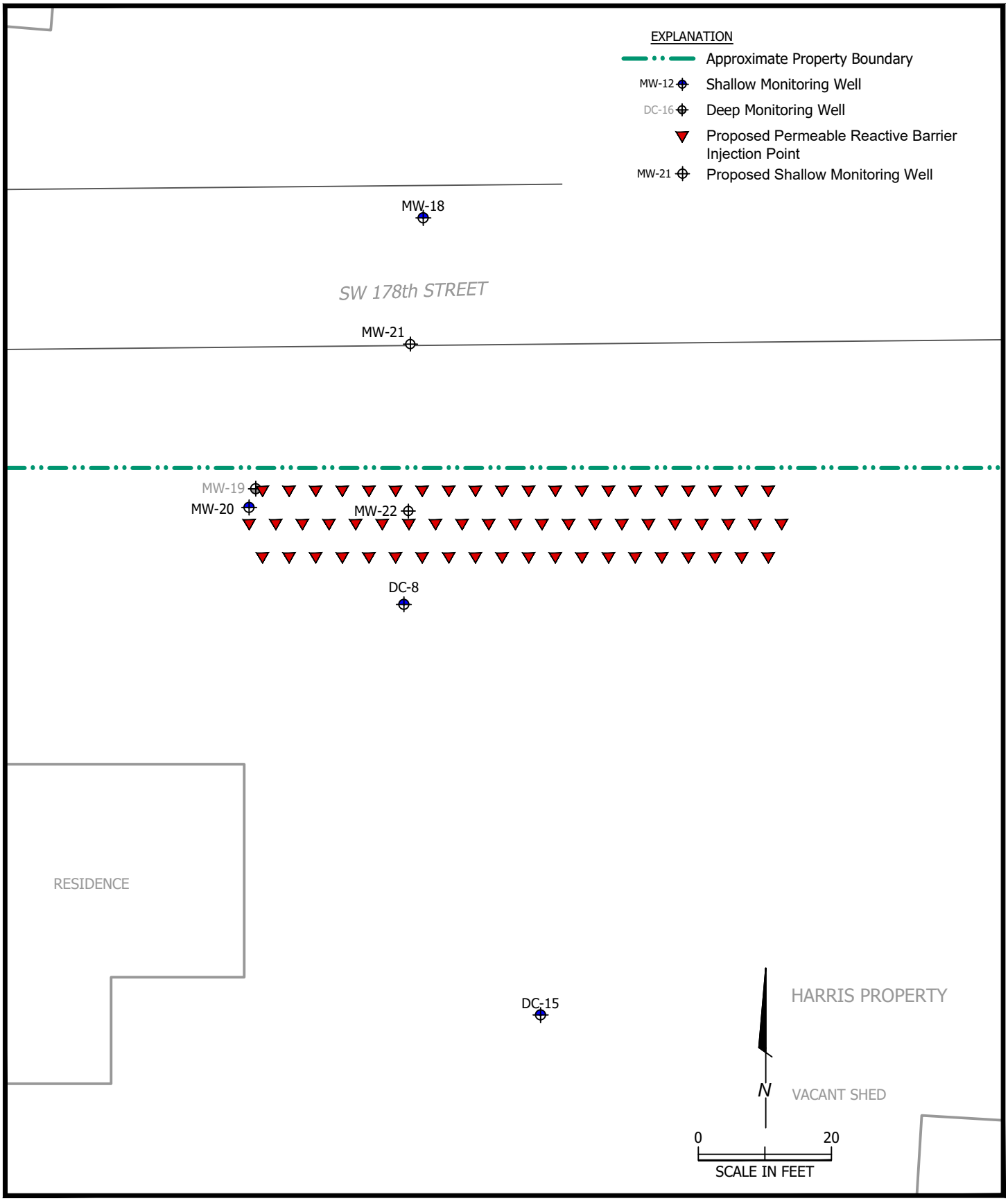
Well and Boring Location Map
Manhattan Village/Harris Properties
17817, and 17825, and 17835 1st Avenue South
Normandy Park, Washington

FIGURE 4

1358.001.02.016	135800102016_2022SR_4	MVD	3/23
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



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Proposed Permeable Reactive Barrier Layout
Manhattan Village/Harris Properties
17817, 17825, and 17835 1st Avenue South
Normandy Park, Washington

FIGURE
5

1358.001.02.016	135800102016_2022SR_5	MVD	6/21
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

LIST OF TABLES

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

Date	Time	Operating Days (days)	System Down Time (days)	Electric Meter (KWH)	Blower				Vacuum		SVE Wells[6]	Stack				PCE Removal Rate[4] (lb/day)	PCE Mass Removed[5] (lbs)	Condensate		Notes
					Speed (hz)	Electric Meter (KWH)	Run Time (hr)	Temp. Out (deg F)	Blower (in. w.c.)	Manifold (in. w.c.)		DP (in. w.c.)	Flow[1] (scfm)	VOC[2] (ppm)	Lab PCE[3] (µg/m^3)			DAT Tank (gal)	Holding Tank (gal)	
1/5/22	12:15	1568	6.0	-	36	233,191	37,643	70	46	41	See Note 11	-	-	-	-	-	-	90	1360	KO high high Alarm. Transfer condensate. Restart.
1/14/22	8:20	1577	0.2	38,059	36	234,331	37,854	77	40	-	See Note 11	-	-	-	-	-	-	195	1400	DAT high alarm. Marvac remove condensate.
1/27/22	16:05	1588	2.5	39,653	36	235,687	38,106	80	60	50	See Note 11	-	-	-	-	-	-	120	25	Restart system. Service KO low level switch
2/4/22	14:20	1595	0.5	40,765	36	236,647	38,287	70	50	46	See Note 11	-	-	-	-	-	-	90	170	Restart system. Service KO low level switch
2/10/22	10:45	1601	-	41,623	36	237,389	38,426	75	51	49	See Note 11	1.0	558	-	-	-	-	90	240	Balance SVE wells. SVE blower serviced by B&K.
2/25/22	11:55	1616	0.4	43,749	36	239,210	38,778	80	42	40	See Note 11	-	-	-	-	-	-	100	420	Restart system. Service KO low level switch
3/21/22	16:15	1616	23.8	-	36	239,231	38,782	75	49	45	See Note 11	0.9	529	0.2	200	0.010	128.1	103	430	Restart system. Replace KO low level switch
4/13/22	10:15	1638	0.7	46,870	36	241,692	39,317	75	16	12	See Note 11	1.0	558	-	-	-	-	40	600	KO Alarm. Remake electrical connections. Restart.
4/26/22	8:56	1651	-	48,539	36	243,110	39,627	77	18	23	See Note 11	1.0	558	0.3	-	-	-	120	600	Routine O&M. Mark alley for pending PSE gas line.
6/2/22	11:23	1688	-	53,402	36	247,230	40,518	90	25	22	See Note 11	1.3	622	–	140	0.008	128.8	120	600	Sample stack and operating SVE legs
6/27/22	16:20	1713	-	56,627	36	249,941	41,123	110	37	34	See Note 11	1.2	592	0.5	-	-	-	120	600	Routine O&M. Annual mowing on Harris.
7/20/22	9:00	1729	7.6	58,789	36	251,695	41,493	85	38	36	See Note 11	1.0	553	0.3	-	-	-	121	600	Alarm - blower low flow. Test. VFD overheating - leave off
7/25/22	7:00	1729	5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	121	600	Electrician - determines VFD has failed.
8/3/22	7:00	1729	9.0	58,853	36	0	0	80	30	-	See Note 11	1.1	580	-	-	-	-	121	600	Install new VFD and restart system. Blower data reset.
8/12/22	9:14	1738	-	-	36	-	217	-	-	-	-	-	-	-	-	-	-	-	-	Alarm - power out.
8/15/22	8:41	1738	3.0	60,075	36	-	217	85	25	-	See Note 11	1.1	580	-	-	-	-	-	-	Restart blower
8/31/22	7:00	1754	-	62,209	36	2,810	603	100	30	24	See Note 11	1.0	546	0.2	-	-	-	121	600	Replace autodialer batteries.
9/8/22	9:45	1762	-	-	36	-	611	-	-	-	See Note 11	-	546	-	370	0.018	129.6	-	-	Collect stack sample. SVE blower serviced by B&K
9/28/22	7:00	1782	-	66,020	36	6,019	1,274	75	27	24	See Note 11	1.1	586	0.2	-	-	-	122	600	Install SVS-18. Monitor SVE legs
10/21/22	11:10	1805	-	68,693	36	8,216	1,827	76	27	25	See Note 11	1.2	611	0.2	-	-	-	122	600	O&M
11/4/22	9:40	1819	-	-	36	-	2,173	-	-	-	-	-	-	-	-	-	-	-	-	Alarm - power out
11/8/22	9:00	1819	4.0	70,474	36	9,652	2,173	70	27	22	See Note 11	1.1	588	-	-	-	-	170	640	Restart System, transfer DAT water to holding tank
11/17/22	8:40	1828	-	-	36	-	2,390	-	-	-	-	-	-	-	-	-	-	-		Alarm - power out
11/18/22	16:50	1828	1.0	71605	36	10597	2,390	-	-	-	See Note 11	-	-	-	-	-	-	170	725	Restart system. O&M
11/21/22	15:00	1831	-	-	-	-	2,460	-	-	-	-	-	-	-	-	-	-	-	-	Alarm - KO tank hi-hi
11/23/22	14:11	1831	2.0	72,006	36	10,912	2,460	70	30	22	See Note 11	1.1	588	-	-	-	-	90	840	Restart system
12/2/22	11:00	1840	-	73106	36	11840	2,670	70	31	27	See Note 11	1.0	561	0.2	160	0.008	130.8	170	925	Collect stack sample
12/26/22	7:45	1861	-	-	-	-	3,173	-	-	-	-	-	-	-	-	-	-	-	-	Alarm - KO pump starter tripped
12/28/22	13:00	1861	2.0	72,006	36	14,082	3,173	60	37	30	See Note 11	1.2	620	-	-	-	-	170	1350	Restart system
1/11/23	11:00	1875	-	77,667	36	15,616	3,505	75	37	25	See Note 11	1.2	611	-	-	-	-	200	1500	Monitor SVE legs
1/21/23	16:17	1885	-	-	-	-	3,750	-	-	-	-	-	-	-	-	-	-	290	1500	Alarm - KO tank hi-hi
2/22/23	10:10	1885	32	79,331	36	16,677	3,750	60	26	23	See Note 11	1.1	593	0.3	-	-	-	10	0	ACT remove condensate. Restart System
3/31/23	15:25	1922	-	83,858	36	20,443	4,644	74	28	24	See Note 11	1.2	612	-	86	0.005	131.3	170	310	Collect stack sample
4/6/23	8:55	1928	-	84,565	36	21,029	4,783	75	27	25	See Note 11	1.1	585	0.7	-	-	-	170	400	Balance SVE legs
4/25/23	9:00	1947	-	87,147	36	23,189	5,239	78	32	28	See Note 11	1.2	609	0.1	-	-	-	62	680	Blower running in Hand temporarily pending electrician. Blower service - oil change and belt adjustment.
5/4/23	7:30	1956	-	-	36	-	5,455	-	-	-	See Note 11	-	-	-	-	-	-	62	680	Repair PLC (fuse) and replace float switch in holding tank.
6/1/23	9:55	1984	-	91855	36	27138	6,124	80	31	28	See Note 11	1.2	608	0	-	-	-	62	680	Unable to monitor SVE legs due to heavy vegetation.
6/15/23	11:45	1998	-	93606	36	28592	6,461	85	30	28	See Note 11	1.3	630	0	-	-	-	62	680	Faulty summa canister - no stack sample collected
6/24/23	1:00	2007	-	-	-	-	6,671	-	-	-	-	-	-	-	-	-	131.7	-	-	Alarm - low SVE blower flow
7/6/23	9:15	2007	12	94,863	36	29,501	6,671	80	30	27	See Note 11	1.2	608	-	-	-	-	62	680	Check system during drillling waste drum pickup. Restart briefly to confirm operation and then shut down.

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] ($\mu g/m^3$)			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)
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 ($\mu g/m^{3)}$ * 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.
8. Operating SVE wells include SVE-2, SVE-5, SVE-6, SVE-7, SVE-8, SVE-10, SVE-11A, SVE-12A, SVE-15, and SVE-18.
9. Operating SVE wells include SVE-2, SVE-5, SVE-6, SVE-7, SVE-8, SVE-10, SVE-11A, SVE-12A, SVE-15, SVE-16, and SVE-18.
10. Operating SVE wells include SVE-5, SVE-6, SVE-7, SVE-8, SVE-10, SVE-11A, SVE-12A, SVE-20, SVE-21, SVE-23, SVE-24, and SVE-25.
11. Operating SVE wells include SVE-5, SVE-6, SVE-7, SVE-8, SVE-10, SVE-11A, SVE-12A, SVE-20, SVE-21, SVE-22, SVE-23, SVE-24, and SVE-25.

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
$\mu g/m^3$ = micrograms per cubic meter
lb/day = pounds per day
Temp. = Temperature

DP = Differential Pressure
EJ = estimated value

Table 2
Tetrachloroethene Concentrations in SVE Wells
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

SVE Well	Screen Depth (ft bgs)	06/02/22	
		(µg/m3)	(scfm)
SVE-1	10-35	--	--
SVE-2	10-35	--	--
SVE-3	10-30	--	--
SVE-4	10-30	--	--
SVE-5	10-30	660 J	24
SVE-6	5-10	340	34
SVE-7	10-30	120	42
SVE-8	10-30	49	41
SVE-9	10-30	--	--
SVE-10	10-30	72	46
SVE-11A	5.0-20.0	74	13
SVE-11B	20.0-35.0	--	--
SVE-12A	5.0-20.0	330	17
SVE-12B	20.0-35.0	--	--
SVE-13A	5.0-20.0	--	--
SVE-13B	20.0-35.0	--	--
SVE-14	19.6-34.6	--	--
SVE-15	20.6-35.0	--	--
SVE-16	20.5-34.8	--	--
SVE-17	19.9-29.9	--	--
SVE-18	19.8-29.8	--	--
SVE-19	20.0-30.0	--	--
SVE-20	10.3-25.4	110	53
SVE-21	25.7-37.7	200	56
SVE-22	20.6-35.6	110	55
SVE-23	20.3-35.3	61	56
SVE-24	10.3-22.6	46	56
SVE-25	22.8-35.7	36	35
Stack	--	140	529

Notes:

1. Tetrachloroethene (PCE) concentrations in micrograms per cubic meter (µg/m^3)
2. Flow rate in standard cubic feet per minute (scfm)
3. '-- = Not Operational
4. J = estimated result based on data validation review.
5. SVE-1 through SVE-10 began operating in 2009. SVE-11A through SVE-19 began operation in 2016. SVE-20 through SVE-25 began operating in 2021.

Table 3
Soil Vapor Monitoring Probe Field Data
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

	Four Star Cleaners				Former Manhattan Cleaners						Alley		Kintsugi PT	
	SVS-10		SVS-11		SVS-13		SVS-14		SVS-15		SVS-17		SVS-18	
Date	Vacuum (in. w.c.)	VOC[1] (ppm)	Vacuum (in. w.c.)	VOC[1] (ppm)	Vacuum (in. w.c.)	VOC[1] (ppm)	Vacuum (in. w.c.)	VOC[1] (ppm)	Vacuum (in. w.c.)	VOC (ppm)	Vacuum (in. w.c.)	VOC[1] (ppm)	Vacuum (in. w.c.)	VOC[1] (ppm)
4/26/22	0.02	0.7	0.1	0.4	0.7	0.3	0.0	0.3	0.1	0.4	3.7	0.2	-	-
6/2/22	0.02	-	0.1	-	0.7	-	0.06	-	0.1	-	2.6	-	-	-
6/27/22	0.02	-	0.1	0.9	0.9	0.6	0.04	0.4	0.1	0.2	2.4	0.5	-	-
8/31/22	0.01	0.2	0.1	0.0	0.7	0.3	0.08	0.1	0.1	0.2	1.8	0.7	-	-
9/28/22	0.01	0.6	0.1	0.3	0.6	0.3	0.02	0.2	0.1	0.2	2.3	0.0	0.1	0.5
10/21/22	0.02	0.0	0.1	0.0	0.1	0.1	0.01	0.2	0.2	0.2	1.8	0.0	0.1	0.2
12/2/22	0.01	0.5	0.1	0.5	0.6	0.2	0.14	0.2	0.1	0.1	2.0	0.3	0.2	0.4
1/11/23	0.01	0.2	0.1	0.2	0.7	0.4	0.01	0.4	0.1	1.2	3.5	0.6	0.1	0.1
4/6/23	0.01	-	0.1	-	0.01	-	0.05	-	0.01	-	2.6	-	0.03	-
4/25/23	0.02	0.4	0.1	0.3	0.6	0.0	0.01	0.0	0.1	0.0	2.8	0.4	0.03	0.2
6/1/23	0.01	-	0.9	-	0.7	-	0.03	-	0.1	-	0.1	-	0.90	-

Notes:

1. As measured with a photoionization detector (PID)
2. Decommissioned SVS-12 and SVS 16 on June 2, 2022.
3. SVS-10 may not have an air tight seal
4. Installed SVS-18 inside Kintsugi Physical Therapy office on September 28, 2022

in. w.c. = inches of water column

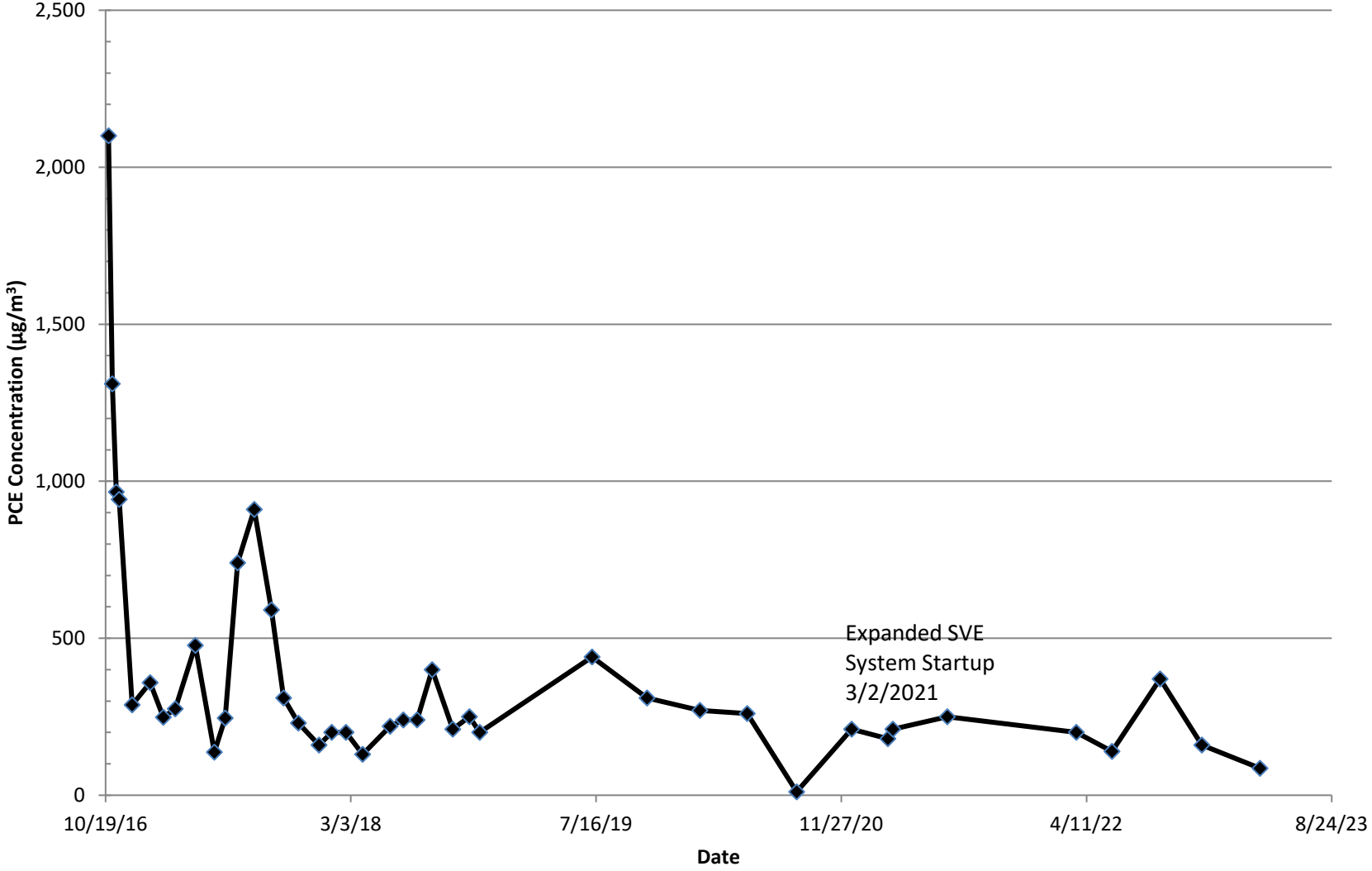
ppm = parts per million as measured with a photo-ionization detector (PID)

ATTACHMENT A

O&M CHARTS AND SUMMARY TABLES

- Chart A1 – SVE Discharge PCE Concentrations
- Chart A2 – Cumulative PCE Removed
- Table A3 – Historical SVE System Operation and Maintenance Data
- Table A4 – Historical Tetrachlorethene Concentrations in SVE Wells
- Table A5 – Historical Soil Vapor Monitoring Probe Field Data

Attachment A1
SVE Discharge PCE Concentrations
Manhattan Village/Harris Properties



Attachment A2
Cumulative PCE Removed
Manhattan Village/Harris Properties

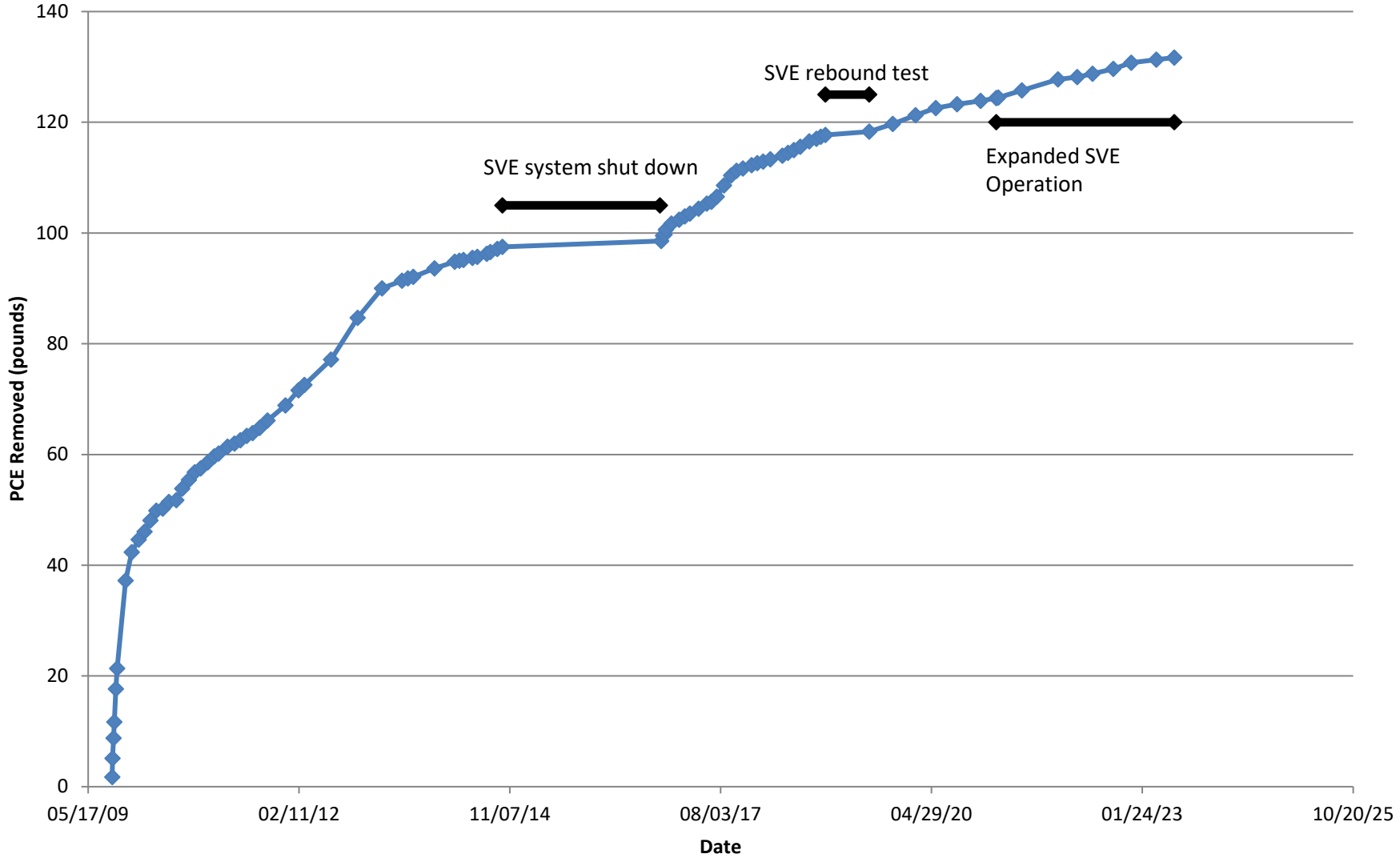


Table A3
SVE System Operation and Maintenance Data
Manhattan Village/Harris Properties
Normandy Park, Washington

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 A3
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 A3
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)	
1/7/20	12:45	887	-	43,001	36	148,395	21,279	72	32	31	See Note 7	1.1	-	-	-	-	-	120	1100	KO high and low level switches stuck - service.
1/14/20	15:54	894	-	43,091	36	149,157	21,449	57	38	32	See Note 7	1.1	-	-	-	-	-	90	1180	KO high and low level switches stuck - service.
1/16/20	9:00	895	-	43,111	36	149,336	21,490	72	44	42	See Note 7	1.1	587	0.5	-	-	-	32	0	O&M, SVE blower and AS compressor serviced.
1/23/20	10:50	902	-	43,217	36	150,245	21,659	75	48	44	See Note 7	1.1	586	-	-	-	-	90	0	KO high level switch stuck - serviced.
2/4/20	8:30	914	-	43,397	36	151,789	21,945	70	48	45	See Note 7	1.0	588	-	-	-	-	160	95	DAT high high alarm, serviced, restart
2/10/20	11:40	918	2.6	43,453	36	152,239	22,027	65	50	45	See Note 7	1.0	591	-	-	-	-	145	180	SVE Low Flow alarm, restarted
2/13/20	11:20	921	-	43,499	36	152,633	22,099	72	45	41	See Note 8	1.0	561	1.0	270	0.014	121.3	145	180	O&M, Well Balancing. TO-15 Stack Sample.
2/19/20	10:30	927	-	43,585	36	153,375	22,242	72	46	40	See Note 8	1.1	587	-	-	-	-	90	320	KO high and low level switches stuck - service.
2/24/20	9:41	932	-	43,656	36	153,990	22,361	72	46	40	See Note 8	1.1	587	-	-	-	-	132	375	DAT high high alarm, serviced, restart
3/2/20	12:12	939	-	43,758	36	154,873	22,532	72	44	40	See Note 8	1.1	587	-	-	-	-	132	475	KO low level switch stuck - service.
3/9/20	13:36	946	-	43,859	36	155,745	22,700	75	46	41	See Note 8	1.1	586	-	-	-	-	28	650	DAT high high alarm, serviced, restart,routine O&M.
3/18/20	-	-	-	-	-	-	-	-	-	-	See Note 8	-	-	-	-	-	-	10	760	KO low level switch stuck - service. Transfer condensate.Dis
4/3/20	14:30	971	-	44,218	36	158,826	23,300	75	45	39	See Note 8	1.1	586	-	-	-	-	10	900	KO low level switch stuck - service. Transfer condensate
4/14/20	13:30	982	-	44,372	36	160,140	23,563	80	44	41	See Note 9	1.1	582	-	-	-	-	10	940	KO lo switch stuck - service. Trans cond. Balance wells.
4/16/20	14:30	984	-	44,402	36	160,399	23,613	90	47	42	See Note 9	1.0	550	0.0	-	-	-	10	940	Monitor wells with PID
5/19/20	11:00	1017	-	44,880	36	164,459	24,401	85	49	42	See Note 9	1.1	580	-	260	0.014	122.6	10	940	High level switch stuck - service. TO-15 stack sample.
6/3/20	8:30	1032	-	45,094	36	166,280	24,758	84	49	44	See Note 9	1.1	580	-	-	-	-	15	940	Add oil to blower. Reconnect holding tank level switch.
6/8/20	11:00	1034	2.5	45,133	36	166,577	24,818	80	46	41	See Note 9	1.1	582	-	-	-	-	15	940	Blower fail to run alarm - reset - system started
6/16/20	11:45	1042	-	45,247	36	167,542	25,010	80	46	42	See Note 9	1.1	582	0.2	-	-	-	15	940	O&M; check SVE well field balance; move drums.
7/29/20	8:45	1085	-	45,853	36	172,677	26,038	87	46	41	See Note 9	1.1	579	-	-	-	-	15	940	O&M, SVE blower and AS compressor serviced.
8/28/20	14:48	1115	-	46,278	36	176,277	26,763	98	46	47	See Note 9	1.1	573	0.7	11	0.001	123.3	15	940	O&M, Balance wells. Refresh paint on well markers.
9/8/20	12:40	1125	0.6	46,435	36	177,628	27,012	90	40	37	See Note 9	1.1	577	-	-	-	-	15	940	On site to turn system on after power outage
9/9/20	18:20	1127	-	46,449	36	177,751	27,038	102	47	45	See Note 9	1.1	571	-	-	-	-	15	940	Document fire damage. Troubleshoot autodialer. Repair.
9/24/20	11:20	1141	-	46,668	36	179,660	27,391	90	52	48	See Note 9	1.0	550	0.3	-	-	-	15	940	O&M; Monitor SVE wells, Replace monument lids.
10/8/20	-	-	-	-	-	-	-	-	-	-	See Note 9	-	-	-	-	-	-	-	-	Annual vegetation mowing on Harris property
10/12/20	15:15	1159	-	46,924	36	182,053	27,827	90	49	49	See Note 9	1.1	577	-	-	-	-	19	940	O&M; Electrician spliced phone line. Fix leak on SVE-8.
11/2/20	15:55	1181	-	47,296	36	184,931	28,332	87	52	48	See Note 9	1.0	552	-	-	-	-	19	940	Turn off system for PSE meter changeout
11/3/20	12:45	1181	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Restart system after PSE meter changeout
11/11/20	16:10	1188	-	47,394	36	186,027	28,518	75	55	50	See Note 9	1.0	585	-	-	-	-	60	1000	KO high level alarm - KO pump line clogged. Cleared
11/13/20	11:25	1190	-	47,423	36	186,286	28,562	85	53	51	See Note 9	0.9	524	-	-	-	-	62	1000	Holding Tank High Level alarm maintenance
11/18/20	11:30	1195	-	47,502	36	186,998	28,682	83	54	51	See Note 9	1.0	524	0.0	-	-	-	90	1110	Monitor wells with PID. Sample cond: Cond-111820
12/2/20	15:00	1209	-	47,729	36	189,034	29,021	80	55	51	See Note 9	1.0	555	-	-	-	-	39	1270	KO high level switch stuck - service. Transfer condensate
12/9/20	13:25	1216	-	47,843	36	190,016	29,188	80	56	54	See Note 9	1.0	555	-	-	-	-	25	1450	KO high level switch stuck - service. Transfer condensate
12/18/20	11:05	1225	-	47,987	36	191,285	29,401	80	59	54	See Note 9	1.0	555	0.2	210	0.010	123.9	0	0	Sample: Stack-121820. Marvac removed condensate.
12/23/20	17:10	1230	-	48,070	36	192,034	29,527	78	60	56	See Note 9	1.0	556	-	-	-	-	20	80	Transfer condenste
12/30/20	8:50	1237	-	48,178	36	192,999	29,687	78	60	55	See Note 9	1.0	556	-	-	-	-	70	140	KO high level switch stuck - service. Transfer condensate
1/7/21	15:00	1245	-	48,130	36	194,181	29,885	80	61	56	See Note 9	1.0	555	-	-	-	-	48	290	KO high level switch stuck - service. Transfer condensate
1/13/21	12:55	1251	0.6	48,397	36	194,958	30,016	80	59	55	See Note 9	1.0	555	-	-	-	-	60	350	Restart system after power outage. Transfer condensate
1/19/21	10:05	1257	-	48,492	36	195,813	30,157	80	62	56	See Note 9	1.0	555	-	-	-	-	29	480	Meet Wyser for site walk. Transfer condensate
1/28/21	9:52	1266	-	48,638	36	197,115	30,373	80	62	56	See Note 9	1.0	556	-	-	-	-	10	630	Turn system OFF for SVE Expansion
2/19/21	10:09	1266	21.9	48,469	39	197,124	30,374	66	32	29	See Note 10	1.3	642	2.2	-	-	-	10	640	Turn system ON; Adjust blower speed. Bal SVE wells.
2/22/21	7:00	1268	-	48,469	39	197,495	30,444	75	42	38	See Note 10	1.2	611	-	-	-	-	10	640	Turn system OFF to plumb in SVE-22
2/22/21	16:50	1269	-	48,469	39	197,499	30,444	75	40	36	See Note 10	1.3	636	-	-	-	-	10	640	Turn system ON
2/23/21	8:40	1269	-	48,702	39	197,585	30,460	75	42	39	See Note 10	1.3	636	1.0	-	-	-	10	640	O&M; Balance SVE wells
2/26/21	12:40	1272	-	48,750	39	197,997	30,536	75	42	39	See Note 10	1.3	636	-	-	-	-	119	640	O&M; MarVac remove condensate from holding tank
3/1/21	10:45	1275	-	48,793	39	198,374	30,606	75	42	39	See Note 10	1.3	636	-	-	-	-	10	160	Turn system OFF to service KO

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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)	
3/1/21	14:45	1275	-	48,794	39	198,675	30,607	75	33	39	See Note 11	1.3	636	-	-	-	-	10	160	Turn system ON. SVE-22 connected
3/2/21	10:45	1276	-	48,805	36	198,487	30,630	75	35	36	See Note 11	1.1	585	0.1	180	0.009	124.4	10	160	O&M; Balance SVE wells and collect air samples.
3/12/21	13:30	1286	-	48,933	36	199,562	30,871	78	46	46	See Note 11	1.1	584	0.2	210	0.011	124.5	75	240	O&M; Balance SVE wells and collect stack sample
3/19/21	7:55	1293	-	49,019	36	200,299	31,031	80	45	46	See Note 11	1.1	583	-	-	-	-	62	330	O&M; Balance SVE wells
4/6/21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Investigate and measure catch basin.
4/20/21	11:50	1325	-	2,723	36	204,341	31,800	90	46	46	See Note 11	1.1	583	0.2	-	-	-	50	490	O&M; monitor SVE wells, monitor vapor pins
4/21/21	8:00	1326	-	2,840	36	204,440	31,820	80	49	46	See Note 11	1.1	577	-	-	-	-	60	490	O&M; B&K change oil in SVE blower
5/27/21	12:15	1362	-	8,008	36	208,855	32,688	85	50	47	See Note 11	1.0	553	0.2	-	-	-	80	490	O&M; Monitor SVE field and SVS-17
7/1/21	13:30	1397	-	12,822	36	212,938	33,526	100	38	36	See Note 11	1.0	546	0.2	250	0.012	125.8	81	490	O&M; Monitor SVE field and vapor pins. Sample Stack
8/13/21	10:45	1438	1.9	18,352	36	217,627	34,514	100	45	41	See Note 11	1.0	546	-	-	-	-	81	490	Blower low flow alarm - reset. Spray weeds around site.
10/28/21	12:15	1510	4.2	28,096	36	225,847	36,237	75	49	44	See Note 11	-	-	-	-	-	-	82	500	Blower down due to power outage - restart.
11/11/21	11:45	1520	4.1	29,543	36	227,047	36,473	75	48	42	See Note 11	-	-	-	-	-	-	100	620	System down - KO hi-hi alarm. Transfer condensate
11/24/21	15:35	1532	0.3	31,371	36	228,616	36,778	75	49	-	See Note 11	-	-	-	-	-	-	92	760	System down - KO hi and hi-hi alarms. Transfer cond.
12/8/21	12:15	1546	-	33,398	36	230,630	37,110	80	-	-	See Note 11	-	-	-	-	-	-	80	875	DAT high alarm. Transfer condensate. System running.
12/20/21	16:30	1558	-	35,187	36	231,911	37,403	74	46	44	See Note 11	-	-	-	-	-	127.7	10	1200	DAT high alarm. Transfer condensate. System running.
1/5/22	12:15	1568	6.0	-	36	233,191	37,643	70	46	41	See Note 11	-	-	-	-	-	-	90	1360	KO high high Alarm. Transfer condensate. Restart.
1/14/22	8:20	1577	0.2	38,059	36	234,331	37,854	77	40	-	See Note 11	-	-	-	-	-	-	195	1400	DAT high alarm. Marvac remove condensate.
1/27/22	16:05	1588	2.5	39,653	36	235,687	38,106	80	60	50	See Note 11	-	-	-	-	-	-	120	25	Restart system. Service KO low level switch
2/4/22	14:20	1595	0.5	40,765	36	236,647	38,287	70	50	46	See Note 11	-	-	-	-	-	-	90	170	Restart system. Service KO low level switch
2/10/22	10:45	1601	-	41,623	36	237,389	38,426	75	51	49	See Note 11	1.0	558	-	-	-	-	90	240	Balance SVE wells. SVE blower serviced by B&K.
2/25/22	11:55	1616	0.4	43,749	36	239,210	38,778	80	42	40	See Note 11	-	-	-	-	-	-	100	420	Restart system. Service KO low level switch
3/21/22	16:15	1616	23.8	-	36	239,231	38,782	75	49	45	See Note 11	0.9	529	0.2	200	0.010	128.1	103	430	Restart system. Replace KO low level switch
4/13/22	10:15	1638	0.7	46,870	36	241,692	39,317	75	16	12	See Note 11	1.0	558	-	-	-	-	40	600	KO Alarm. Remake electrical connections. Restart.
4/26/22	8:56	1651	-	48,539	36	243,110	39,627	77	18	23	See Note 11	1.0	558	0.3	-	-	-	120	600	Routine O&M. Mark alley for pending PSE gas line.
6/2/22	11:23	1688	-	53,402	36	247,230	40,518	90	25	22	See Note 11	1.3	622	–	140	0.008	128.8	120	600	Sample stack and operating SVE legs
6/27/22	16:20	1713	-	56,627	36	249,941	41,123	110	37	34	See Note 11	1.2	592	0.5	-	-	-	120	600	Routine O&M. Annual mowing on Harris.
7/20/22	9:00	1729	7.6	58,789	36	251,695	41,493	85	38	36	See Note 11	1.0	553	0.3	-	-	-	121	600	Alarm - blower low flow. Test. VFD overheating - leave off
7/25/22	7:00	1729	5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	121	600	Electrician - determines VFD has failed.
8/3/22	7:00	1729	9.0	58,853	36	0	0	80	30	-	See Note 11	1.1	580	-	-	-	-	121	600	Install new VFD and restart system. Blower data reset.
8/12/22	9:14	1738	-	-	36	-	217	-	-	-	-	-	-	-	-	-	-	-	-	Alarm - power out.
8/15/22	8:41	1738	3.0	60,075	36	-	217	85	25	-	See Note 11	1.1	580	-	-	-	-	-	-	Restart blower
8/31/22	7:00	1754	-	62,209	36	2,810	603	100	30	24	See Note 11	1.0	546	0.2	-	-	-	121	600	Replace autodialer batteries.
9/8/22	9:45	1762	-	-	36	-	611	-	-	-	See Note 11	-	546	-	370	0.018	129.6	-	-	Collect stack sample. SVE blower serviced by B&K
9/28/22	7:00	1782	-	66,020	36	6,019	1,274	75	27	24	See Note 11	1.1	586	0.2	-	-	-	122	600	Install SVS-18. Monitor SVE legs
10/21/22	11:10	1805	-	68,693	36	8,216	1,827	76	27	25	See Note 11	1.2	611	0.2	-	-	-	122	600	O&M
11/4/22	9:40	1819	-	-	36	-	2,173	-	-	-	-	-	-	-	-	-	-	-	-	Alarm - power out
11/8/22	9:00	1819	4.0	70,474	36	9,652	2,173	70	27	22	See Note 11	1.1	588	-	-	-	-	170	640	Restart System, transfer DAT water to holding tank
11/17/22	8:40	1828	-	-	36	-	2,390	-	-	-	-	-	-	-	-	-	-	-		Alarm - power out
11/18/22	16:50	1828	1.0	71605	36	10597	2,390	-	-	-	See Note 11	-	-	-	-	-	-	170	725	Restart system. O&M
11/21/22	15:00	1831	-	-	-	-	2,460	-	-	-	-	-	-	-	-	-	-	-	-	Alarm - KO tank hi-hi
11/23/22	14:11	1831	2.0	72,006	36	10,912	2,460	70	30	22	See Note 11	1.1	588	-	-	-	-	90	840	Restart system
12/2/22	11:00	1840	-	73106	36	11840	2,670	70	31	27	See Note 11	1.0	561	0.2	160	0.008	130.8	170	925	Collect stack sample
12/26/22	7:45	1861	-	-	-	-	3,173	-	-	-	-	-	-	-	-	-	-	-	-	Alarm - KO pump starter tripped
12/28/22	13:00	1861	2.0	72,006	36	14,082	3,173	60	37	30	See Note 11	1.2	620	-	-	-	-	170	1350	Restart system
1/11/23	11:00	1875	-	77,667	36	15,616	3,505	75	37	25	See Note 11	1.2	611	-	-	-	-	200	1500	Monitor SVE legs
1/21/23	16:17	1885	-	-	-	-	3,750	-	-	-	-	-	-	-	-	-	-	290	1500	Alarm - KO tank hi-hi

Table A3
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)	
2/22/23	10:10	1885	32	79,331	36	16,677	3,750	60	26	23	See Note 11	1.1	593	0.3	-	-	-	10	0	ACT remove condensate. Restart System
3/31/23	15:25	1922	-	83,858	36	20,443	4,644	74	28	24	See Note 11	1.2	612	-	86	0.005	131.3	170	310	Collect stack sample
4/6/23	8:55	1928	-	84,565	36	21,029	4,783	75	27	25	See Note 11	1.1	585	0.7	-	-	-	170	400	Balance SVE legs
4/25/23	9:00	1947	-	87,147	36	23,189	5,239	78	32	28	See Note 11	1.2	609	0.1	-	-	-	62	680	Blower running in Hand temporarily pending electrician. Blower service - oil change and belt adjustment.
5/4/23	7:30	1956	-	-	36	-	5,455	-	-	-	See Note 11	-	-	-	-	-	-	62	680	Repair PLC (fuse) and replace float switch in holding tank.
6/1/23	9:55	1984	-	91855	36	27138	6,124	80	31	28	See Note 11	1.2	608	0	-	-	-	62	680	Unable to monitor SVE legs due to heavy vegetation.
6/15/23	11:45	1998	-	93606	36	28592	6,461	85	30	28	See Note 11	1.3	630	0	-	-	-	62	680	Faulty summa canister - no stack sample collected
6/24/23	1:00	2007	-	-	-	-	6,671	-	-	-	-	-	-	-	-	-	131.7	-	-	Alarm - low SVE blower flow
7/6/23	9:15	2007	12	94,863	36	29,501	6,671	80	30	27	See Note 11	1.2	608	-	-	-	-	62	680	Check system during drillling waste drum pickup. Restart briefly to confirm operation and then shut down.

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)
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.
8. Operating SVE wells include SVE-2, SVE-5, SVE-6, SVE-7, SVE-8, SVE-10, SVE-11A, SVE-12A, SVE-15, and SVE-18.
9. Operating SVE wells include SVE-2, SVE-5, SVE-6, SVE-7, SVE-8, SVE-10, SVE-11A, SVE-12A, SVE-15, SVE-16, and SVE-18.
10. Operating SVE wells include SVE-5, SVE-6, SVE-7, SVE-8, SVE-10, SVE-11A, SVE-12A, SVE-20, SVE-21, SVE-23, SVE-24, and SVE-25.
11. Operating SVE wells include SVE-5, SVE-6, SVE-7, SVE-8, SVE-10, SVE-11A, SVE-12A, SVE-20, SVE-21, SVE-22, SVE-23, SVE-24, and SVE-25.

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 A4
Historical Tetrachloroethene Concentrations in SVE Wells
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

SVE Well	Screen Depth (ft bgs)	06/04/10 (µg/m3)	01/26/11 (µg/m3)	12/09/11 (µg/m3)	11/05/13 (µg/m3)	12/12/16 (µg/m3)	12/12/16 (scfm)	12/28/17 (µg/m3)	12/28/17 (scfm)	09/27/18 (µg/m3)	09/27/18 (scfm)	03/02/21 (µg/m3)	03/02/21 (scfm)	06/02/22 (µg/m3)	06/02/22 (scfm)
SVE-1	10-35	3,900	1,300	1,600	1,010	499	46	120	44	160	48	--	--	--	--
SVE-2	10-35	740	1,600	1,300	977	374	47	210	39	240	43	--	--	--	--
SVE-3	10-30	7,100	2,900	2,500	1,920	338	44	50	38	750	47	--	--	--	--
SVE-4	10-30	330	870	910	412	332	32	59	26	130	41	--	--	--	--
SVE-5	10-30	5,100	2,500	1,200	499	716	31	170	20	270	53	--	45	660 J	24
SVE-6	5-10	17,000	4,400	2,900	827	1,490	30	150	47	950	39	--	38	340	34
SVE-7	10-30	3,300	1,700	1,400	723	1,130	31	350	32	400	30	--	45	120	42
SVE-8	10-30	590	800	6	448	703	30	320	18	210	51	--	47	49	41
SVE-9	10-30	880	740	750	325	379	36	170	17	170	23	--	--	--	--
SVE-10	10-30	1,300	1,100	1,300	709	398	49	290	42	270	48	--	45	72	46
SVE-11A	5.0-20.0	--	--	--	--	136	35	68	47	100	46	--	43	74	13
SVE-11B	20.0-35.0	--	--	--	--	149	47	24	37	68	41	--	--	--	--
SVE-12A	5.0-20.0	--	--	--	--	217	23	310	33	110	31	--	38	330	17
SVE-12B	20.0-35.0	--	--	--	--	295	48	54	35	160	37	--	--	--	--
SVE-13A	5.0-20.0	--	--	--	--	145	48	36	43	94	46	--	--	--	--
SVE-13B	20.0-35.0	--	--	--	--	241	47	180	47	96	41	--	--	--	--
SVE-14	19.6-34.6	--	--	--	--	144	37	120	38	110	44	--	--	--	--
SVE-15	20.6-35.0	--	--	--	--	373	35	190	30	170	39	--	--	--	--
SVE-16	20.5-34.8	--	--	--	--	587	35	310	44	330	36	--	--	--	--
SVE-17	19.9-29.9	--	--	--	--	65.1	43	5.9	35	3.3	11	--	--	--	--
SVE-18	19.8-29.8	--	--	--	--	380	42	59	48	110	40	--	--	--	--
SVE-19	20.0-30.0	--	--	--	--	147	44	39	49	71	45	--	--	--	--
SVE-20	10.3-25.4	--	--	--	--	--	--	--	--	--	--	170	46	110	53
SVE-21	25.7-37.7	--	--	--	--	--	--	--	--	--	--	310	44	200	56
SVE-22	20.6-35.6	--	--	--	--	--	--	--	--	--	--	230	45	110	55
SVE-23	20.3-35.3	--	--	--	--	--	--	--	--	--	--	170	46	61	56
SVE-24	10.3-22.6	--	--	--	--	--	--	--	--	--	--	69	46	46	56
SVE-25	22.8-35.7	--	--	--	--	--	--	--	--	--	--	7.4	57	36	35
Stack	--	3,000	2,050	1,300	730	280	860	160	160	210	879	180	585	140	529

Notes:

1. Tetrachloroethene (PCE) concentrations in micrograms per cubic meter (µg/m^3)
2. Flow rate in standard cubic feet per minute (scfm)
3. '-- = NA or NM
4. J = estimated result based on data validation review.
5. SVE-1 through SVE-10 hbegan operating in 2009. Flow rates for wells and stack are not readily available through 2013. SVE-11A through SVE-19 began operation in 2016. SVE-20 through SVE-25 began operating in 2021.

Table A5
Soil Vapor Monitoring Probe Field Data
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

	Four Star Cleaners				Former Manhattan Cleaners						Alley		Kintsugi PT	
	SVS-10		SVS-11		SVS-13		SVS-14		SVS-15		SVS-17		SVS-18	
Date	Vacuum (in. w.c.)	VOC[1] (ppm)	Vacuum (in. w.c.)	VOC[1] (ppm)	Vacuum (in. w.c.)	VOC[1] (ppm)	Vacuum (in. w.c.)	VOC[1] (ppm)	Vacuum (in. w.c.)	VOC (ppm)	Vacuum (in. w.c.)	VOC[1] (ppm)	Vacuum (in. w.c.)	VOC[1] (ppm)
4/20/21	0.1	0.5	0.2	0.4	0.7	0.3	0.2	0.3	0.2	0.3	2.8	0.5	-	-
5/27/21	-	-	-	-	-	-	-	-	-	-	3.2	0.1	-	-
7/1/21	0.1	0.0	0.2	0.0	0.7	0.2	0.3	0.2	0.2	0.1	3.1	0.3	-	-
3/21/22	0.2	1.0	0.4	0.1	0.7	0.4	0.2	0.5	0.5	0.4	3.2	0.0	-	-
4/26/22	0.02	0.7	0.1	0.4	0.7	0.3	0.0	0.3	0.1	0.4	3.7	0.2	-	-
6/2/22	0.02	-	0.1	-	0.7	-	0.06	-	0.1	-	2.6	-	-	-
6/27/22	0.02	-	0.1	0.9	0.9	0.6	0.04	0.4	0.1	0.2	2.4	0.5	-	-
8/31/22	0.01	0.2	0.1	0.0	0.7	0.3	0.08	0.1	0.1	0.2	1.8	0.7	-	-
9/28/22	0.01	0.6	0.1	0.3	0.6	0.3	0.02	0.2	0.1	0.2	2.3	0.0	0.1	0.5
10/21/22	0.02	0.0	0.1	0.0	0.1	0.1	0.01	0.2	0.2	0.2	1.8	0.0	0.1	0.2
12/2/22	0.01	0.5	0.1	0.5	0.6	0.2	0.14	0.2	0.1	0.1	2.0	0.3	0.2	0.4
1/11/23	0.01	0.2	0.1	0.2	0.7	0.4	0.01	0.4	0.1	1.2	3.5	0.6	0.1	0.1
4/6/23	0.01	-	0.1	-	0.01	-	0.05	-	0.01	-	2.6	-	0.03	-
4/25/23	0.02	0.4	0.1	0.3	0.6	0.0	0.01	0.0	0.1	0.0	2.8	0.4	0.03	0.2
6/1/23	0.01	-	0.9	-	0.7	-	0.03	-	0.1	-	0.1	-	0.90	-

Notes:

1. As measured with a photoionization detector (PID)
2. Decommissioned SVS-12 and SVS 16 on June 2, 2022.
3. SVS-10 may not have an air tight seal
4. Installed SVS-18 inside Kintsugi Physical Therapy office on September 28, 2022

in. w.c. = inches of water column

ppm = parts per million as measured with a photo-ionization detector (PID)

ATTACHMENT B

LABORATORY REPORTS AND DATA VALIDATION MEMORANDA

2655 Park Center Dr., Suite A
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LABORATORY REPORT

April 8, 2022

Matt Dahl
NV5
2101 Fourth Ave., Suite 1310
Seattle, WA 98121

RE: MVSC / 4430.19.1358.001.02-015

Dear Matt:

Enclosed are the results of the sample submitted to our laboratory on March 25, 2022. For your reference, this analysis has been assigned our service request number P2201332.

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

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

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 12:59 pm, Apr 08, 2022

Sue Anderson
Project Manager

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

Client: NV5 Service Request No: P2201332
Project: MVSC / 4430.19.1358.001.02-015

CASE NARRATIVE

The sample was received intact under chain of custody on March 25, 2022 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 lower control criterion was exceeded for hexachlorobutadiene in the Continuing Calibration Verification (CCV) analyzed on April 6, 2022. The error associated with the reduced recovery equates to a potential low bias. However, a Method Reporting Limit (MRL) check standard containing the analyte of concern was analyzed and verified that instrument sensitivity was adequate to detect the analyte at the MRL on the day of analysis. Since the sensitivity was verified and the sample was non-detect, the data quality has not been significantly affected. No further corrective action was taken.

The container was cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.3 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.

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Simi Valley, CA 93065
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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	1776326
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	4068-008
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: NV5 Service Request: P2201332

Project ID: MVSC / 4430.19.1358.001.02-015

Date Received: 3/25/2022

Time Received: 09:34

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pfl (psig)	TO-15 - VOC Cans
STACK-032122	P2201332-001	Air	3/21/2022	16:30	SC01785	-1.60	3.54	X

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

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. PZ201332

Company Name & Address (Reporting Information)	Project Name	ALS Contact:
PES ENVIRONMENTAL 2101 4th Ave #1310 SEATTLE, WA 98121	MVSC	**Analysis Method**
Project Manager: Matt Dahl	Project Number: 4430.19.1358.001.02-015	
Phone: 206 529 3980 / Fax: 206 529 3985	P.O. # / Billing Information	
Email Address for Result Reporting: Matt.Dahl@NV5.COM	Sampler (Print & Sign): R. McLaughlin	

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
STACK-032122		3/21/22	1630	SC01785		-29	-4	6L	X		

5 of 22

Report Tier Levels - please select

Tier I - Results (Default if not specified) ____ Tier III (Results + QC & Calibration Summaries) ____
Tier II (Results + QC Summaries) ____ Tier IV (Data Validation Package) 10% Surcharge ____

EDD required Yes / No
Type: _____ Units: _____

Chain of Custody Seal: (Circle)
INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
R. McLaughlin	3/22/22	1545		3-25	0934
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:

Cooler / Blank Temperature ____°C

ALS Environmental
Sample Acceptance Check Form

Client: NV5 Work order: P2201332

Project: MVSC / 4430.19.1358.001.02-015

Sample(s) received on: 3/25/22 Date opened: 3/25/22 by: KYLE.WOODIN

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
P2201332-001.01	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: **NV5**
Client Sample ID: **STACK-032122** ALS Project ID: P2201332
Client Project ID: **MVSC / 4430.19.1358.001.02-015** ALS Sample ID: P2201332-001

Test Code: EPA TO-15 Date Collected: 3/21/22
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 3/25/22
Analyst: Simon Cao Date Analyzed: 4/7 - 4/8/22
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC01785

Initial Pressure (psig): -1.60 Final Pressure (psig): 3.54

Canister Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.72	ND	0.42	
75-71-8	Dichlorodifluoromethane (CFC 12)	**4.1**	0.74	**0.82**	0.15	
74-87-3	Chloromethane	ND	0.71	ND	0.34	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.75	ND	0.11	
75-01-4	Vinyl Chloride	ND	0.72	ND	0.28	
106-99-0	1,3-Butadiene	ND	0.72	ND	0.33	
74-83-9	Bromomethane	ND	0.71	ND	0.18	
75-00-3	Chloroethane	ND	0.71	ND	0.27	
64-17-5	Ethanol	ND	7.0	ND	3.7	
75-05-8	Acetonitrile	ND	1.4	ND	0.83	
107-02-8	Acrolein	ND	1.4	ND	0.61	
67-64-1	Acetone	ND	7.2	ND	3.0	
75-69-4	Trichlorofluoromethane (CFC 11)	**2.5**	0.72	**0.44**	0.13	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	1.4	ND	0.57	
107-13-1	Acrylonitrile	ND	1.4	ND	0.64	
75-35-4	1,1-Dichloroethene	ND	0.75	ND	0.19	
75-09-2	Methylene Chloride	ND	0.72	ND	0.21	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.74	ND	0.24	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.75	ND	0.098	
75-15-0	Carbon Disulfide	ND	1.5	ND	0.49	
156-60-5	trans-1,2-Dichloroethene	ND	0.74	ND	0.19	
75-34-3	1,1-Dichloroethane	ND	0.74	ND	0.18	
1634-04-4	Methyl tert-Butyl Ether	ND	0.74	ND	0.20	
108-05-4	Vinyl Acetate	ND	7.0	ND	2.0	
78-93-3	2-Butanone (MEK)	ND	1.4	ND	0.47	

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: **NV5**
Client Sample ID: **STACK-032122** ALS Project ID: P2201332
Client Project ID: **MVSC / 4430.19.1358.001.02-015** ALS Sample ID: P2201332-001

Test Code: EPA TO-15 Date Collected: 3/21/22
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 3/25/22
Analyst: Simon Cao Date Analyzed: 4/7 - 4/8/22
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC01785

Initial Pressure (psig): -1.60 Final Pressure (psig): 3.54

Canister Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	**1.7**	0.72	**0.42**	0.18	
141-78-6	Ethyl Acetate	ND	2.9	ND	0.81	
110-54-3	n-Hexane	ND	0.74	ND	0.21	
67-66-3	Chloroform	**2.2**	0.75	**0.46**	0.15	
109-99-9	Tetrahydrofuran (THF)	ND	1.4	ND	0.47	
107-06-2	1,2-Dichloroethane	ND	0.74	ND	0.18	
71-55-6	1,1,1-Trichloroethane	ND	0.72	ND	0.13	
71-43-2	Benzene	ND	0.70	ND	0.22	
56-23-5	Carbon Tetrachloride	ND	0.70	ND	0.11	
110-82-7	Cyclohexane	ND	1.5	ND	0.44	
78-87-5	1,2-Dichloropropane	ND	0.70	ND	0.15	
75-27-4	Bromodichloromethane	ND	0.74	ND	0.11	
79-01-6	Trichloroethene	**0.99**	0.72	**0.18**	0.13	
123-91-1	1,4-Dioxane	ND	0.72	ND	0.20	
80-62-6	Methyl Methacrylate	ND	1.5	ND	0.37	
142-82-5	n-Heptane	ND	0.74	ND	0.18	
10061-01-5	cis-1,3-Dichloropropene	ND	0.70	ND	0.15	
108-10-1	4-Methyl-2-pentanone	ND	1.5	ND	0.37	
10061-02-6	trans-1,3-Dichloropropene	ND	0.71	ND	0.16	
79-00-5	1,1,2-Trichloroethane	ND	0.72	ND	0.13	
108-88-3	Toluene	ND	0.72	ND	0.19	
591-78-6	2-Hexanone	ND	1.5	ND	0.37	
124-48-1	Dibromochloromethane	ND	0.74	ND	0.087	
106-93-4	1,2-Dibromoethane	ND	0.72	ND	0.094	
123-86-4	n-Butyl Acetate	ND	1.5	ND	0.32	

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: **NV5**
Client Sample ID: **STACK-032122** ALS Project ID: P2201332
Client Project ID: **MVSC / 4430.19.1358.001.02-015** ALS Sample ID: P2201332-001

Test Code: EPA TO-15 Date Collected: 3/21/22
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 3/25/22
Analyst: Simon Cao Date Analyzed: 4/7 - 4/8/22
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC01785

Initial Pressure (psig): -1.60 Final Pressure (psig): 3.54

Canister Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.74	ND	0.16	
127-18-4	Tetrachloroethene	**200**	7.2	**30**	1.1	**D**
108-90-7	Chlorobenzene	ND	0.72	ND	0.16	
100-41-4	Ethylbenzene	ND	0.72	ND	0.17	
179601-23-1	m,p-Xylenes	ND	1.5	ND	0.35	
75-25-2	Bromoform	ND	0.72	ND	0.070	
100-42-5	Styrene	ND	0.70	ND	0.16	
95-47-6	o-Xylene	ND	0.72	ND	0.17	
111-84-2	n-Nonane	ND	0.72	ND	0.14	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.72	ND	0.11	
98-82-8	Cumene	ND	0.72	ND	0.15	
80-56-8	alpha-Pinene	ND	0.75	ND	0.13	
103-65-1	n-Propylbenzene	ND	0.74	ND	0.15	
622-96-8	4-Ethyltoluene	ND	0.74	ND	0.15	
108-67-8	1,3,5-Trimethylbenzene	ND	0.72	ND	0.15	
95-63-6	1,2,4-Trimethylbenzene	ND	0.72	ND	0.15	
100-44-7	Benzyl Chloride	ND	1.5	ND	0.30	
541-73-1	1,3-Dichlorobenzene	ND	0.72	ND	0.12	
106-46-7	1,4-Dichlorobenzene	ND	0.72	ND	0.12	
95-50-1	1,2-Dichlorobenzene	ND	0.74	ND	0.12	
5989-27-5	d-Limonene	ND	0.70	ND	0.12	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.4	ND	0.14	
120-82-1	1,2,4-Trichlorobenzene	ND	1.5	ND	0.21	
91-20-3	Naphthalene	ND	0.72	ND	0.14	
87-68-3	Hexachlorobutadiene	ND	0.72	ND	0.068	**V**

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.
V = The continuing calibration verification standard was outside (biased low) the specified limits for this compound.
D = The reported result is from a dilution.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NV5**
Client Sample ID: **Method Blank**
Client Project ID: **MVSC / 4430.19.1358.001.02-015**

ALS Project ID: P2201332
ALS Sample ID: P220406-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9
Analyst: Simon Cao
Sample Type: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 4/6/22
Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.52	ND	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.53	ND	0.11	
74-87-3	Chloromethane	ND	0.51	ND	0.25	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.54	ND	0.077	
75-01-4	Vinyl Chloride	ND	0.52	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.52	ND	0.24	
74-83-9	Bromomethane	ND	0.51	ND	0.13	
75-00-3	Chloroethane	ND	0.51	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	1.0	ND	0.60	
107-02-8	Acrolein	ND	1.0	ND	0.44	
67-64-1	Acetone	ND	5.2	ND	2.2	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.52	ND	0.093	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	1.0	ND	0.41	
107-13-1	Acrylonitrile	ND	1.0	ND	0.46	
75-35-4	1,1-Dichloroethene	ND	0.54	ND	0.14	
75-09-2	Methylene Chloride	ND	0.52	ND	0.15	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.53	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	0.53	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.53	ND	0.13	
1634-04-4	Methyl tert-Butyl Ether	ND	0.53	ND	0.15	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
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: **NV5**

Client Sample ID: **Method Blank** ALS Project ID: P2201332

Client Project ID: **MVSC / 4430.19.1358.001.02-015** ALS Sample ID: P220406-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA

Analyst: Simon Cao Date Analyzed: 4/6/22

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	0.52	ND	0.13	
141-78-6	Ethyl Acetate	ND	2.1	ND	0.58	
110-54-3	n-Hexane	ND	0.53	ND	0.15	
67-66-3	Chloroform	ND	0.54	ND	0.11	
109-99-9	Tetrahydrofuran (THF)	ND	1.0	ND	0.34	
107-06-2	1,2-Dichloroethane	ND	0.53	ND	0.13	
71-55-6	1,1,1-Trichloroethane	ND	0.52	ND	0.095	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.1	ND	0.32	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.53	ND	0.079	
79-01-6	Trichloroethene	ND	0.52	ND	0.097	
123-91-1	1,4-Dioxane	ND	0.52	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.1	ND	0.27	
142-82-5	n-Heptane	ND	0.53	ND	0.13	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	1.1	ND	0.27	
10061-02-6	trans-1,3-Dichloropropene	ND	0.51	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.52	ND	0.095	
108-88-3	Toluene	ND	0.52	ND	0.14	
591-78-6	2-Hexanone	ND	1.1	ND	0.27	
124-48-1	Dibromochloromethane	ND	0.53	ND	0.062	
106-93-4	1,2-Dibromoethane	ND	0.52	ND	0.068	
123-86-4	n-Butyl Acetate	ND	1.1	ND	0.23	

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: **NV5**

Client Sample ID: **Method Blank** ALS Project ID: P2201332

Client Project ID: **MVSC / 4430.19.1358.001.02-015** ALS Sample ID: P220406-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA

Analyst: Simon Cao Date Analyzed: 4/6/22

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	0.53	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.52	ND	0.077	
108-90-7	Chlorobenzene	ND	0.52	ND	0.11	
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	0.52	ND	0.050	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.52	ND	0.12	
111-84-2	n-Nonane	ND	0.52	ND	0.099	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.52	ND	0.076	
98-82-8	Cumene	ND	0.52	ND	0.11	
80-56-8	alpha-Pinene	ND	0.54	ND	0.097	
103-65-1	n-Propylbenzene	ND	0.53	ND	0.11	
622-96-8	4-Ethyltoluene	ND	0.53	ND	0.11	
108-67-8	1,3,5-Trimethylbenzene	ND	0.52	ND	0.11	
95-63-6	1,2,4-Trimethylbenzene	ND	0.52	ND	0.11	
100-44-7	Benzyl Chloride	ND	1.1	ND	0.21	
541-73-1	1,3-Dichlorobenzene	ND	0.52	ND	0.087	
106-46-7	1,4-Dichlorobenzene	ND	0.52	ND	0.087	
95-50-1	1,2-Dichlorobenzene	ND	0.53	ND	0.088	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.0	ND	0.10	
120-82-1	1,2,4-Trichlorobenzene	ND	1.1	ND	0.15	
91-20-3	Naphthalene	ND	0.52	ND	0.099	
87-68-3	Hexachlorobutadiene	ND	0.52	ND	0.049	**V**

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.

V = The continuing calibration verification standard was outside (biased low) the specified limits for this compound.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NV5**
Client Sample ID: **Method Blank**
Client Project ID: **MVSC / 4430.19.1358.001.02-015**

ALS Project ID: P2201332
ALS Sample ID: P220407-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9
Analyst: Simon Cao
Sample Type: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 4/7/22
Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.52	ND	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.53	ND	0.11	
74-87-3	Chloromethane	ND	0.51	ND	0.25	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.54	ND	0.077	
75-01-4	Vinyl Chloride	ND	0.52	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.52	ND	0.24	
74-83-9	Bromomethane	ND	0.51	ND	0.13	
75-00-3	Chloroethane	ND	0.51	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	1.0	ND	0.60	
107-02-8	Acrolein	ND	1.0	ND	0.44	
67-64-1	Acetone	ND	5.2	ND	2.2	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.52	ND	0.093	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	1.0	ND	0.41	
107-13-1	Acrylonitrile	ND	1.0	ND	0.46	
75-35-4	1,1-Dichloroethene	ND	0.54	ND	0.14	
75-09-2	Methylene Chloride	ND	0.52	ND	0.15	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.53	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	0.53	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.53	ND	0.13	
1634-04-4	Methyl tert-Butyl Ether	ND	0.53	ND	0.15	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
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: **NV5**

Client Sample ID: **Method Blank** ALS Project ID: P2201332

Client Project ID: **MVSC / 4430.19.1358.001.02-015** ALS Sample ID: P220407-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA

Analyst: Simon Cao Date Analyzed: 4/7/22

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	0.52	ND	0.13	
141-78-6	Ethyl Acetate	ND	2.1	ND	0.58	
110-54-3	n-Hexane	ND	0.53	ND	0.15	
67-66-3	Chloroform	ND	0.54	ND	0.11	
109-99-9	Tetrahydrofuran (THF)	ND	1.0	ND	0.34	
107-06-2	1,2-Dichloroethane	ND	0.53	ND	0.13	
71-55-6	1,1,1-Trichloroethane	ND	0.52	ND	0.095	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.1	ND	0.32	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.53	ND	0.079	
79-01-6	Trichloroethene	ND	0.52	ND	0.097	
123-91-1	1,4-Dioxane	ND	0.52	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.1	ND	0.27	
142-82-5	n-Heptane	ND	0.53	ND	0.13	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	1.1	ND	0.27	
10061-02-6	trans-1,3-Dichloropropene	ND	0.51	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.52	ND	0.095	
108-88-3	Toluene	ND	0.52	ND	0.14	
591-78-6	2-Hexanone	ND	1.1	ND	0.27	
124-48-1	Dibromochloromethane	ND	0.53	ND	0.062	
106-93-4	1,2-Dibromoethane	ND	0.52	ND	0.068	
123-86-4	n-Butyl Acetate	ND	1.1	ND	0.23	

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: **NV5**

Client Sample ID: **Method Blank** ALS Project ID: P2201332

Client Project ID: **MVSC / 4430.19.1358.001.02-015** ALS Sample ID: P220407-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA

Analyst: Simon Cao Date Analyzed: 4/7/22

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	0.53	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.52	ND	0.077	
108-90-7	Chlorobenzene	ND	0.52	ND	0.11	
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	0.52	ND	0.050	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.52	ND	0.12	
111-84-2	n-Nonane	ND	0.52	ND	0.099	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.52	ND	0.076	
98-82-8	Cumene	ND	0.52	ND	0.11	
80-56-8	alpha-Pinene	ND	0.54	ND	0.097	
103-65-1	n-Propylbenzene	ND	0.53	ND	0.11	
622-96-8	4-Ethyltoluene	ND	0.53	ND	0.11	
108-67-8	1,3,5-Trimethylbenzene	ND	0.52	ND	0.11	
95-63-6	1,2,4-Trimethylbenzene	ND	0.52	ND	0.11	
100-44-7	Benzyl Chloride	ND	1.1	ND	0.21	
541-73-1	1,3-Dichlorobenzene	ND	0.52	ND	0.087	
106-46-7	1,4-Dichlorobenzene	ND	0.52	ND	0.087	
95-50-1	1,2-Dichlorobenzene	ND	0.53	ND	0.088	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.0	ND	0.10	
120-82-1	1,2,4-Trichlorobenzene	ND	1.1	ND	0.15	
91-20-3	Naphthalene	ND	0.52	ND	0.099	
87-68-3	Hexachlorobutadiene	ND	0.52	ND	0.049	

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: **NV5**
Client Project ID: **MVSC / 4430.19.1358.001.02-015** ALS Project ID: P2201332

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date(s) Collected: 3/21/22
Analyst: Simon Cao Date(s) Received: 3/25/22
Sample Type: 6.0 L Summa Canister(s) Date(s) Analyzed: 4/6 - 4/7/22
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	P220406-MB	**111**	**97**	**83**	70-130	
Method Blank	P220407-MB	**101**	**104**	**102**	70-130	
Lab Control Sample	P220406-LCS	**109**	**92**	**84**	70-130	
Lab Control Sample	P220407-LCS	**97**	**101**	**101**	70-130	
Duplicate Lab Control Sample	P220406-DLCS	**110**	**93**	**84**	70-130	
Duplicate Lab Control Sample	P220407-DLCS	**97**	**101**	**102**	70-130	
STACK-032122	P2201332-001	**113**	**90**	**81**	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: **NV5**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2201332
Client Project ID: **MVSC / 4430.19.1358.001.02-015** ALS Sample ID: P220406-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Simon Cao Date Analyzed: 4/6/22
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	206	194	202	**94**	**98**	56-128	4	25	
75-71-8	Dichlorodifluoromethane (CFC 12)	208	187	192	**90**	**92**	71-112	2	25	
74-87-3	Chloromethane	206	198	212	**96**	**103**	53-126	7	25	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	208	179	187	**86**	**90**	62-121	5	25	
75-01-4	Vinyl Chloride	208	205	210	**99**	**101**	63-123	2	25	
106-99-0	1,3-Butadiene	206	210	215	**102**	**104**	63-135	2	25	
74-83-9	Bromomethane	206	197	202	**96**	**98**	71-112	2	25	
75-00-3	Chloroethane	206	195	202	**95**	**98**	66-117	3	25	
64-17-5	Ethanol	832	939	944	**113**	**113**	57-117	0	25	
75-05-8	Acetonitrile	202	190	190	**94**	**94**	59-131	0	25	
107-02-8	Acrolein	416	427	425	**103**	**102**	71-123	1	25	
67-64-1	Acetone	1,020	1020	1010	**100**	**99**	60-117	1	25	
75-69-4	Trichlorofluoromethane (CFC 11)	202	189	191	**94**	**95**	71-114	1	25	
67-63-0	2-Propanol (Isopropyl Alcohol)	400	450	449	**113**	**112**	61-124	0.9	25	
107-13-1	Acrylonitrile	402	421	421	**105**	**105**	65-130	0	25	
75-35-4	1,1-Dichloroethene	210	210	210	**100**	**100**	74-114	0	25	
75-09-2	Methylene Chloride	208	197	196	**95**	**94**	75-112	1	25	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	204	206	206	**101**	**101**	57-127	0	25	
76-13-1	Trichlorotrifluoroethane (CFC 113)	216	184	185	**85**	**86**	73-114	1	25	
75-15-0	Carbon Disulfide	414	404	397	**98**	**96**	70-113	2	25	
156-60-5	trans-1,2-Dichloroethene	208	218	218	**105**	**105**	76-119	0	25	
75-34-3	1,1-Dichloroethane	214	206	206	**96**	**96**	70-114	0	25	
1634-04-4	Methyl tert-Butyl Ether	206	204	195	**99**	**95**	72-118	4	25	
108-05-4	Vinyl Acetate	942	1130	1130	**120**	**120**	56-137	0	25	
78-93-3	2-Butanone (MEK)	408	441	434	**108**	**106**	74-121	2	25	

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

Client: **NV5**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2201332
Client Project ID: **MVSC / 4430.19.1358.001.02-015** ALS Sample ID: P220406-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Simon Cao Date Analyzed: 4/6/22
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	206	206	206	**100**	**100**	73-117	0	25	
141-78-6	Ethyl Acetate	580	635	619	**109**	**107**	59-161	2	25	
110-54-3	n-Hexane	208	228	222	**110**	**107**	55-130	3	25	
67-66-3	Chloroform	210	209	206	**100**	**98**	71-114	2	25	
109-99-9	Tetrahydrofuran (THF)	404	435	430	**108**	**106**	73-114	2	25	
107-06-2	1,2-Dichloroethane	210	206	206	**98**	**98**	71-119	0	25	
71-55-6	1,1,1-Trichloroethane	208	199	199	**96**	**96**	73-119	0	25	
71-43-2	Benzene	208	195	193	**94**	**93**	72-113	1	25	
56-23-5	Carbon Tetrachloride	202	188	187	**93**	**93**	67-123	0	25	
110-82-7	Cyclohexane	412	401	396	**97**	**96**	70-119	1	25	
78-87-5	1,2-Dichloropropane	206	207	203	**100**	**99**	70-118	1	25	
75-27-4	Bromodichloromethane	208	210	209	**101**	**100**	74-119	1	25	
79-01-6	Trichloroethene	204	189	186	**93**	**91**	74-115	2	25	
123-91-1	1,4-Dioxane	206	210	209	**102**	**101**	77-124	1	25	
80-62-6	Methyl Methacrylate	410	418	411	**102**	**100**	78-126	2	25	
142-82-5	n-Heptane	206	208	206	**101**	**100**	70-119	1	25	
10061-01-5	cis-1,3-Dichloropropene	208	218	215	**105**	**103**	81-126	2	25	
108-10-1	4-Methyl-2-pentanone	412	444	438	**108**	**106**	73-129	2	25	
10061-02-6	trans-1,3-Dichloropropene	200	214	212	**107**	**106**	80-127	0.9	25	
79-00-5	1,1,2-Trichloroethane	208	200	197	**96**	**95**	78-117	1	25	
108-88-3	Toluene	206	171	171	**83**	**83**	70-118	0	25	
591-78-6	2-Hexanone	406	408	406	**100**	**100**	74-132	0	25	
124-48-1	Dibromochloromethane	210	180	181	**86**	**86**	69-137	0	25	
106-93-4	1,2-Dibromoethane	208	177	176	**85**	**85**	76-128	0	25	
123-86-4	n-Butyl Acetate	406	415	413	**102**	**102**	75-134	0	25	

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

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **NV5**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2201332
Client Project ID: **MVSC / 4430.19.1358.001.02-015** ALS Sample ID: P220406-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Simon Cao Date Analyzed: 4/6/22
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	208	194	191	**93**	**92**	68-120	1	25	
127-18-4	Tetrachloroethene	212	156	157	**74**	**74**	63-130	0	25	
108-90-7	Chlorobenzene	206	163	163	**79**	**79**	70-118	0	25	
100-41-4	Ethylbenzene	206	180	179	**87**	**87**	71-123	0	25	
179601-23-1	m,p-Xylenes	416	368	365	**88**	**88**	67-127	0	25	
75-25-2	Bromoform	210	176	177	**84**	**84**	65-149	0	25	
100-42-5	Styrene	202	176	176	**87**	**87**	76-132	0	25	
95-47-6	o-Xylene	208	187	186	**90**	**89**	69-124	1	25	
111-84-2	n-Nonane	208	205	203	**99**	**98**	64-127	1	25	
79-34-5	1,1,2,2-Tetrachloroethane	208	188	187	**90**	**90**	69-128	0	25	
98-82-8	Cumene	206	176	175	**85**	**85**	69-125	0	25	
80-56-8	alpha-Pinene	210	199	199	**95**	**95**	68-129	0	25	
103-65-1	n-Propylbenzene	208	181	181	**87**	**87**	70-127	0	25	
622-96-8	4-Ethyltoluene	208	182	183	**88**	**88**	69-127	0	25	
108-67-8	1,3,5-Trimethylbenzene	208	184	183	**88**	**88**	66-129	0	25	
95-63-6	1,2,4-Trimethylbenzene	206	199	197	**97**	**96**	63-142	1	25	
100-44-7	Benzyl Chloride	416	373	377	**90**	**91**	73-145	1	25	
541-73-1	1,3-Dichlorobenzene	208	163	163	**78**	**78**	67-136	0	25	
106-46-7	1,4-Dichlorobenzene	210	150	151	**71**	**72**	63-134	1	25	
95-50-1	1,2-Dichlorobenzene	210	167	164	**80**	**78**	64-139	3	25	
5989-27-5	d-Limonene	206	220	217	**107**	**105**	63-137	2	25	
96-12-8	1,2-Dibromo-3-chloropropane	404	338	339	**84**	**84**	72-145	0	25	
120-82-1	1,2,4-Trichlorobenzene	420	276	278	**66**	**66**	62-154	0	25	
91-20-3	Naphthalene	210	131	132	**62**	**63**	62-156	2	25	
87-68-3	Hexachlorobutadiene	212	144	146	**68**	**69**	55-142	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: **NV5**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2201332
Client Project ID: **MVSC / 4430.19.1358.001.02-015** ALS Sample ID: P220407-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Simon Cao Date Analyzed: 4/7/22
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	206	177	172	**86**	**83**	56-128	4	25	
75-71-8	Dichlorodifluoromethane (CFC 12)	208	184	181	**88**	**87**	71-112	1	25	
74-87-3	Chloromethane	206	191	192	**93**	**93**	53-126	0	25	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	208	195	193	**94**	**93**	62-121	1	25	
75-01-4	Vinyl Chloride	208	193	191	**93**	**92**	63-123	1	25	
106-99-0	1,3-Butadiene	206	199	197	**97**	**96**	63-135	1	25	
74-83-9	Bromomethane	206	196	193	**95**	**94**	71-112	1	25	
75-00-3	Chloroethane	206	189	186	**92**	**90**	66-117	2	25	
64-17-5	Ethanol	832	736	732	**88**	**88**	57-117	0	25	
75-05-8	Acetonitrile	202	160	158	**79**	**78**	59-131	1	25	
107-02-8	Acrolein	416	374	372	**90**	**89**	71-123	1	25	
67-64-1	Acetone	1,020	891	885	**87**	**87**	60-117	0	25	
75-69-4	Trichlorofluoromethane (CFC 11)	202	182	179	**90**	**89**	71-114	1	25	
67-63-0	2-Propanol (Isopropyl Alcohol)	400	382	382	**96**	**96**	61-124	0	25	
107-13-1	Acrylonitrile	402	368	365	**92**	**91**	65-130	1	25	
75-35-4	1,1-Dichloroethene	210	198	196	**94**	**93**	74-114	1	25	
75-09-2	Methylene Chloride	208	188	186	**90**	**89**	75-112	1	25	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	204	176	176	**86**	**86**	57-127	0	25	
76-13-1	Trichlorotrifluoroethane (CFC 113)	216	197	195	**91**	**90**	73-114	1	25	
75-15-0	Carbon Disulfide	414	398	394	**96**	**95**	70-113	1	25	
156-60-5	trans-1,2-Dichloroethene	208	198	196	**95**	**94**	76-119	1	25	
75-34-3	1,1-Dichloroethane	214	193	190	**90**	**89**	70-114	1	25	
1634-04-4	Methyl tert-Butyl Ether	206	178	187	**86**	**91**	72-118	6	25	
108-05-4	Vinyl Acetate	942	1150	1140	**122**	**121**	56-137	0.8	25	
78-93-3	2-Butanone (MEK)	408	396	390	**97**	**96**	74-121	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: **NV5**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2201332
Client Project ID: **MVSC / 4430.19.1358.001.02-015** ALS Sample ID: P220407-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Simon Cao Date Analyzed: 4/7/22
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	206	191	187	**93**	**91**	73-117	2	25	
141-78-6	Ethyl Acetate	580	554	548	**96**	**94**	59-161	2	25	
110-54-3	n-Hexane	208	199	195	**96**	**94**	55-130	2	25	
67-66-3	Chloroform	210	193	190	**92**	**90**	71-114	2	25	
109-99-9	Tetrahydrofuran (THF)	404	383	378	**95**	**94**	73-114	1	25	
107-06-2	1,2-Dichloroethane	210	191	188	**91**	**90**	71-119	1	25	
71-55-6	1,1,1-Trichloroethane	208	195	194	**94**	**93**	73-119	1	25	
71-43-2	Benzene	208	190	188	**91**	**90**	72-113	1	25	
56-23-5	Carbon Tetrachloride	202	195	194	**97**	**96**	67-123	1	25	
110-82-7	Cyclohexane	412	387	382	**94**	**93**	70-119	1	25	
78-87-5	1,2-Dichloropropane	206	187	187	**91**	**91**	70-118	0	25	
75-27-4	Bromodichloromethane	208	204	199	**98**	**96**	74-119	2	25	
79-01-6	Trichloroethene	204	193	190	**95**	**93**	74-115	2	25	
123-91-1	1,4-Dioxane	206	203	200	**99**	**97**	77-124	2	25	
80-62-6	Methyl Methacrylate	410	422	414	**103**	**101**	78-126	2	25	
142-82-5	n-Heptane	206	195	193	**95**	**94**	70-119	1	25	
10061-01-5	cis-1,3-Dichloropropene	208	210	209	**101**	**100**	81-126	1	25	
108-10-1	4-Methyl-2-pentanone	412	405	399	**98**	**97**	73-129	1	25	
10061-02-6	trans-1,3-Dichloropropene	200	203	201	**102**	**101**	80-127	1	25	
79-00-5	1,1,2-Trichloroethane	208	192	189	**92**	**91**	78-117	1	25	
108-88-3	Toluene	206	191	186	**93**	**90**	70-118	3	25	
591-78-6	2-Hexanone	406	401	390	**99**	**96**	74-132	3	25	
124-48-1	Dibromochloromethane	210	209	204	**100**	**97**	69-137	3	25	
106-93-4	1,2-Dibromoethane	208	199	193	**96**	**93**	76-128	3	25	
123-86-4	n-Butyl Acetate	406	412	401	**101**	**99**	75-134	2	25	

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

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **NV5**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2201332
Client Project ID: **MVSC / 4430.19.1358.001.02-015** ALS Sample ID: P220407-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Simon Cao Date Analyzed: 4/7/22
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	208	195	189	**94**	**91**	68-120	3	25	
127-18-4	Tetrachloroethene	212	201	196	**95**	**92**	63-130	3	25	
108-90-7	Chlorobenzene	206	190	185	**92**	**90**	70-118	2	25	
100-41-4	Ethylbenzene	206	198	193	**96**	**94**	71-123	2	25	
179601-23-1	m,p-Xylenes	416	401	389	**96**	**94**	67-127	2	25	
75-25-2	Bromoform	210	217	211	**103**	**100**	65-149	3	25	
100-42-5	Styrene	202	201	197	**100**	**98**	76-132	2	25	
95-47-6	o-Xylene	208	201	196	**97**	**94**	69-124	3	25	
111-84-2	n-Nonane	208	198	192	**95**	**92**	64-127	3	25	
79-34-5	1,1,2,2-Tetrachloroethane	208	200	196	**96**	**94**	69-128	2	25	
98-82-8	Cumene	206	197	191	**96**	**93**	69-125	3	25	
80-56-8	alpha-Pinene	210	215	211	**102**	**100**	68-129	2	25	
103-65-1	n-Propylbenzene	208	200	194	**96**	**93**	70-127	3	25	
622-96-8	4-Ethyltoluene	208	203	198	**98**	**95**	69-127	3	25	
108-67-8	1,3,5-Trimethylbenzene	208	206	201	**99**	**97**	66-129	2	25	
95-63-6	1,2,4-Trimethylbenzene	206	213	207	**103**	**100**	63-142	3	25	
100-44-7	Benzyl Chloride	416	423	418	**102**	**100**	73-145	2	25	
541-73-1	1,3-Dichlorobenzene	208	197	191	**95**	**92**	67-136	3	25	
106-46-7	1,4-Dichlorobenzene	210	185	181	**88**	**86**	63-134	2	25	
95-50-1	1,2-Dichlorobenzene	210	196	191	**93**	**91**	64-139	2	25	
5989-27-5	d-Limonene	206	229	223	**111**	**108**	63-137	3	25	
96-12-8	1,2-Dibromo-3-chloropropane	404	402	401	**100**	**99**	72-145	1	25	
120-82-1	1,2,4-Trichlorobenzene	420	342	348	**81**	**83**	62-154	2	25	
91-20-3	Naphthalene	210	155	163	**74**	**78**	62-156	5	25	
87-68-3	Hexachlorobutadiene	212	190	189	**90**	**89**	55-142	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.

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LABORATORY REPORT

June 17, 2022

Matt Dahl
NV5
2101 Fourth Ave., Suite 1310
Seattle, WA 98121

RE: MVSC / 1358.001.02.015

Dear Matt:

Enclosed are the results of the samples submitted to our laboratory on June 6, 2022. For your reference, these analyses have been assigned our service request number P2202495.

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.

ALS | Environmental

By Sue Anderson at 12:55 pm, Jun 17, 2022

Sue Anderson
Project Manager

ALS Environmental
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Client: NV5 Service Request No: P2202495
Project: MVSC / 1358.001.02.015

CASE NARRATIVE

The samples were received intact under chain of custody on June 6, 2022 and were 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 samples were analyzed for tetrachloroethene 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 containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.3 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.

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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	1776326
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	4068-008
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: NV5 Service Request: P2202495

Project ID: MVSC / 1358.001.02.015

Date Received: 6/6/2022

Time Received: 10:23

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pfl (psig)	2nd Pi (psig)	2nd Pf (psig)	TO-15 - VOC Cans
SVE-8-060222	P2202495-001	Air	6/2/2022	14:45	1SC01211	-1.22	6.85			X
SVE-12A-060222	P2202495-002	Air	6/2/2022	13:16	1SS00895	-1.22	6.43			X
STACK-060222	P2202495-003	Air	6/2/2022	14:55	1SC00688	-1.97	6.42			X
SVE-22-060222	P2202495-004	Air	6/2/2022	13:55	1SS00186	-1.87	6.68			X
SVE-6-060222	P2202495-005	Air	6/2/2022	14:25	1SS01485	-0.58	7.21			X
SVE-20-060222	P2202495-006	Air	6/2/2022	14:18	1SS01463	-2.18	7.04			X
SVE-24-060222	P2202495-007	Air	6/2/2022	13:30	1SS01448	-1.63	6.22			X
SVE-23-060222	P2202495-008	Air	6/2/2022	13:35	1SS01399	-1.66	6.14			X
SVE-10-060222	P2202495-009	Air	6/2/2022	13:42	1SS01232	-1.44	6.39			X
SVE-7-060222	P2202495-010	Air	6/2/2022	14:06	1SS01176	-0.91	6.13			X
SVE-5-060222	P2202495-011	Air	6/2/2022	14:35	1SS01450	-2.61	6.58	1.24	6.28	X
SVE-21-060222	P2202495-012	Air	6/2/2022	14:12	1SS01409	-1.58	6.18			X
SVE-25-A60222	P2202495-013	Air	6/2/2022	13:26	1SS01497	-1.00	6.95			X
SVE-11A-060222	P2202495-014	Air	6/2/2022	13:10	1SS00689	-0.35	6.97			X

Air - Chain of Custody Record & Analytical Service Request

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

Page 1 of 1

P2202495

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.

Company Name & Address (Reporting Information)	PES ENVIRONMENTAL, AN NVS COMPANY 2104 4th Ave, SEATTLE, WA 98121
Project Name	MVSC
Project Number	1326 1358 001.02.015
Project Manager	M. DAHL
P.O. # / Billing Information	CONTACT PM
Phone	206 529 3980
Fax	
Email Address for Result Reporting	MATT.DAHL@NVS.COM RACHEL.MCLAUGHLIN @NVS.COM
Sampler (Print & Sign)	R. McLaughlin
ALS Contact:	

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	Analysis Method: PCE by TO-15		Comments e.g. Actual Preservative or specific instructions
SVE8-060222	1	6/2/22	1445	ISC01211	—	-28	-2.5	1L	TO-15		PCE Analysis
SVE-12A-060222	2	"	1316	ISS00895	—	-24	-4	"	"		ONLY
STACK-060222	3	"	1455	ISC00688	—	-27.5	-4	"	"		"
SVE-22-060222	4	"	1355	ISS00186	—	-28	-4	"	"		"
SVE-6-060222	5	"	1425	ISS01485	—	-28.5	-2.5	"	"		"
SVE-20-060222	6	"	1418	ISS01463	—	-30	-4	"	"		"
SVE-24-060222	7	"	1330	ISS01448	—	-30	-2	"	"		"
SVE-23-060222	8	"	1335	ISS01399	—	-30	-3.5	"	"		"
SVE-10-060222	9	"	1342	ISS01232	—	-27.5	-2	"	"		"
SVE-7-060222	10	"	1406	ISS01176	—	-25.5	-2	"	"		"
SVE-5-060222	11	"	1435	ISS01450	—	-30	-6	"	"		"
SVE-21-060222	12	"	1412	ISS01409	—	-27	-3	"	"		"
SVE-25-060222	13	6/2/22	1326	ISS01497	—	-30	-2	1L	TO-15		
SVE-11A-060222	14	6/2/22	1310	ISS00689	—	-27	-2	1L	TO-15		

5 of 10

Report Tier Levels - please select

Tier I - Results (Default if not specified) _____ Tier III (Results + QC & Calibration Summaries) _____
Tier II (Results + QC Summaries) _____ Tier IV (Data Validation Package) 10% Surcharge _____

EDD required Yes / No
Type: _____ Units: _____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature) R. McLaughlin	Date: 6/3/22	Time: 1000	Received by: (Signature)	Date: 6/6/6	Time: 1023	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:	Cooler / Blank Temperature

ALS Environmental
Sample Acceptance Check Form

Client: NV5 Work order: P2202495

Project: MVSC / 1358.001.02.015

Sample(s) received on: 6/6/22 Date opened: 6/6/22 by: KYLE.WOODIN

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
P2202495-001.01	1.0 L Source Can					
P2202495-002.01	1.0 L Source Silonite Canister					
P2202495-003.01	1.0 L Source Can					
P2202495-004.01	1.0 L Source Silonite Canister					
P2202495-005.01	1.0 L Source Silonite Canister					
P2202495-006.01	1.0 L Source Silonite Canister					
P2202495-007.01	1.0 L Source Silonite Canister					
P2202495-008.01	1.0 L Source Silonite Canister					
P2202495-009.01	1.0 L Source Silonite Canister					
P2202495-010.01	1.0 L Source Silonite Canister					
P2202495-011.01	1.0 L Source Silonite Canister					
P2202495-012.01	1.0 L Source Silonite Canister					
P2202495-013.01	1.0 L Source Silonite Canister					
P2202495-014.01	1.0 L Source Silonite Canister					

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: **NV5**

Client Project ID: **MVSC / 1358.001.02.015** ALS Project ID: P2202495

Tetrachloroethene

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date(s) Collected: 6/2/22

Analyst: Wida Ang Date Received: 6/6/22

Sample Type: 1.0 L Summa Canister(s) / 1. 0 L Silonite Summa Canister(s) Date Analyzed: 6/13 - 6/14/22

Test Notes:

Client Sample ID	ALS Sample ID	Injection Volume Liter(s)	Canister Dilution Factor	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
SVE-8-060222	P2202495-001	0.40	1.60	**49**	2.1	**7.2**	0.31	
SVE-12A-060222	P2202495-002	0.40	1.57	**330**	2.0	**49**	0.30	
STACK-060222	P2202495-003	0.40	1.66	**140**	2.2	**21**	0.32	
SVE-22-060222	P2202495-004	0.40	1.67	**110**	2.2	**16**	0.32	
SVE-6-060222	P2202495-005	0.40	1.55	**340**	2.0	**50**	0.30	
SVE-20-060222	P2202495-006	0.40	1.74	**110**	2.3	**17**	0.33	
SVE-24-060222	P2202495-007	0.40	1.60	**46**	2.1	**6.7**	0.31	
SVE-23-060222	P2202495-008	0.40	1.60	**61**	2.1	**8.9**	0.31	
SVE-10-060222	P2202495-009	0.40	1.59	**72**	2.1	**11**	0.30	
SVE-7-060222	P2202495-010	0.40	1.51	**120**	2.0	**18**	0.29	
SVE-5-060222	P2202495-011	0.040	2.32	**660**	30	**97**	4.4	**D**
SVE-21-060222	P2202495-012	0.40	1.59	**200**	2.1	**30**	0.30	
SVE-25-A60222	P2202495-013	0.40	1.58	**36**	2.1	**5.3**	0.30	
SVE-11A-060222	P2202495-014	0.40	1.51	**74**	2.0	**11**	0.29	
Method Blank	P220613-MB	1.00	1.00	ND	0.52	ND	0.077	
Method Blank	P220614-MB	1.00	1.00	ND	0.52	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

SURROGATE SPIKE RECOVERY RESULTS

Client: **NV5**
Client Project ID: **MVSC / 1358.001.02.015** ALS Project ID: P2202495

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date(s) Collected: 6/2/22
Analyst: Wida Ang Date(s) Received: 6/6/22
Sample Type: 1.0 L Summa Canister(s) / 1. 0 L Silonite Summa Canister(s) Date(s) Analyzed: 6/13 - 6/14/22
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	P220613-MB	**104**	**91**	**86**	70-130	
Method Blank	P220614-MB	**105**	**91**	**84**	70-130	
Lab Control Sample	P220613-LCS	**104**	**87**	**86**	70-130	
Lab Control Sample	P220614-LCS	**105**	**85**	**82**	70-130	
Duplicate Lab Control Sample	P220613-DLCS	**103**	**87**	**85**	70-130	
Duplicate Lab Control Sample	P220614-DLCS	**103**	**86**	**85**	70-130	
SVE-8-060222	P2202495-001	**103**	**92**	**86**	70-130	
SVE-12A-060222	P2202495-002	**103**	**91**	**86**	70-130	
STACK-060222	P2202495-003	**102**	**90**	**87**	70-130	
SVE-22-060222	P2202495-004	**104**	**89**	**87**	70-130	
SVE-6-060222	P2202495-005	**105**	**89**	**87**	70-130	
SVE-20-060222	P2202495-006	**105**	**89**	**87**	70-130	
SVE-24-060222	P2202495-007	**106**	**89**	**85**	70-130	
SVE-23-060222	P2202495-008	**106**	**92**	**86**	70-130	
SVE-10-060222	P2202495-009	**107**	**91**	**83**	70-130	
SVE-7-060222	P2202495-010	**107**	**92**	**82**	70-130	
SVE-5-060222 (Dilution)	P2202495-011	**142**	**108**	**91**	70-130	**S**
SVE-21-060222	P2202495-012	**106**	**91**	**82**	70-130	
SVE-25-A60222	P2202495-013	**109**	**91**	**81**	70-130	
SVE-11A-060222	P2202495-014	**107**	**91**	**81**	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.
S = Surrogate recovery not within specified limits.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **NV5**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2202495
Client Project ID: **MVSC / 1358.001.02.015** ALS Sample ID: P220613-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Wida Ang Date Analyzed: 6/13/22
Sample Type: 1.0 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
127-18-4	Tetrachloroethene	212	176	182	**83**	**86**	63-130	4	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: **NV5**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2202495
Client Project ID: **MVSC / 1358.001.02.015** ALS Sample ID: P220614-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Wida Ang Date Analyzed: 6/14/22
Sample Type: 1.0 L Silonite 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
127-18-4	Tetrachloroethene	212	173	177	**82**	**83**	63-130	1	25	

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

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LABORATORY REPORT

September 22, 2022

Matt Dahl
NV5
2101 Fourth Ave., Suite 1310
Seattle, WA 98121

RE: MVSC / 443019-1358001.02-15

Dear Matt:

Enclosed are the results of the sample submitted to our laboratory on September 13, 2022. For your reference, this analysis has been assigned our service request number P2204041.

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.

ALS | Environmental

6:13 pm, Sep 22, 2022

Sue Anderson
Project Manager

ALS Environmental
2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T +1 805 526 7161

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Client: NV5 Service Request No: P2204041
Project: MVSC / 443019-1358001.02-15

CASE NARRATIVE

The sample was received intact under chain of custody on September 13, 2022 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 Tetrachloroethene 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 5.4 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.

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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	1776326
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	4068-008
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: NV5 Service Request: P2204041

Project ID: MVSC / 443019-1358001.02-15

Date Received: 9/13/2022

Time Received: 11:11

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pfl (psig)	TO-15 - VOC Cans
STACK-090822	P2204041-001	Air	9/8/2022	09:45	1SS01463	0.22	8.52	X

Air - Chain of Custody Record & Analytical Service Request

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

P2204041

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.

Company Name & Address (Reporting Information)	PES ENVIRONMENTAL 2101 4th Ave Ste 1310 SEATTLE WA 98121
Project Name	MVSC
Project Number	443019-1358001.02-15
Project Manager	MATT DAHL
P.O. # / Billing Information	
Phone	206 529 3980
Fax	
Email Address for Result Reporting	MATT.DAHL@NV5.COM / RACHEL.MCLAUGHLIN@NV5.COM
Sampler (Print & Sign)	R. McLaughlin
ALS Contact:	

Analysis Method

TO-15 (PCE ONLY 0.5 ng/m3)

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	Comments e.g. Actual Preservative or specific instructions
STACK-090822	1	9/8/22	0945	1550 1463	—	-28	—	1L	End pressure uncertain gauge (RM)

Report Tier Levels - please select

Tier I - Results (Default if not specified) _____
Tier II (Results + QC Summaries) _____
Tier III (Results + QC & Calibration Summaries) _____
Tier IV (Data Validation Package) 10% Surcharge _____

EDD required Yes / No
Type: _____ Units: _____

Chain of Custody Seal: (Circle)
INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date: 9/8/22	Time: 1000	Received by: (Signature)	Date: 9-13-22	Time: 1111
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:

Cooler / Blank Temperature ____ °C

ALS Environmental
Sample Acceptance Check Form

Client: NV5 Work order: P2204041

Project: Manhattan Village Shopping Center / 443019-1358001.02-15

Sample(s) received on: 9/13/22 Date opened: 9/13/22 by: KYLE.WOODIN

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
P2204041-001.01	1.0 L Source Silonite Canister					

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: **NV5**

Client Project ID: **MVSC / 443019-1358001.02-15** ALS Project ID: P2204041

Tetrachloroethene

Test Code: EPA TO-15
Instrument ID: Entech 7200CTS/Agilent 7890B/5977B/MS25 Date(s) Collected: 9/8/22
Analyst: Kylan Malloy Date Received: 9/13/22
Sample Type: 1.0 L Silonite Summa Canister(s) Date Analyzed: 9/20/22
Test Notes:

Client Sample ID	ALS Sample ID	Injection Volume Liter(s)	Canister Dilution Factor	**Result µg/m³**	MRL µg/m³	**Result ppbV**	MRL ppbV	**Data Qualifier**
STACK-090822	P2204041-001	0.20	1.56	**370**	2.0	**55**	0.30	
Method Blank	P220920-MB	0.20	1.00	ND	1.3	ND	0.19	

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: **NV5**
Client Project ID: **MVSC / 443019-1358001.02-15** ALS Project ID: P2204041

Test Code: EPA TO-15
Instrument ID: Entech 7200CTS/Agilent 7890B/5977B/MS25 Date(s) Collected: 9/8/22
Analyst: Kylan Malloy Date(s) Received: 9/13/22
Sample Type: 1.0 L Silonite Summa Canister(s) Date(s) Analyzed: 9/20/22
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	P220920-MB	**97**	**105**	**90**	70-130	
Lab Control Sample	P220920-LCS	**96**	**100**	**94**	70-130	
Duplicate Lab Control Sample	P220920-DLCS	**97**	**103**	**90**	70-130	
STACK-090822	P2204041-001	**98**	**107**	**87**	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: **NV5**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **MVSC / 443019-1358001.02-15**

ALS Project ID: P2204041
ALS Sample ID: P220920-DLCS

Test Code: EPA TO-15
Instrument ID: Entech 7200CTS/Agilent 7890B/5977B/MS25
Analyst: Kylan Malloy
Sample Type: 1.0 L Silonite Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 9/20/22
Volume(s) Analyzed: 0.125 Liter(s)

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
127-18-4	Tetrachloroethene	212	190	202	**90**	**95**	63-130	5	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.

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LABORATORY REPORT

December 14, 2022

Matt Dahl
NV5
2101 Fourth Ave., Suite 1310
Seattle, WA 98121

RE: Manhattan Village / 1358.001.03.015

Dear Matt:

Enclosed are the results of the sample submitted to our laboratory on December 7, 2022. For your reference, this analysis has been assigned our service request number P2205492.

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.

ALS | Environmental

11:06 pm, Dec 14, 2022

Sue Anderson
Project Manager

ALS Environmental
2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T +1 805 526 7161

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Client: NV5 Service Request No: P2205492
Project: Manhattan Village / 1358.001.03.015

CASE NARRATIVE

The sample was received intact under chain of custody on December 7, 2022 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 Tetrachloroethene 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 5.4 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.

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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	1776326
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	4068-008
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: NV5 Service Request: P2205492

Project ID: Manhattan Village / 1358.001.03.015

Date Received: 12/7/2022

Time Received: 10:29

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pfl (psig)	TO-15 - VOC Cans
Stack-120222	P2205492-001	Air	12/2/2022	09:55	1SS01045	-2.00	6.92	X

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

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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 (circled)

ALS Project No. P2205492
ALS Contact:

Company Name & Address (Reporting Information): PES Environmental, 2101 4th Ave #1310 Seattle, WA, 98121

Project Name: Manhattan Village

Project Number: 1358.001.03.015

Project Manager: M. Dahl

P.O. # / Billing Information: 443022-1358.001.03.015

Phone: 206-529-3980

Fax: 206-529-3985

Email Address for Result Reporting: matt.dahl@pes.com

Sampler (Print & Sign): Anthony Severance

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	Analysis Method: TO-15-PCE only (0.5 ug/m3)		Comments e.g. Actual Preservative or specific instructions
Stack-120222		12-02-22	09:55	1SS01645	N/A	27	4.9	1L	X		

Report Tier Levels - please select
Tier I - Results (Default if not specified) ____
Tier II (Results + QC Summaries) ____
Tier III (Results + QC & Calibration Summaries) ____
Tier IV (Data Validation Package) 10% Surcharge ____

EDD required Yes / No
Type: ________ Units: ________

Chain of Custody Seal: (Circle)
INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
[signature]	12-02-22	12:35			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature) [signature]	12/7/22	1029

Cooler / Blank Temperature ____ °C

ALS Environmental
Sample Acceptance Check Form

Client: NV5 Work order: P2205492

Project: Manhattan Village / 1358.001.03.015

Sample(s) received on: 12/7/22 Date opened: 12/7/22 by: ADAVID

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

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and 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
P2205492-001.01	1.0 L Source Silonite Canister					

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: **NV5**

Client Project ID: **Manhattan Village / 1358.001.03.015** ALS Project ID: P2205492

Tetrachloroethene

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date(s) Collected: 12/2/22

Analyst: Topacio Zavala Date Received: 12/7/22

Sample Type: 1.0 L Silonite Summa Canister(s) Date Analyzed: 12/12 - 12/13/22

Test Notes:

Client Sample ID	ALS Sample ID	Injection Volume Liter(s)	Canister Dilution Factor	**Result µg/m³**	MRL µg/m³	**Result ppbV**	MRL ppbV	**Data Qualifier**
Stack-120222	P2205492-001	0.40	1.70	**160**	2.2	**24**	0.33	
Method Blank	P221212-MB	1.00	1.00	ND	0.52	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.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **NV5**
Client Project ID: **Manhattan Village / 1358.001.03.015** ALS Project ID: P2205492

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date(s) Collected: 12/2/22
Analyst: Topacio Zavala Date(s) Received: 12/7/22
Sample Type: 1.0 L Silonite Summa Canister(s) Date(s) Analyzed: 12/12 - 12/13/22
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	P221212-MB	**100**	**103**	**99**	70-130	
Lab Control Sample	P221212-LCS	**101**	**97**	**107**	70-130	
Duplicate Lab Control Sample	P221212-DLCS	**104**	**98**	**110**	70-130	
Stack-120222	P2205492-001	**98**	**97**	**101**	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: **NV5**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **Manhattan Village / 1358.001.03.015**

ALS Project ID: P2205492
ALS Sample ID: P221212-DLCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Topacio Zavala
Sample Type: 1.0 L Silonite Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/12/22
Volume(s) Analyzed: 0.125 Liter(s)

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
127-18-4	Tetrachloroethene	42.4	44.2	45.5	**104**	**107**	63-130	3	25	

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

MEMORANDUM

TO: Project File **DATE:** January 10, 2023

FROM: Jessie Compeau

SUBJECT: Laboratory Data Validation Review

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

PROJECT #: 443022-135800103.015

TASK: EIM Data Validation Level EPA2A – 2022 – Stack and SVE Air Samples

LAB: ALS Environmental Service Request Numbers: P2201332, P2202495, P2204041, and P2205492

Quarterly stack samples were collected March 21, June 2, September 8, and December 2, 2022. Thirteen soil vapor extraction samples were also collected on June 2, 2022. Samples were collected from the Manhattan Village Shopping Center in Normandy Park, Washington. The samples were analyzed for the following:

- 75 VOCs by USEPA Method TO-15 (*Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air*, Second Edition, EPA/625/R-96/010B, January 1999); or

- Tetrachloroethene by USEPA Method TO-15.

Laboratory analytical services were provided by ALS Environmental (ALS) (also known as ALS Global (ALS)) of Simi Valley, California. Analytical data are reported under ALS's service request numbers P2201332, P2202495, P2204041, and P2205492

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 Organic Superfund Methods Data Review (USEPA, 2020).

DATA VALIDATION

Completeness

The samples were collected and analyzed as requested. No concerns, issues, or anomalies were identified in the laboratory report with one minor exception:

- Service Request Number P2202495: The chain of custody laboratory receipt (signature block) does not include the year however ALS's cover letter indicates that samples were received on June 6, 2022. Samples were shipped by courier with supporting sample tracking information.

Sample Collection and Preservation

The laboratory supplied Source Can or Silonite Canisters (6- or 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 with the following discussion:

- Service Request Number P2204041: A chain of custody note made by the sampler indicates that Sample Stack-090822 canister end pressure is uncertain (due to a missing pressure gauge) however the Sample Stack-090822 was received in good condition and intact based on pressure recordings made upon receipt.

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 Source Can. 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 with the following discussion:

- Service Request Number P2201332: Sample Stack-032122 hexachlorobutadiene result is laboratory qualified (V) to indicate a low continuing calibration recovery below specified limits. **Sample Stack-032122 hexachlorobutadiene result is estimated (UJ) due to the low CCV recovery.**

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

Field duplicates are not required for these sampling events. Refer to the Laboratory Control Sample section for additional precision information.

Laboratory Duplicate/Replicate Analyses

Laboratory replicates were not performed. 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 with one exception:

- Service Request Number P2202495: Sample SVE-5-0602222 (diluted 10X) surrogate (1,2-dichloroethane-d4) recovery was recovered above criteria at 142%. Remaining two surrogates (toluene-d8 and bromofluorobenzene) are within laboratory acceptance criteria**. Sample SVE-5-0602222 tetrachloroethene result is estimated with potential high bias (J+).**

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 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. The MRLs 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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NV5**
Client Sample ID: **STACK-032122** ALS Project ID: P2201332
Client Project ID: **MVSC / 4430.19.1358.001.02-015** ALS Sample ID: P2201332-001

Test Code: EPA TO-15 Date Collected: 3/21/22
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 3/25/22
Analyst: Simon Cao Date Analyzed: 4/7 - 4/8/22
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC01785

Initial Pressure (psig): -1.60 Final Pressure (psig): 3.54

Canister Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.72	ND	0.42	
75-71-8	Dichlorodifluoromethane (CFC 12)	**4.1**	0.74	**0.82**	0.15	
74-87-3	Chloromethane	ND	0.71	ND	0.34	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.75	ND	0.11	
75-01-4	Vinyl Chloride	ND	0.72	ND	0.28	
106-99-0	1,3-Butadiene	ND	0.72	ND	0.33	
74-83-9	Bromomethane	ND	0.71	ND	0.18	
75-00-3	Chloroethane	ND	0.71	ND	0.27	
64-17-5	Ethanol	ND	7.0	ND	3.7	
75-05-8	Acetonitrile	ND	1.4	ND	0.83	
107-02-8	Acrolein	ND	1.4	ND	0.61	
67-64-1	Acetone	ND	7.2	ND	3.0	
75-69-4	Trichlorofluoromethane (CFC 11)	**2.5**	0.72	**0.44**	0.13	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	1.4	ND	0.57	
107-13-1	Acrylonitrile	ND	1.4	ND	0.64	
75-35-4	1,1-Dichloroethene	ND	0.75	ND	0.19	
75-09-2	Methylene Chloride	ND	0.72	ND	0.21	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.74	ND	0.24	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.75	ND	0.098	
75-15-0	Carbon Disulfide	ND	1.5	ND	0.49	
156-60-5	trans-1,2-Dichloroethene	ND	0.74	ND	0.19	
75-34-3	1,1-Dichloroethane	ND	0.74	ND	0.18	
1634-04-4	Methyl tert-Butyl Ether	ND	0.74	ND	0.20	
108-05-4	Vinyl Acetate	ND	7.0	ND	2.0	
78-93-3	2-Butanone (MEK)	ND	1.4	ND	0.47	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

JC 1/9/2023

Client: **NV5**
Client Sample ID: **STACK-032122** ALS Project ID: P2201332
Client Project ID: **MVSC / 4430.19.1358.001.02-015** ALS Sample ID: P2201332-001

Test Code: EPA TO-15 Date Collected: 3/21/22
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 3/25/22
Analyst: Simon Cao Date Analyzed: 4/7 - 4/8/22
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC01785

Initial Pressure (psig): -1.60 Final Pressure (psig): 3.54

Canister Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	**1.7**	0.72	**0.42**	0.18	
141-78-6	Ethyl Acetate	ND	2.9	ND	0.81	
110-54-3	n-Hexane	ND	0.74	ND	0.21	
67-66-3	Chloroform	**2.2**	0.75	**0.46**	0.15	
109-99-9	Tetrahydrofuran (THF)	ND	1.4	ND	0.47	
107-06-2	1,2-Dichloroethane	ND	0.74	ND	0.18	
71-55-6	1,1,1-Trichloroethane	ND	0.72	ND	0.13	
71-43-2	Benzene	ND	0.70	ND	0.22	
56-23-5	Carbon Tetrachloride	ND	0.70	ND	0.11	
110-82-7	Cyclohexane	ND	1.5	ND	0.44	
78-87-5	1,2-Dichloropropane	ND	0.70	ND	0.15	
75-27-4	Bromodichloromethane	ND	0.74	ND	0.11	
79-01-6	Trichloroethene	**0.99**	0.72	**0.18**	0.13	
123-91-1	1,4-Dioxane	ND	0.72	ND	0.20	
80-62-6	Methyl Methacrylate	ND	1.5	ND	0.37	
142-82-5	n-Heptane	ND	0.74	ND	0.18	
10061-01-5	cis-1,3-Dichloropropene	ND	0.70	ND	0.15	
108-10-1	4-Methyl-2-pentanone	ND	1.5	ND	0.37	
10061-02-6	trans-1,3-Dichloropropene	ND	0.71	ND	0.16	
79-00-5	1,1,2-Trichloroethane	ND	0.72	ND	0.13	
108-88-3	Toluene	ND	0.72	ND	0.19	
591-78-6	2-Hexanone	ND	1.5	ND	0.37	
124-48-1	Dibromochloromethane	ND	0.74	ND	0.087	
106-93-4	1,2-Dibromoethane	ND	0.72	ND	0.094	
123-86-4	n-Butyl Acetate	ND	1.5	ND	0.32	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

JC 1/9/2023

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NV5**
Client Sample ID: **STACK-032122** ALS Project ID: P2201332
Client Project ID: **MVSC / 4430.19.1358.001.02-015** ALS Sample ID: P2201332-001

Test Code: EPA TO-15 Date Collected: 3/21/22
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 3/25/22
Analyst: Simon Cao Date Analyzed: 4/7 - 4/8/22
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: SC01785

Initial Pressure (psig): -1.60 Final Pressure (psig): 3.54

Canister Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³		Result ppbV	MRL ppbV		Data Qualifier
111-65-9	n-Octane	ND	0.74		ND	0.16		
127-18-4	Tetrachloroethene	**200**	7.2		**30**	1.1		**D**
108-90-7	Chlorobenzene	ND	0.72		ND	0.16		
100-41-4	Ethylbenzene	ND	0.72		ND	0.17		
179601-23-1	m,p-Xylenes	ND	1.5		ND	0.35		
75-25-2	Bromoform	ND	0.72		ND	0.070		
100-42-5	Styrene	ND	0.70		ND	0.16		
95-47-6	o-Xylene	ND	0.72		ND	0.17		
111-84-2	n-Nonane	ND	0.72		ND	0.14		
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.72		ND	0.11		
98-82-8	Cumene	ND	0.72		ND	0.15		
80-56-8	alpha-Pinene	ND	0.75		ND	0.13		
103-65-1	n-Propylbenzene	ND	0.74		ND	0.15		
622-96-8	4-Ethyltoluene	ND	0.74		ND	0.15		
108-67-8	1,3,5-Trimethylbenzene	ND	0.72		ND	0.15		
95-63-6	1,2,4-Trimethylbenzene	ND	0.72		ND	0.15		
100-44-7	Benzyl Chloride	ND	1.5		ND	0.30		
541-73-1	1,3-Dichlorobenzene	ND	0.72		ND	0.12		
106-46-7	1,4-Dichlorobenzene	ND	0.72		ND	0.12		
95-50-1	1,2-Dichlorobenzene	ND	0.74		ND	0.12		
5989-27-5	d-Limonene	ND	0.70		ND	0.12		
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.4		ND	0.14		
120-82-1	1,2,4-Trichlorobenzene	ND	1.5		ND	0.21		
91-20-3	Naphthalene	ND	0.72		ND	0.14		
87-68-3	Hexachlorobutadiene	ND	0.72	UJ	ND	0.068	UJ	**V**

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.
V = The continuing calibration verification standard was outside (biased low) the specified limits for this compound.
D = The reported result is from a dilution.

JC 1/9/2023

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NV5**
Client Project ID: **MVSC / 1358.001.02.015** ALS Project ID: P2202495

Tetrachloroethene

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date(s) Collected: 6/2/22
Analyst: Wida Ang Date Received: 6/6/22
Sample Type: 1.0 L Summa Canister(s) / 1. 0 L Silonite Summa Canister(s) Date Analyzed: 6/13 - 6/14/22
Test Notes:

Client Sample ID	ALS Sample ID	Injection Volume Liter(s)	Canister Dilution Factor	Result µg/m³		MRL µg/m³	Result ppbV		MRL ppbV	Data Qualifier
SVE-8-060222	P2202495-001	0.40	1.60	**49**		2.1	**7.2**		0.31	
SVE-12A-060222	P2202495-002	0.40	1.57	**330**		2.0	**49**		0.30	
STACK-060222	P2202495-003	0.40	1.66	**140**		2.2	**21**		0.32	
SVE-22-060222	P2202495-004	0.40	1.67	**110**		2.2	**16**		0.32	
SVE-6-060222	P2202495-005	0.40	1.55	**340**		2.0	**50**		0.30	
SVE-20-060222	P2202495-006	0.40	1.74	**110**		2.3	**17**		0.33	
SVE-24-060222	P2202495-007	0.40	1.60	**46**		2.1	**6.7**		0.31	
SVE-23-060222	P2202495-008	0.40	1.60	**61**		2.1	**8.9**		0.31	
SVE-10-060222	P2202495-009	0.40	1.59	**72**		2.1	**11**		0.30	
SVE-7-060222	P2202495-010	0.40	1.51	**120**		2.0	**18**		0.29	
SVE-5-060222	P2202495-011	0.040	2.32	**660**	J	30	**97**	J	4.4	**D**
SVE-21-060222	P2202495-012	0.40	1.59	**200**		2.1	**30**		0.30	
SVE-25-A60222	P2202495-013	0.40	1.58	**36**		2.1	**5.3**		0.30	
SVE-11A-060222	P2202495-014	0.40	1.51	**74**		2.0	**11**		0.29	
Method Blank	P220613-MB	1.00	1.00	ND		0.52	ND		0.077	
Method Blank	P220614-MB	1.00	1.00	ND		0.52	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.

JC 1/9/2023

ATTACHMENT C

WELL COMPLETION DETAILS AND HISTORICAL DATA

- Table C1 – Well Completion Details
- Table C2 – Historical Summary of Groundwater Elevations (1999-2021)
- Table C3 – Historical Summary of Groundwater Analytical Results (1999-2021)
- Table C4 – Historical Summary of Soil Analytical Results (1998 – 2021)
- Table C5 - Soil Vapor Results - March 11 and June 3, 2019

Table C1
Well Completion and Boring Details
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Well	Ecology Well Tag Number	Date Installed	Date Decom.	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 Date	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-4	BAB 481	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-6	BAB 482	4/9/08	--	HSA	165,615.5	1,268,908.5	304.14	304.71	304.68	PES, 08/2015	Flush	45	2	35-45	34.46-44.46	0.010	33-45	0-35
MW-7	BAB 483	4/9/08	--	HSA	165,652.2	1,268,684.8	302.64	303.18	303.17	PES, 08/2015	Flush	45	2	35-45	34.47-44.47	0.010	33-45	0-35
MW-9	APE 296	8/18/08	--	HSA	166,019.8	1,268,663.9	284.97	285.35	285.37	PES, 08/2015	Flush	55	2	32-42	31.6-41.6	0.010	30-42	0-30
MW-10	BHB 003	2/3/11	--	HSA	165,132.3	1,268,522.8	306.71	307.20	307.19	PES, 08/2015	Flush	42	2	32-42	31.52-41.52	0.010	30-42	0-30
MW-11	BHB 004	2/3/11	--	HSA	165,122.2	1,268,582.9	307.62	308.13	308.06	PES, 08/2015	Flush	42	2	32-42	31.56-41.56	0.010	30-42	0-30
MW-17	BLI 196	3/1/19	--	HSA	165,371.0	1,268,609.7	303.01	303.56	303.60	PES, 10/2019	Flush	39.5	2	28.2-38.2	27.61-37.61	0.010	26-39.5	0-26
MW-18	BLI 195	2/28/19	--	HSA	165,386.9	1,268,688.3	305.26	305.74	305.70	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-20	BLK 428	10/17/19	--	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-4	AEE 926	10/13/98	--	HSA	165,058.1	1,268,537.4	312.35	312.96	312.99	PES, 08/2015	Flush	49	2	44-49	43.36-48.36	0.020	41-49	0-41
DC-6	--	1/22/99	Missing	HSA	--	--	308.46	--	--	SCS, 1999	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, 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, 08/2015	Flush	42	2	37-42	36.64-41.64	0.020	34-42	0-34
DC-9A	AER 681	4/6/99	Missing	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	AER 680	4/5/99	--	HSA	165,117.2	1,268,497.2	307.73	307.83	307.72	PES, 08/2015	Flush	37	2	32-37	32.01-37.01	0.020	30-37	0-30
DC-15	APS 768	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	APS 767	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
KMW-3	APK 569	5/1/06	--	HSA	165,357.4	1,268,462.5	296.99	297.77	297.70	PES, 10/2019	Flush	40	2	25.18-35.18	24.47-34.47	0.010	8-35	0-8
KMW-7	APS 342	3/26/07	--	HSA	165,389.7	1,268,563.6	301.42	302.02	302.00	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	PES, 10/2019	Flush	44	2	29.24-44.24	28.70-43.70	0.020	27-44	0-29
Deep Monitoring Wells																		
DC-9B	AER 678	4/5/99	Missing	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
Soil Vapor Extraction Wells																		
SVE-1	BCS 403	6/29/09	--	HSA	164,943.5	1,268,516.2	311.85	312.02	--	PES, 08/2015	Flush	35.5	2	10-35	9.7-34.7	0.020	8-35.5	0-8
SVE-2	BCS 404	6/29/09	--	HSA	165,000.3	1,268,522.6	312.41	312.58	--	PES, 08/2015	Flush	35.5	2	10-35	9.6-34.6	0.020	8-35.5	0-8
SVE-3	BCS 409	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	BCS 408	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	BCS 407	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	BBL 378	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	BCS 406	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	BCS 410	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	BCS 405	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	BCS 402	6/30/09	--	HSA	165,187.7	1,268,841.1	310.69	311.20	311.09	PES 03/2021	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
SVE-20	BLZ 286	8/30/21	--	HSA	165,057.7	1,268,696.8	313.02	313.37	313.42	PES, 03/2021	Flush	30	4	10.3-25.4	9.9-25	0.020	8-25	3-8
SVE-21	BLZ 287	8/30/21	--	HSA	165,057.2	1,268,703.5	313.04	313.47	313.51	PES, 03/2021	Flush	38	4	25.7-37.7	25.3-37.3	0.020	23-38	3-23
SVE-22	BLZ 288	9/1/21	--	HSA	165,085.5	1,268,715.6	309.90	310.27	310.20	PES, 03/2021	Flush	36	4	20.6-35.6	20.2-35.2	0.020	18-36	3-18

Table C1
Well Completion and Boring Details
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Well	Ecology Well Tag Number	Date Installed	Date Decom.	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 Date	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)
SVE-23	BLZ 289	9/1/21	--	HSA	165,180.7	1,268,839.9	310.71	311.22	311.16	PES, 03/2021	Flush	35.7	4	20.3-35.3	19.9-34.9	0.020	18-36	3-18
SVE-24	BLZ 290	9/1/21	--	HSA	165,175.9	1,268,862.8	312.20	312.53	312.50	PES, 03/2021	Flush	23	4	10.3-22.6	9.9-22.2	0.020	8-23	3-8
SVE-25	BLZ 285	9/2/21	--	HSA	165,164.6	1,268,852.0	311.32	311.86	311.77	PES, 03/2021	Flush	36.9	4	22.8-35.7	22.4-35.3	0.020	18-37	3-18
Vapor Monitoring Probes																		
VMP-1 (B-5)	BAB 454	3/26/08	--	DP	164,828.0	1,268,482.4	310.91	311.01	--	PES, 08/2015	Flush	30	0.75	10-15	9.7-14.7	0.010	7-30	0-7
VMP-2 (B-7)	BAB 453	3/25/08	--	DP	164,964.6	1,268,493.8	310.97	311.04	--	PES, 08/2015	Flush	30	0.75	10-15	9.8-14.8	0.010	7-30	0-7
VMP-3 (B-9)	BAB 452	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)	BAB 455	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)	BAB 456	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)	BAB 457	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
Soil Vapor Sampling Probes																		
SVS-10	NA	11/5/03	--	HA	--	--	--	--	--	--	Flush	1.0	1.0	0.96-1.00	--	Mesh	0.5-1.0	0-0.5
SVS-11	NA	4/16/18	--	HA	--	--	--	--	--	--	Flush	1.3	0.63	1.27-1.30	--	Mesh	0.5-1.0	0-0.5
SVS-12	NA	4/16/18	6/2/22	HA	--	--	--	--	--	--	Flush	1.3	0.63	1.27-1.30	--	Mesh	0.5-1.0	0-0.5
SVS-13	NA	4/16/18	--	HA	--	--	--	--	--	--	Flush	1.2	0.63	1.27-1.30	--	Mesh	0.5-1.0	0-0.5
SVS-14	NA	4/25/18	--	HA	--	--	--	--	--	--	Flush	1.3	0.63	1.27-1.30	--	Mesh	0.5-1.0	0-0.5
SVS-15	NA	4/25/18	--	HA	--	--	--	--	--	--	Flush	1.3	0.63	1.27-1.30	--	Mesh	0.5-1.0	0-0.5
SVS-16	NA	4/25/18	6/2/22	HA	--	--	--	--	--	--	Flush	1.3	0.63	1.27-1.30	--	Mesh	0.5-1.0	0-0.5
SVS-17	BKX 980	2/28/19	--	HA	--	--	--	--	--	--	Flush	5.0	2.25	4.5-5.0	--	Mesh	4-5	0-4
SVS-18	NA	9/28/22	--	HA	--	--	--	--	--	--	Flush	1.0	0.63	4.5-5.0	--	Mesh	4-5	0-4
Recirculation Well																		
TW-1	APK 570	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	BHB 291	4/29/11	--	HSA	--	--	--	--	--	--	AG	38	2	33-38	--	0.010	31-38	0-31
Air Sparging Wells																		
AS-1	BHV 647	5/17/13	--	HSA	165,116.9	1,268,511.0	--	307.23	307.34	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

Table C1
Well Completion and Boring Details
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Well	Ecology Well Tag Number	Date		Drilling Method	Location (feet NAD 83/91)		Elevation (feet NAVD 88)			Survey Date	Monument Type	Boring Depth (feet)	Well Diameter (inches)	Screen Depth (ft bgs)		Slot Size (inch)	Filter Pack (ft bgs)	Seal (ft bgs)
		Installed	Decom.		Northing	Easting	Monitoring Point	Surface Casing Rim	Ground Surface					Below Ground	Below Top of Casing			
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	NA	4/16/18	4/16/18	DP	164,837.8	1,268,523.0	--	--	313.30	PES, 05/2018	--	11	2.25	--	--	--	--	--
SB-11	NA	4/16/18	4/16/18	DP	164,831.3	1,268,470.8	--	--	310.59	PES, 05/2018	--	15	2.25	--	--	--	--	--
SB-12	NA	4/16/18	4/16/18	DP	164,812.7	1,268,480.9	--	--	311.18	PES, 05/2018	--	11	2.25	--	--	--	--	--
SB-13	NA	4/16/18	4/16/18	DP	165,056.3	1,268,696.8	--	--	313.34	PES, 05/2018	--	29	2.25	--	--	--	--	--
SB-13A	NA	4/25/18	4/25/18	DP	165,055.2	1,268,697.2	--	--	313.38	PES, 05/2018	--	33	2.25	--	--	--	--	--
SB-13B	NA	4/25/18	4/25/18	DP	165,067.3	1,268,697.4	--	--	309.32	PES, 05/2018	--	40	2.25	--	--	--	--	--
SB-14	NA	4/16/18	4/16/18	DP	165,056.3	1,268,717.0	--	--	313.60	PES, 05/2018	--	31.5	2.25	--	--	--	--	--
SB-14A	NA	4/25/18	4/25/18	DP	165,056.2	1,268,717.8	--	--	313.60	PES, 05/2018	--	40	2.25	--	--	--	--	--
SB-15	NA	4/17/18	4/17/18	DP	165,078.3	1,268,721.7	--	--	310.28	PES, 05/2018	--	40	2.25	--	--	--	--	--
SB-16	NA	4/17/18	4/17/18	DP	165,172.1	1,268,822.2	--	--	310.61	PES, 05/2018	--	40	2.25	--	--	--	--	--
SB-17	NA	4/18/18	4/18/18	DP	165,175.7	1,268,798.0	--	--	310.03	PES, 05/2018	--	40	2.25	--	--	--	--	--
SB-18	NA	4/18/18	4/18/18	DP	165,201.4	1,268,799.7	--	--	309.93	PES, 05/2018	--	40	2.25	--	--	--	--	--
SB-19	NA	4/19/18	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	NA	4/19/18	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	NA	4/19/18	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	NA	4/20/18	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	NA	4/20/18	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	NA	4/23/18	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	NA	4/23/18	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	NA	4/24/18	4/24/18	DP	165,177.8	1,268,857.4	--	--	312.30	PES, 05/2018	--	40	2.25	--	--	--	--	--
SB-27	NA	4/24/18	4/24/18	DP	165,166.7	1,268,856.4	--	--	311.62	PES, 05/2018	--	40	2.25	--	--	--	--	--
SB-28	NA	4/24/18	4/24/18	DP	165,209.6	1,268,850.2	--	--	310.94	PES, 05/2018	--	40	2.25	--	--	--	--	--
SB-29	NA	4/24/18	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	NA	4/25/18	4/25/18	DP	165,196.5	1,268,529.1	--	--	304.82	PES, 05/2018	--	40	2.25	--	--	--	--	--
Decommissioned Monitoring Wells																		
MW-1	--	12/9/99	9/6/22	HSA	165,180.1	1,268,830.5	310.63	310.89	310.81	PES 03/2021	Flush	44	2	34-44	--	0.020	est. 32-44	0-est. 32
MW-2	--	12/9/99	9/6/22	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	BAB 465	4/8/08	9/7/22	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-5	BAB 464	4/8/08	9/6/22	HSA	165,331.6	1,268,938.6	310.38	310.84	--	PES, 08/2015	Flush	46	2	36-46	35.6-45.6	0.010	34-46	0-34
MW-8	APE 295	8/18/08	9/8/22	HSA	165,681.2	1,268,349.8	280.68	281.05	280.97	PES, 08/2015	Flush	26	2	13-23	12.71-22.71	0.010	11-23	0-11
MW-12	BHL 051	3/28/12	9/7/22	HSA	164,825.0	1,268,516.1	312.80	313.12	313.10	PES, 08/2015	Flush	46.5	2	36-46	35.7-45.7	0.010	34-46.5	0-34
MW-13	BHL 053	3/29/12	9/7/22	HSA	165,036.5	1,268,459.8	308.75	309.16	309.17	PES, 08/2015	Flush	46.5	2	35-45	34.58-44.58	0.010	33-45	0-33
MW-14	BHL 054	3/27/12	9/7/22	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	BHL 052	3/28/12	9/6/22	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	BHU 646	5/16/13	9/6/22	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-19	BLK 427	10/17/19	9/7/22	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
DC-1	AEE 921	10/12/98	9/7/22	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	AEE 924	10/13/98	9/7/22	HSA	165,055.6	1,268,655.1	312.92	313.61	313.70	PES, 08/2015	Flush	50	2	42-47	41.22-46.22	0.020	40-50	0-40
DC-3	AEE 925	10/13/98	9/7/22	HSA	165,056.4	1,268,607.7	313.11	313.68	313.79	PES, 08/2015	Flush	48	2	43-48	42.32-47.32	0.020	41-48	0-41
DC-5	--	1/22/99	9/7/22	HSA	165,166.5	1,268,526.9	306.03	306.28	306.24	PES, 08/2015	Flush	58.5	2	41-46	40.79-45.79	0.020	39-47	0-39
DC-10B	AER 679	4/6/99	9/6/22	HSA	165,120.4	1,268,497.5	307.80	308.29	307.89	PES, 08/2015	Flush	56	2	45-50	44.91-49.91	0.020	43-50	0-43

Table C1
Well Completion and Boring Details
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Well	Ecology Well Tag Number	Date		Drilling Method	Location (feet NAD 83/91)		Elevation (feet NAVD 88)			Survey Date	Monument Type	Boring Depth (feet)	Well Diameter (inches)	Screen Depth (ft bgs)		Slot Size (inch)	Filter Pack (ft bgs)	Seal (ft bgs)
		Installed	Decom.		Northing	Easting	Monitoring Point	Surface Casing Rim	Ground Surface					Below Ground	Below Top of Casing			
DC-11	APS 771	4/19/07	9/6/22	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	APS 772	4/18/07	9/6/22	HSA	165,179.8	1,268,852.1	311.22	311.81	311.73	PES 03/2021	Flush	42	2	32-42	31.7-41.7	0.010	30-42	0-30
DC-13	APS 773	4/19/07	9/6/22	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	APS 769	4/17/07	3/1/19	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-16	APS 770	4/18/07	9/6/22	HSA	165,169.7	1,268,611.5	307.12	307.79	--	PES, 02/2013	Flush	61.5	2	50-60	49.3-59.3	0.010	50-60	0-50
DC-18	APS 308	4/18/07	9/6/22	HSA	165,197.1	1,268,765.0	309.51	309.95	309.93	PES, 08/2015	Flush	42	2	32-42	31.58-41.58	0.010	30-42	0-30
DC-19	--	6/1/07	9/7/22	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	BAR 534	5/28/08	9/6/22	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	9/6/22	HSA	165,245.9	1,268,892.6	311.59	311.82	--	PES, 08/2015	Flush	52	2	37-52	36.8-51.8	0.010	34-52	0-34
KMW-2	APK 570	5/1/06	9/6/22	HSA	165,111.7	1,268,531.0	307.04	307.27	307.13	PES, 08/2015	Flush	50	2	30-40	29.91-39.91	0.010	8-40	0-8
KMW-4	APS 347	3/28/07	9/8/22	HSA	165,175.7	1,268,369.8	299.57	299.84	299.78	PES, 08/2015	Flush	34	2	24-34	23.79-33.79	0.020	23-34	0-22
KMW-5	APS 346	3/28/07	9/8/22	HSA	165,267.7	1,268,380.4	297.22	297.58	297.56	PES, 08/2015	Flush	34	2	24-34	23.66-33.66	0.020	22-34	0-22
KMW-5D	APS 345	3/28/07	9/8/22	HSA	165,276.5	1,268,382.0	297.04	297.35	297.32	PES, 08/2015	Flush	46	2	41-46	40.72-45.72	0.020	41-46	0-41
KMW-6	APS 343	3/27/07	9/8/22	HSA	165,391.1	1,268,399.1	294.80	295.27	295.20	PES, 10/2019	Flush	42.5	2	26.18-41.18	25.78-40.78	0.020	22-41	0-22
KMW-9	APS 344	3/27/07	9/6/22	HSA	165,079.0	1,268,726.3	310.33	310.83	310.83	PES, 08/2015	Flush	44	2	34-44	33.5-43.5	0.020	32-44	0-32
Former SCS Soil Vapor Extraction Wells (1999)																		
VES-1 (B1)	--	1999	2000	--	--	--	--	--	--	--	Flush	11.5	2	3-11	--	0.020	2.5-11.5	1.5-2.5
VES-2A	--	1999	2000	--	--	--	--	--	--	--	Flush	6.5	2	3-6	--	0.020	2.5-6.5	1.5-2.5
VES-2B	--	1999	2000	--	--	--	--	--	--	--	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	2000	--	--	--	--	--	--	--	Flush	6.5	2	3-6	--	0.020	2.5-6.5	1.5-2.5
VES-4 (BH-16)	--	1999	2000	--	--	--	--	--	--	--	Flush	6.5	2	3-6	--	0.020	2.5-6.5	1.5-2.5
VES-5 (BH-17)	--	1999	2000	--	--	--	--	--	--	--	Flush	6.5	2	3-6	--	0.010	2.5-6.5	1.5-2.5
VES-6A (BH-1)	--	1999	2000	--	--	--	--	--	--	--	Flush	6.5	2	3-6	--	0.020	2.5-6.5	1.5-2.5
VES-6B (BH-1)	--	1999	2000	--	--	--	--	--	--	--	Flush	36	2	11.5-35.5	--	0.020	7.5-36	1.5-2.5/6.5-7.5
VES-7	--	1999	2000	--	--	--	--	--	--	--	Flush	6.5	2	3-6	--	0.020	2.5-6.5	1.5-2.5

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 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.
13. Soil vapor extraction wells SVE-24 and SVE-25 were installed at a 45 degree angle. The wells were cut off 4 feet below ground surface and the casings extended vertically. Depth intervals have been converted from length along the boring by dividing by 1.41.
14. A total of 30 monioring wells were decommissioned on 9/6 - 9/8/2022. MW-1, MW-2, and DC-5 were drilled out. The remaining wells were chipped up and decommissioned in place including MW-3, MW-5, MW-8, MW-12, MW-13, MW-14, MW-15, MW-16, MW-19, DC-1, DC-2, DC-3, DC-10B, DC-11, DC-12, DC-13, DC-16, DC-18, DC-19, DC-20, KMW-1, KMW-3, KMW-4, KMW-5, KMW-5D, KMW-6, and KMW-9.

Table C2
Historical Summary of Groundwater Elevations (1999 - 2021)
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-2	12/7/2021	308.34	37.05	271.29
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

Table C2
Historical Summary of Groundwater Elevations (1999 - 2021)
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-3	12/7/2021	311.41	39.34	272.07
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-4	12/7/2021	310.47	38.84	271.63
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

Table C2
Historical Summary of Groundwater Elevations (1999 - 2021)
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	10/21/2014	304.14	37.79	266.35
MW-6	12/9/2015	304.14	37.22	266.92
MW-6	12/13/2016	304.14	36.49	267.65
MW-6	3/13/2017	304.14	35.68	268.46
MW-6	7/17/2017	304.14	34.79	269.35
MW-6	10/20/2017	304.14	38.24	265.90
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-7	12/7/2021	302.64	38.78	263.86
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

Table C2
Historical Summary of Groundwater Elevations (1999 - 2021)
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-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
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-9	12/7/2021	284.97	32.11	252.86
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-10	12/7/2021	306.71	35.32	271.39
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

Table C2
Historical Summary of Groundwater Elevations (1999 - 2021)
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	5/28/2013	307.85	34.98	272.87
MW-11	10/21/2014	307.62	35.78	271.84
MW-11	12/9/2015	307.62	36.16	271.46
MW-11	12/13/2016	307.62	35.33	272.29
MW-11	3/13/2017	307.62	34.11	273.51
MW-11	7/17/2017	307.62	33.25	274.37
MW-11	10/20/2017	307.62	34.74	272.88
MW-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-11	12/7/2021	307.62	36.27	271.35
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

Table C2
Historical Summary of Groundwater Elevations (1999 - 2021)
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-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
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-17	6/3/2020	303.01	31.88	271.13
MW-17	12/10/2021	303.01	32.78	270.23
MW-18	3/6/2019	305.26	34.55	270.71
MW-18	10/24/2019	305.26	35.25	270.01
MW-18	12/10/2021	305.26	35.01	270.25
MW-19	10/24/2019	305.35	35.09	270.26
MW-19	12/4/2019	305.35	35.36	269.99

Table C2
Historical Summary of Groundwater Elevations (1999 - 2021)
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-20	10/24/2019	305.51	35.22	270.29
MW-20	12/4/2019	305.51	35.49	270.02
MW-20	6/3/2020	305.51	34.02	271.49
MW-20	12/8/2021	305.51	34.98	270.53
DC-1	11/14/2000	312.46	40.29	272.17
DC-1	3/6/2001	312.46	41.11	271.35
DC-1	6/20/2001	312.46	41.46	271.00
DC-1	9/17/2001	312.46	41.78	270.68
DC-1	12/20/2001	312.46	41.43	271.03
DC-1	3/13/2002	312.46	39.75	272.71
DC-1	9/17/2002	312.46	39.75	272.71
DC-1	12/10/2002	312.46	40.69	271.77
DC-1	3/31/2003	312.46	40.33	272.13
DC-1	9/3/2003	312.46	40.69	271.77
DC-1	3/16/2004	312.46	39.77	272.69
DC-1	9/7/2004	312.46	40.57	271.89
DC-1	2/9/2005	312.46	41.31	271.15
DC-1	4/24/2007	312.46	38.29	274.17
DC-1	8/21/2008	312.72	40.93	271.79
DC-1	11/5/2010	312.72	40.64	272.08
DC-1	2/11/2011	312.72	39.37	273.35
DC-1	5/30/2011	312.72	37.91	274.81
DC-1	7/19/2011	312.72	38.21	274.51
DC-1	10/17/2011	312.72	39.37	273.35
DC-1	4/2/2012	312.72	39.72	273.00
DC-1	5/28/2013	312.82	39.30	273.52
DC-1	10/21/2014	312.82	40.05	272.77
DC-1	12/9/2015	312.82	40.51	272.31
DC-1	12/13/2016	312.82	39.63	273.19
DC-1	3/13/2017	312.82	38.46	274.36
DC-1	7/17/2017	312.82	37.40	275.42
DC-1	10/20/2017	312.82	39.26	273.56
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

Table C2
Historical Summary of Groundwater Elevations (1999 - 2021)
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	3/13/2002	312.80	40.45	272.35
DC-2	6/13/2002	312.80	39.64	273.16
DC-2	9/17/2002	312.80	40.50	272.30
DC-2	12/10/2002	312.80	41.42	271.38
DC-2	3/31/2003	312.80	41.03	271.77
DC-2	9/3/2003	312.80	41.41	271.39
DC-2	3/16/2004	312.80	40.51	272.29
DC-2	9/7/2004	312.80	41.30	271.50
DC-2	2/9/2005	312.80	41.99	270.81
DC-2	4/24/2007	312.80	39.03	273.77
DC-2	8/21/2008	313.04	41.65	271.39
DC-2	11/5/2010	313.04	41.34	271.70
DC-2	2/11/2011	313.04	40.08	272.96
DC-2	5/30/2011	313.04	38.67	274.37
DC-2	7/19/2011	313.04	38.98	274.06
DC-2	10/17/2011	313.04	40.08	272.96
DC-2	4/2/2012	313.04	40.41	272.63
DC-2	10/21/2014	312.92	40.78	272.14
DC-2	12/9/2015	312.92	41.22	271.70
DC-2	12/13/2016	312.92	40.36	272.56
DC-2	3/13/2017	312.92	39.19	273.73
DC-2	7/17/2017	312.92	38.20	274.72
DC-2	10/20/2017	312.92	39.71	273.21
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

Table C2
Historical Summary of Groundwater Elevations (1999 - 2021)
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	2/9/2005	312.98	42.21	270.77
DC-3	4/24/2007	312.98	39.26	273.72
DC-3	8/21/2008	313.23	41.89	271.34
DC-3	11/5/2010	313.23	41.58	271.65
DC-3	2/11/2011	313.23	40.30	272.93
DC-3	5/30/2011	313.23	38.89	274.34
DC-3	7/19/2011	313.23	39.22	274.01
DC-3	10/17/2011	313.23	40.34	272.89
DC-3	4/2/2012	313.23	40.62	272.61
DC-3	10/21/2014	313.11	41.07	272.04
DC-3	12/9/2015	313.11	41.47	271.64
DC-3	12/13/2016	313.11	40.59	272.52
DC-3	3/13/2017	313.11	39.39	273.72
DC-3	7/17/2017	313.11	38.44	274.67
DC-3	10/20/2017	313.11	39.94	273.17
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

Table C2
Historical Summary of Groundwater Elevations (1999 - 2021)
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-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
DC-4	12/7/2021	312.35	40.76	271.59
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

Table C2
Historical Summary of Groundwater Elevations (1999 - 2021)
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	2/9/2005	302.50	32.67	269.83
DC-7	4/11/2006	302.50	31.05	271.45
DC-7	10/26/2006	302.50	32.58	269.92
DC-7	4/24/2007	302.50	29.96	272.54
DC-7	8/21/2008	302.78	32.48	270.30
DC-7	11/5/2010	302.78	32.15	270.63
DC-7	2/11/2011	302.78	30.91	271.87
DC-7	5/30/2011	302.78	29.68	273.10
DC-7	7/19/2011	302.78	30.03	272.75
DC-7	10/17/2011	302.78	31.04	271.74
DC-7	4/2/2012	302.78	31.12	271.66
DC-7	5/28/2013	302.88	30.94	271.94
DC-7	10/21/2014	302.61	31.71	270.90
DC-7	12/16/2015	302.61	31.79	270.82
DC-7	12/13/2016	302.61	31.19	271.42
DC-7	3/13/2017	302.61	30.03	272.58
DC-7	7/17/2017	302.61	29.37	273.24
DC-7	10/20/2017	302.61	30.51	272.10
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-7	5/11/2021	302.61	31.15	271.46
DC-7	12/8/2021	302.61	32.07	270.54
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

Table C2
Historical Summary of Groundwater Elevations (1999 - 2021)
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-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
DC-8	12/8/2021	306.23	35.69	270.54
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

Table C2
Historical Summary of Groundwater Elevations (1999 - 2021)
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-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-10A	12/7/2021	307.73	36.26	271.47
DC-10B	4/16/1999	307.66	31.92	275.74
DC-10B	3/6/2001	307.66	36.89	270.77
DC-10B	6/20/2001	307.66	37.46	270.20
DC-10B	9/17/2001	307.66	37.55	270.11
DC-10B	12/20/2001	307.66	37.03	270.63
DC-10B	2/9/2005	307.66	36.98	270.68
DC-10B	4/11/2006	307.66	35.24	272.42
DC-10B	4/24/2007	307.66	34.08	273.58
DC-10B	8/21/2008	307.89	36.74	271.15
DC-10B	11/5/2010	307.89	36.40	271.49
DC-10B	2/11/2011	307.89	35.06	272.83
DC-10B	5/30/2011	307.89	33.72	274.17
DC-10B	7/19/2011	307.89	34.09	273.80
DC-10B	10/17/2011	307.89	35.15	272.74
DC-10B	4/2/2012	307.89	35.34	272.55
DC-10B	12/13/2016	307.89	35.45	272.44
DC-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

Table C2
Historical Summary of Groundwater Elevations (1999 - 2021)
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-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
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

Table C2
Historical Summary of Groundwater Elevations (1999 - 2021)
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	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
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-15	12/8/2021	307.89	36.90	270.99
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

Table C2
Historical Summary of Groundwater Elevations (1999 - 2021)
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-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
DC-17	12/8/2021	305.16	33.98	271.18
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-18	12/7/2021	309.51	38.36	271.15
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

Table C2
Historical Summary of Groundwater Elevations (1999 - 2021)
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-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
DC-20	12/7/2021	310.92	39.71	271.21
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

Table C2
Historical Summary of Groundwater Elevations (1999 - 2021)
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-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-2	12/7/2021	307.04	35.61	271.43
KMW-3	4/24/2007	296.92	24.51	272.41
KMW-3	8/21/2008	296.92	27.01	269.91
KMW-3	11/5/2010	296.92	26.37	270.55
KMW-3	5/30/2011	296.92	24.22	272.70
KMW-3	7/19/2011	296.92	24.61	272.31
KMW-3	10/17/2011	296.92	25.58	271.34
KMW-3	4/2/2012	296.92	25.59	271.33
KMW-3	10/21/2014	296.92	26.25	270.67
KMW-3	12/13/2016	296.92	25.69	271.23
KMW-3	3/13/2017	296.92	24.33	272.59
KMW-3	7/17/2017	296.92	23.99	272.93
KMW-3	10/20/2017	296.92	25.35	271.57
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-3	12/9/2021	296.99	26.53	270.46
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

Table C2
Historical Summary of Groundwater Elevations (1999 - 2021)
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-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
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

Table C2
Historical Summary of Groundwater Elevations (1999 - 2021)
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-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
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-7	12/10/2021	301.42	31.25	270.17
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

Table C2
Historical Summary of Groundwater Elevations (1999 - 2021)
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-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-8	12/10/2021	308.16	37.85	270.31
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

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 C3
Historical Summary of Groundwater Analytical Results (1999 - 2021)
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 C3
Historical Summary of Groundwater Analytical Results (1999 - 2021)
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-4	12/7/2021	**2.62**		
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-7	12/7/2021	**8.20**		
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-9	12/9/2021	0.400	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**		

Table C3
Historical Summary of Groundwater Analytical Results (1999 - 2021)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)		Other VOCs detected (µg/l)
MW-10	10/24/2014	**1.7**		
MW-10	12/11/2015	1.00	U	TCE (3.22)
MW-10	12/14/2016	**1.13**		
MW-10	3/14/2017	**1.09**		
MW-10	7/18/2017	1.00	U	
MW-10	10/23/2017	0.500	U	
MW-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-10	12/9/2021	**1.60**		
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-11	12/9/2021	**5.59**		
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	

Table C3
Historical Summary of Groundwater Analytical Results (1999 - 2021)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)		Other VOCs detected (µg/l)
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	
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-17	6/3/2020	**5.35**		
MW-17	12/10/2021	**4.98**		
MW-18	3/6/2019	**11.4**		
MW-18	10/28/2019	**11.3**		
MW-18	12/10/2021	**9.8**		
MW-20	10/29/2019	0.500	U	Chloroform (0.547)
MW-20	12/4/2019	0.500	U	
MW-20	6/3/2020	1.00	U	
MW-20	12/8/2021	**0.423**		
DC-1	10/21/1998	**0.60**		Toluene (0.8)

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Monitoring Well	Date	PCE (µg/l)		Other VOCs detected (µg/l)
DC-1	2/3/1999	0.5	U	
DC-1	4/7/1999	0.5	U	Toluene (8.7)
DC-1	12/8/1999	1.0	U	
DC-1	4/26/2000	1.0	U	
DC-1	8/3/2000	1.0	U	
DC-1	11/14/2000	1.0	U	
DC-1	3/6/2001	1.0	U	
DC-1	6/20/2001	1.0	U	
DC-1	9/17/2001	1.0	U	
DC-1	12/20/2001	1.0	U	
DC-1	3/13/2002	1.0	U	
DC-1	9/17/2002	1.0	U	
DC-1	12/10/2002	1.0	U	
DC-1	3/31/2003	1.0	U	
DC-1	9/3/2003	1.0	U	
DC-1	3/16/2004	1.0	U	
DC-1	9/7/2004	1.0	U	
DC-1	4/25/2007	0.2	U	
DC-1	4/4/2012	2.0	U	
DC-2	10/21/1998	**2.4**		Chloroform (1.8), Toluene (0.6)
DC-2	2/3/1999	**0.7**		
DC-2	4/7/1999	0.5	U	Chloroform (1.4), Toluene (14)
DC-2	12/8/1999	0.5	U	
DC-2	4/26/2000	1.0	U	
DC-2	8/3/2000	1.0	U	
DC-2	11/14/2000	1.0	U	
DC-2	3/6/2001	1.0	U	
DC-2	6/20/2001	1.0	U	
DC-2	9/17/2001	1.0	U	
DC-2	12/20/2001	1.0	U	
DC-2	3/13/2002	**4.0**		
DC-2	6/13/2002	1.0	U	
DC-2	9/17/2002	1.0	U	
DC-2	12/10/2002	**0.50**		
DC-2	3/31/2003	**3.37**		
DC-2	9/3/2003	1.0	U	
DC-2	3/16/2004	**0.74**		
DC-2	9/7/2004	1.0	U	
DC-2	4/26/2007	**1.2**		
DC-2	4/14/2008	**0.340**		Chloroform (1.60)
DC-2	11/3/2010	2.0	U	
DC-2	5/31/2011	2.0	U	
DC-2	7/21/2011	2.0	U	
DC-2	10/18/2011	2.0	U	
DC-2	4/4/2012	2.0	U	
DC-3	10/28/1998	**54**		Chloroform (1.9), Toluene (0.6)

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Monitoring Well	Date	PCE (µg/l)		Other VOCs detected (µg/l)
DC-3	2/4/1999	**25**		
DC-3	4/8/1999	**36**		Chloroform (1.2), Toluene (15)
DC-3	12/8/1999	**45**		
DC-3	4/26/2000	**56**		
DC-3	8/3/2000	**25**		
DC-3	11/14/2000	1.0	U	
DC-3	3/6/2001	**4.7**		
DC-3	6/20/2001	**2.8**		
DC-3	9/17/2001	1.0	U	
DC-3	12/20/2001	**9.2**		
DC-3	3/13/2002	**40.0**		
DC-3	6/13/2002	**42.3**		
DC-3	9/17/2002	**33.4**		
DC-3	12/10/2002	**5.40**		
DC-3	3/31/2003	**7.34**		
DC-3	9/3/2003	**2.08**		
DC-3	3/16/2004	1.0	U	
DC-3	9/7/2004	**3.43**		
DC-3	4/26/2007	**42.0**		
DC-3	4/14/2008	**27.8**		Chloroform (1.50)
DC-3	3/9/2010	2.0	U	
DC-3	11/3/2010	2.0	U	
DC-3	5/30/2011	**3.9**		
DC-3	7/20/2011	**12**		
DC-3	10/18/2011	**6.7**		
DC-3	4/4/2012	**2.9**		
DC-3	10/27/2014	**1.4**		
DC-3	12/11/2015	**1.49**		
DC-3	12/14/2016	1.00	U	
DC-3	3/14/2017	**2.11**		
DC-3	7/18/2017	1.00	U	
DC-3	10/24/2017	**0.786**		
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**		

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Monitoring Well	Date	PCE (µg/l)		Other VOCs detected (µg/l)
DC-4	9/17/2002	**28.8**		
DC-4	12/10/2002	**22.4**		
DC-4	3/31/2003	**12.5**		
DC-4	9/3/2003	**14.1**		
DC-4	3/16/2004	**19.8**		
DC-4	9/7/2004	**18.5**		
DC-4	4/26/2007	**19.0**		
DC-4	4/11/2008	**30.2**		Chloroform (1.2)
DC-4	3/9/2010	**9.2**		
DC-4	11/3/2010	**13**		
DC-4	5/31/2011	2.0	U	Acetone (46)
DC-4	7/20/2011	2.0	U	Acetone (77)
DC-4	10/18/2011	**22**		
DC-4	4/4/2012	**22**		
DC-4	5/30/2013	**11**		
DC-4	10/29/2014	**13**		
DC-4	12/14/2015	**5.49**		
DC-4	12/14/2016	1.00	U	
DC-4	3/14/2017	1.00	U	
DC-4	7/18/2017	1.00	U	
DC-4	10/24/2017	0.500	U	
DC-4	4/18/2018	0.500	U	
DC-4	10/17/2018	0.500	U	
DC-4	12/7/2021	**5.36**		
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**		

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Monitoring Well	Date	PCE (µg/l)	Other VOCs detected (µg/l)
DC-7	4/16/2008	**50.8**	
DC-7	11/3/2010	**34**	
DC-7	6/1/2011	**15**	
DC-7	7/21/2011	**38**	
DC-7	10/18/2011	**42**	
DC-7	4/5/2012	**18**	
DC-7	5/30/2013	**15**	
DC-7	10/30/2014	**23**	
DC-7	12/16/2015	**13.3**	
DC-7	3/17/2017	**10.4**	
DC-7	10/23/2017	**6.67 J**	
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-7	5/11/2021	**8.35**	
DC-7	12/8/2021	**10.0 J**	
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**	

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Monitoring Well	Date	PCE (µg/l)	Other VOCs detected (µg/l)
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-8	12/8/2021	**11.0**	
DC-9A	4/8/1999	**135**	Toluene (3.2)
DC-9A	12/8/1999	**73**	
DC-9A	4/26/2000	**240**	
DC-9A	8/3/2000	**110**	
DC-9A	4/11/2006	**78**	
DC-9A	8/8/2006	**49**	
DC-9A	11/2/2006	2.9	
DC-9A	4/26/2007	**33**	
* Monitoring well cannot be located			
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**	

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Monitoring Well	Date	PCE (µg/l)	Other VOCs detected (µg/l)
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**	
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**	

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Monitoring Well	Date	PCE (µg/l)		Other VOCs detected (µg/l)
DC-15	12/8/2021	**9.31**		
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**		
DC-17	10/30/2019	**5.72**		
DC-17	12/9/2021	**0.810**		
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**		

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Monitoring Well	Date	PCE (µg/l)		Other VOCs detected (µg/l)
KMW-2	8/8/2006	**130**		
KMW-2	10/26/2006	**190**		
KMW-2	4/24/2007	**63**		
KMW-2	4/16/2008	**96**		
KMW-2	3/8/2010	**81**		
KMW-2	11/3/2010	**74**		
KMW-2	6/1/2011	**12**		Acetone (140)
KMW-2	7/20/2011	**44**		
KMW-2	10/19/2011	**40**		
KMW-2	4/6/2012	**25**		
KMW-2	5/31/2013	**22**		
KMW-2	10/29/2014	**18**		
KMW-2	12/15/2015	**15**		
KMW-2	12/15/2016	**1.18**		
KMW-2	3/14/2017	1.00	U	
KMW-2	7/18/2017	1.00	U	
KMW-2	10/24/2017	0.500	U	
KMW-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-3	12/9/2021	**3.40**		
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**		

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Monitoring Well	Date	PCE (µg/l)		Other VOCs detected (µg/l)
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-7	12/10/2021	**0.620**		
KMW-8	4/24/2007	**11**		
KMW-8	4/15/2008	**17.4**		
KMW-8	4/3/2012	**10**		
KMW-8	10/28/2014	**5.9**		
KMW-8	12/15/2015	**3.98**		
KMW-8	3/16/2017	**6.71**		
KMW-8	7/19/2017	**5.00**		
KMW-8	10/26/2017	**4.99**		Chloroform (1.15)
KMW-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-8	12/10/2021	**1.94**		
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				
MW-19	10/29/2019	0.500	U	Chloroform (0.560)
MW-19	12/4/2019	0.500	U	
DC-5	2/4/1999	**2.4**		

Table C3
Historical Summary of Groundwater Analytical Results (1999 - 2021)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)		Other VOCs detected (µg/l)
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	
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	

Table C3
Historical Summary of Groundwater Analytical Results (1999 - 2021)
Manhattan Village Shopping Center and Harris Properties
Normandy Park, Washington

Monitoring Well	Date	PCE (µg/l)	Other VOCs detected (µg/l)

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 C4
Historical Summary of Soil Analytical Results (1998 - 2021)
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 C4
Historical Summary of Soil Analytical Results (1998 - 2021)
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 C4
Historical Summary of Soil Analytical Results (1998 - 2021)
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**	TCE = 0.019, cis-1,2-DCE=0.012	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**	TCE = 0.005, cis-1,2-DCE=0.007	Overexcavated
ST-03	7	04/05/06	**0.016**		Overexcavated
ST-04	7	04/05/06	**0.073**	TCE = 0.026, cis-1,2-DCE=0.032	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 C4
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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 C4
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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
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 C4
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Manhattan Village Shopping Center and Harris Properties
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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 C4
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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 C4
Historical Summary of Soil Analytical Results (1998 - 2021)
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 C4
Historical Summary of Soil Analytical Results (1998 - 2021)
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 C4
Historical Summary of Soil Analytical Results (1998 - 2021)
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 C4
Historical Summary of Soil Analytical Results (1998 - 2021)
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**		

Table C4
Historical Summary of Soil Analytical Results (1998 - 2021)
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	10	02/28/19	0.0314 U		
MW-18	30	02/28/19	**0.0288**		
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**		
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**		
SVE-20	2	08/31/20	**0.0907**		
SVE-20	8.5	08/31/20	**1.54**		
SVE-20	11	08/31/20	**1.30**	Cis-1,2-dichloroethene = 0.0455; Trichloroethene = 0.0226	
SVE-21	2	08/31/20	**0.254**		
SVE-21	12	08/31/20	**0.0381**		
SVE-21	25	08/31/20	**0.0558**		
SVE-21	35	08/31/20	**0.135**		
SVE-22	2	09/01/20	**0.0320**		
SVE-22	26	09/01/20	**0.102**		
SVE-22	32	09/01/20	**0.105**		
SVE-23	2	09/01/20	0.0270 U		
SVE-23	19	09/01/20	**0.0252**	1,2,3-Trichlorobenzene = 0.0254; Hexachlorobutadiene = 0.0313	
SVE-23	25	09/01/20	**0.0489**		
SVE-24	3	08/31/20	0.0315 U		
SVE-24	8	09/01/20	0.0215 U		Vert depth = 5.7 ft
SVE-24	13.5	09/01/20	0.0245 U		Vert depth = 9.6 ft
SVE-25	2	09/01/20	0.0269 U		
SVE-25	11.5	09/02/20	**0.0373**		Vert depth = 8.2 ft
SVE-25	43.5	09/02/20	**0.063**		Vert depth = 30.9 ft
SVE-25	49	09/02/20	**0.0422**		Vert depth = 34.8 ft
Trench	2.5	09/02/20	0.0240 U		Adj. to sanitary line
EX-1	1.5	09/17/20	**0.144**		
EX-1	4	09/17/20	0.0242 U		
EX-2	1	09/17/20	0.0233 U		
EX-2	4	09/17/20	0.0260 U		
EX-3	3	09/17/20	0.0239 U		
EX-3	4	09/17/20	0.0240 U		
EX-4	2	09/17/20	**0.130**		
EX-4	4	09/17/20	0.0224 U		
EX-5	2	09/17/20	0.0237 U		
EX-6	3	09/17/20	0.00565 U		
EX-7	2	09/17/20	0.00620 U		
EX-8	1.5	09/17/20	0.00632 U		
EX-9	3	09/17/20	0.00666 U		

Table C4
Historical Summary of Soil Analytical Results (1998 - 2021)
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
EX-10	3	09/17/20	0.00588 U		
EX-11	2	09/17/20	0.00642 U		
EX-12	2	09/17/20	0.00606 U		
EX-13	2	09/17/20	0.00642 U		
EX-14	2	09/17/20	0.00608 U		
EX-15	2	09/17/20	0.00576 U		
EX-16	1.5	01/27/21	0.0214 U		
EX-17	1.5	01/27/21	**0.0876**		
EX-18	1.5	01/27/21	0.0236 U		
EX-19	2	01/27/21	0.0265 U		
EX-20	2.5	01/27/21	0.0231 U		
EX-21	2	01/27/21	0.0229 U		
EX-22	2.5	01/27/21	0.0237 U		
EX-23	2	01/27/21	0.0273 U		
EX-24	2	01/27/21	0.0242 U		
EX-25	3	01/27/21	0.0264 U		
EX-26	3	01/27/21	0.0231 U		
EX-27	3	01/27/21	0.0193 U		

NOTES:

1. Tetrachloroethene (PCE) concentrations in milligrams per kilogram (mg/kg).
2. Samples analyzed using USEPA Methods 8260 (and by 8021B in 1998 through 2000 only). Samples EX-6 EX-15 analyzed by EPA Method 8260-SIM
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.
7. SVE-24 and SVE-25 were installed at a 45 degree angle and sample depths indicate length along boring. Vertical depths are included in the comments.

Table C5

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

Parameter	CAS Number	Method B Screening Level	Commercial Worker 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	610	5,200	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	610	5,200	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	320	1,500	**105**	**485**	**108**	**537**	**367**	**611**	**1,500**	**9.93**	**168**	**50.5**	**115**	**369**		**26,900**	**104,000**
Trichloroethene	79-01-6	11.0	95	**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	9.5	44	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. Soil gas screening levels from Ecology Cleanup Levels and Risk Calculation (CLARC) Vapor Intrusion Method B Table and Ecology Cleanup Levels and Risk Calculation (CLARC) Vapor Intrusion Worker - January 2023
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. SVS-12 and SVS-16 were decommissioned on June 2, 2022 due to floor wax clogging the probe tip.
10. SVS-17 is installed beneath the slab. The soil gas probed is installed in the aspalt paved alley behind Four Star Cleaners on MVSC Property.
11. SVS-18 was installed in the Kintsugi Physical Therapy Office on September 28, 2022. This probe has not yet been sampled.

ATTACHMENT D

UNDERGROUND INJECTION CONTROL PROGRAM AUTHORIZATION

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

August 25, 2022

Stan Harris
Harris Family LTD
711 S 234th Place
Des Moines, WA 98198
stanlindaharris@hotmail.com

RE: UIC Site 36841 – Well Registration and Authorization with the Underground Injection Control (UIC) Program, Normandy Park PCE (Site), 17817 1st Ave S, Normandy Park, WA

Stan Harris:

Ecology's UIC Program has reviewed your UIC registration application for the above-mentioned Site. Based on the information provided in the registration and the additional information provided per Ecology's request, the UIC wells are **Conditionally Rule-Authorized** and a State Waste Discharge Permit is not required to operate the wells under WAC 17-218 authorities.

The UIC registration number is 36841. The Site is also undergoing an independent remedial cleanup activities under Ecology's Voluntary Cleanup Program (VCP) that may be evaluated by the VCP to determine if the substantive requirements of the Model Toxics Control Act (MTCA) have been met; the VCP Project Number is NW1873.

The proposed cleanup action involves the installation of a permeable reactive barrier of BOS 100®. BOS 100® is an alloy of granular activated carbon containing 6.5 percent by weight of zero valent iron. The BOS 100® will be mixed with water to create a treatment slurry for injection into the subsurface target area. The slurry is expected to spread outwards from the injection point up to three feet allowing the BOS 100® mixture to trap and treat the chlorinated solvents (CS) in situ within the soil matrix. The consultant shall monitor for all CS plus required field parameters for migration and safety. If any CS or field parameter value is identified

outside the expected criteria, the injection operation must cease and be reported to the Ecology VCP Site Manager.

The injected compounds are intended to improve groundwater quality. There are inherent environmental risks associated with injecting compounds into groundwater. It is incumbent upon the owner and their representative to carefully characterize, manage, and monitor the site surface and subsurface conditions to minimize risk and prevent unforeseen degradation of groundwater quality and other environmental risks. Mobilized metals or other substances, injected chemicals, or hazardous bi-products, are not allowed to migrate beyond the site property boundary/monitoring wells listed above.

Conditional Rule-Authorization - Conditions of Use

Ecology will continue to conditionally rule-authorize the Site UIC registration for as long as the following conditions of use continue to be met by the owner/operator. The two UIC Program requirements for rule authorization are:

1. Registration of UIC wells (prior to use), and

2. The UIC well must meet the nonendangerment standard (WAC 173-218-080).

In addition, the other Site-specific UIC Program requirements for conditionally-rule authorization include:

- The groundwater analytical results from the monitoring well must meet the applicable MTCA groundwater cleanup levels.
- A one-time injection of a BOS 100® mixture consisting 111.5 pounds of BOS 100® mixed with 100 gallons of water into each of the 61 injection points. Onsite groundwater is not approved for use to mix with the remediation products for injection into the subsurface.
- The injections activities must follow the Remedial Action Work Plan[1] (RAWP). Any deviations from RAWP are not allowed unless the VCP Site Manager has approved those changes.
- The injections should not cause a further degradation to groundwater quality criteria at the down-gradient monitoring points per the state or federal applicable criteria. If such groundwater degradation occurs the injection activities shall cease and Ecology shall be notified no later than 24-hours from the groundwater degradation discovery.

[1] Remedial Action Work Plan Addendum No. 1, Manhattan Village Shopping Center and Harris Properties, PES Environmental, Inc., VCP NW1873, Normandy Park, Washington, dated June 29, 2021.

- Notification to Ecology's UIC Program of any change in UIC well status is a required element to this registration.
- The start date is planned for September 2022.

The Ecology Toxics Cleanup Program VCP Site Cleanup Manager will have final authority to determine if the cleanup actions described in your UIC registration have met the substantive requirement of the MTCA.

The Site will be conditionally rule-authorized for as long as the Groundwater Quality Standards continue to be met and the above items have been completed. Failure to capture any of the performance data listed above or violate the applicable cleanup standards may result in a denial, modification, or termination of a UIC registration.

At any time, Ecology may require you to apply for and obtain a Waste Discharge Permit for the continued use of these compounds. You may obtain a formal waste discharge approval for this project through the Ecology's State Waste Discharge Permit Program or the Toxics Cleanup Program.

The owner is responsible to retain all registration documents, plans, modeling, monitoring results, interim, and final reports. Upon Ecology request, the owner shall provide these documents to the UIC Program.

Under the presumptive approach, Ecology presumes the BMPs listed in your registration application and associated documents will be protective of Site groundwater quality and Ecology will presume the nonendangerment requirements of WAC 173-218-080 have been met.

Any material misrepresentations or omissions of fact supplied in this application may result in the denial or revocation of this registration authorization. Ecology's UIC Program has the authority to rescind a rule authorization if the system no longer meets the nonendangerment standard.

Please contact Eugene Radcliff at UICwells@ecy.wa.gov if you have any questions. You can find additional information on the UIC Program can at our website:

> https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Underground-injection-control-program

Sincerely,

Eugene Radcliff, LG, LHG
Statewide UIC Program Coordinator
Water Quality Program

Cc:

Matt Dahl, PES Environmental, matt.dahl@nv5.com
Christopher Maurer, Department of Ecology (VCP), cmau461@ECY.WA.GOV
Department of Ecology - Internal UIC Database
Department of Ecology - UIC Resource Mailbox

ATTACHMENT E

WASTE DISPOSAL DOCUMENTATION

BILL OF LADING

PRODUCT TRANSPORT MANIFEST

MARINE VACUUM SERVICE, INC.

24 HOUR EMERGENCY PHONE NUMBER (206) 762-0240

FAX NUMBER 206-763-8084

TRUCK NUMBER 226 DATE 1-14-22

Nº 00963

TO
DESTINATION
NAME Marine Vacuum Service, Inc.
STREET 1516 South Graham St.
CITY/STATE Seattle, WA 98108

FROM
SHIPPER
NAME PES ENVIROMENTAL
STREET 17817 1st AVE So.
CITY/STATE NORMANDY PARK, WA

QUANTITY	PROPER SHIPPING NAME	UN (PLACARD) NUMBER
1500 gal	~~NON-CWT Non Regulated by DOT~~ Water non-reg by DOT	

RECEIVER R.B. ALLEN - MARVAC DATE 1-14-22

SHIPPER [signature] on behalf of Harris Family LTD DATE 1/14/22

NOTE: **MUST USE ONLY APPOINTED TANKERS**

Customer certifies to the best of their knowledge that the waste water being hauled / transferred by the above collector is NOT contaminated with industrial wastes and contaminated waters (such as oil, fuel, or any other types of chemical) .

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

PES Environmental, Inc.
Matt Dahl
2101 Fourth Avenue, Suite 1310
Seattle, WA 98121

RE: MVSC
Work Order Number: 2201038

January 12, 2022

Attention Matt Dahl:

Fremont Analytical, Inc. received 1 sample(s) on 1/5/2022 for the analyses presented in the following report.

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: *01/12/2022*

CLIENT: PES Environmental, Inc.
Project: MVSC
Work Order: 2201038

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2201038-001	Cond-010522	01/05/2022 12:00 PM	01/05/2022 2:33 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **2201038**
Date: **1/12/2022**

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
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
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MCL - Maximum Contaminant Level
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **2201038**
Date Reported: **1/12/2022**

Client: PES Environmental, Inc. **Collection Date:** 1/5/2022 12:00:00 PM
Project: MVSC
Lab ID: 2201038-001 **Matrix:** Water
Client Sample ID: **Cond-010522**

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 34969 Analyst: TN

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	1.25	Q	µg/L	1	1/7/2022 4:33:32 PM
Chloromethane	ND	0.750	Q	µg/L	1	1/7/2022 4:33:32 PM
Vinyl chloride	ND	0.200		µg/L	1	1/12/2022 2:58:50 PM
Bromomethane	ND	1.20		µg/L	1	1/7/2022 4:33:32 PM
Trichlorofluoromethane (CFC-11)	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
Chloroethane	ND	1.00		µg/L	1	1/7/2022 4:33:32 PM
1,1-Dichloroethene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
Acetone	ND	6.00		µg/L	1	1/7/2022 4:33:32 PM
Methylene chloride	ND	0.750		µg/L	1	1/7/2022 4:33:32 PM
trans-1,2-Dichloroethene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
Methyl tert-butyl ether (MTBE)	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
1,1-Dichloroethane	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
cis-1,2-Dichloroethene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
2-Butanone (MEK)	ND	1.50		µg/L	1	1/7/2022 4:33:32 PM
Chloroform	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
1,1,1-Trichloroethane (TCA)	ND	0.400		µg/L	1	1/7/2022 4:33:32 PM
1,1-Dichloropropene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
Carbon tetrachloride	ND	0.750		µg/L	1	1/7/2022 4:33:32 PM
1,2-Dichloroethane (EDC)	ND	0.400		µg/L	1	1/7/2022 4:33:32 PM
Benzene	ND	0.440		µg/L	1	1/7/2022 4:33:32 PM
Trichloroethene (TCE)	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
1,2-Dichloropropane	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
Bromodichloromethane	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
Dibromomethane	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
cis-1,3-Dichloropropene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
Toluene	ND	0.750		µg/L	1	1/7/2022 4:33:32 PM
trans-1,3-Dichloropropylene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
Methyl Isobutyl Ketone (MIBK)	ND	1.25		µg/L	1	1/7/2022 4:33:32 PM
1,1,2-Trichloroethane	ND	0.350		µg/L	1	1/7/2022 4:33:32 PM
1,3-Dichloropropane	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
Tetrachloroethene (PCE)	ND	0.400		µg/L	1	1/7/2022 4:33:32 PM
Dibromochloromethane	ND	1.00		µg/L	1	1/7/2022 4:33:32 PM
1,2-Dibromoethane (EDB)	ND	0.300		µg/L	1	1/7/2022 4:33:32 PM
2-Hexanone (MBK)	ND	1.00		µg/L	1	1/7/2022 4:33:32 PM
Chlorobenzene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
1,1,1,2-Tetrachloroethane	ND	0.300		µg/L	1	1/7/2022 4:33:32 PM
Ethylbenzene	ND	0.400		µg/L	1	1/7/2022 4:33:32 PM
m,p-Xylene	ND	1.00		µg/L	1	1/7/2022 4:33:32 PM
o-Xylene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM

Analytical Report

Work Order: **2201038**
Date Reported: **1/12/2022**

Client: PES Environmental, Inc.
Collection Date: 1/5/2022 12:00:00 PM
Project: MVSC
Lab ID: 2201038-001
Matrix: Water
Client Sample ID: **Cond-010522**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260D				Batch ID: 34969		Analyst: TN
Styrene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
Isopropylbenzene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
Bromoform	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
1,1,2,2-Tetrachloroethane	ND	0.400		µg/L	1	1/7/2022 4:33:32 PM
n-Propylbenzene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
Bromobenzene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
1,3,5-Trimethylbenzene	ND	0.250		µg/L	1	1/7/2022 4:33:32 PM
2-Chlorotoluene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
4-Chlorotoluene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
tert-Butylbenzene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
1,2,3-Trichloropropane	ND	0.400		µg/L	1	1/7/2022 4:33:32 PM
1,2,4-Trichlorobenzene	ND	0.750		µg/L	1	1/7/2022 4:33:32 PM
sec-Butylbenzene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
4-Isopropyltoluene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
1,3-Dichlorobenzene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
1,4-Dichlorobenzene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
n-Butylbenzene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
1,2-Dichlorobenzene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
1,2-Dibromo-3-chloropropane	ND	1.00		µg/L	1	1/7/2022 4:33:32 PM
1,2,4-Trimethylbenzene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
Hexachloro-1,3-butadiene	ND	0.500		µg/L	1	1/7/2022 4:33:32 PM
Naphthalene	ND	1.25		µg/L	1	1/7/2022 4:33:32 PM
1,2,3-Trichlorobenzene	ND	0.700		µg/L	1	1/7/2022 4:33:32 PM
Surr: Dibromofluoromethane	94.2	80 - 120		%Rec	1	1/7/2022 4:33:32 PM
Surr: Toluene-d8	90.3	80 - 120		%Rec	1	1/7/2022 4:33:32 PM
Surr: 1-Bromo-4-fluorobenzene	91.0	80 - 120		%Rec	1	1/7/2022 4:33:32 PM

NOTES:
Q - Associated calibration verification is below acceptance criteria. Result may be low-biased.

Work Order: 2201038
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **LCS-34969** SampType: **LCS** Units: **µg/L** Prep Date: **1/7/2022** RunNo: **72463**
Client ID: **LCSW** Batch ID: **34969** Analysis Date: **1/7/2022** SeqNo: **1479192**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	25.5	1.25	20.00	0	127	80	120				S
Chloromethane	18.8	0.750	20.00	0	94.0	80	120				
Bromomethane	20.4	1.20	20.00	0	102	80	120				
Trichlorofluoromethane (CFC-11)	18.6	0.500	20.00	0	93.2	80	120				
Chloroethane	18.9	1.00	20.00	0	94.3	80	120				
1,1-Dichloroethene	19.5	0.500	20.00	0	97.3	80	120				
Acetone	63.4	6.00	50.00	0	127	80	120				S
Methylene chloride	19.7	0.750	20.00	0	98.4	80	120				
trans-1,2-Dichloroethene	19.9	0.500	20.00	0	99.6	80	120				
Methyl tert-butyl ether (MTBE)	22.7	0.500	20.00	0	113	80	120				
1,1-Dichloroethane	19.0	0.500	20.00	0	95.0	80	120				
cis-1,2-Dichloroethene	20.2	0.500	20.00	0	101	80	120				
2-Butanone (MEK)	65.9	1.50	50.00	0	132	80	120				S
Chloroform	19.3	0.500	20.00	0	96.3	80	120				
1,1,1-Trichloroethane (TCA)	19.7	0.400	20.00	0	98.5	80	120				
1,1-Dichloropropene	19.3	0.500	20.00	0	96.6	80	120				
Carbon tetrachloride	19.1	0.750	20.00	0	95.5	80	120				
1,2-Dichloroethane (EDC)	20.5	0.400	20.00	0	102	80	120				
Benzene	20.1	0.440	20.00	0	101	80	120				
Trichloroethene (TCE)	20.5	0.500	20.00	0	103	80	120				
1,2-Dichloropropane	19.7	0.500	20.00	0	98.6	80	120				
Bromodichloromethane	20.7	0.500	20.00	0	103	80	120				
Dibromomethane	20.6	0.500	20.00	0	103	80	120				
cis-1,3-Dichloropropene	19.8	0.500	20.00	0	98.8	80	120				
Toluene	20.2	0.750	20.00	0	101	80	120				
trans-1,3-Dichloropropylene	20.9	0.500	20.00	0	105	80	120				
Methyl Isobutyl Ketone (MIBK)	60.9	1.25	50.00	0	122	80	120				S
1,1,2-Trichloroethane	21.6	0.350	20.00	0	108	80	120				
1,3-Dichloropropane	21.1	0.500	20.00	0	106	80	120				
Tetrachloroethene (PCE)	20.4	0.400	20.00	0	102	80	120				

Work Order: 2201038
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **LCS-34969** SampType: **LCS** Units: **µg/L** Prep Date: **1/7/2022** RunNo: **72463**
Client ID: **LCSW** Batch ID: **34969** Analysis Date: **1/7/2022** SeqNo: **1479192**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibromochloromethane	21.6	1.00	20.00	0	108	80	120				
1,2-Dibromoethane (EDB)	21.8	0.300	20.00	0	109	80	120				
2-Hexanone (MBK)	63.4	1.00	50.00	0	127	80	120				S
Chlorobenzene	20.0	0.500	20.00	0	100	80	120				
1,1,1,2-Tetrachloroethane	21.5	0.300	20.00	0	107	80	120				
Ethylbenzene	20.4	0.400	20.00	0	102	80	120				
m,p-Xylene	41.4	1.00	40.00	0	104	80	120				
o-Xylene	20.5	0.500	20.00	0	103	80	120				
Styrene	20.6	0.500	20.00	0	103	80	120				
Isopropylbenzene	20.5	0.500	20.00	0	102	80	120				
Bromoform	22.4	0.500	20.00	0	112	80	120				
1,1,2,2-Tetrachloroethane	21.1	0.400	20.00	0	105	80	120				
n-Propylbenzene	20.0	0.500	20.00	0	100	80	120				
Bromobenzene	21.2	0.500	20.00	0	106	80	120				
1,3,5-Trimethylbenzene	20.4	0.250	20.00	0	102	80	120				
2-Chlorotoluene	20.2	0.500	20.00	0	101	80	120				
4-Chlorotoluene	20.4	0.500	20.00	0	102	80	120				
tert-Butylbenzene	20.2	0.500	20.00	0	101	80	120				
1,2,3-Trichloropropane	22.2	0.400	20.00	0	111	80	120				
1,2,4-Trichlorobenzene	21.1	0.750	20.00	0	106	80	120				
sec-Butylbenzene	20.1	0.500	20.00	0	100	80	120				
4-Isopropyltoluene	20.3	0.500	20.00	0	101	80	120				
1,3-Dichlorobenzene	20.8	0.500	20.00	0	104	80	120				
1,4-Dichlorobenzene	20.9	0.500	20.00	0	105	80	120				
n-Butylbenzene	20.2	0.500	20.00	0	101	80	120				
1,2-Dichlorobenzene	21.1	0.500	20.00	0	106	80	120				
1,2-Dibromo-3-chloropropane	22.2	1.00	20.00	0	111	80	120				
1,2,4-Trimethylbenzene	20.5	0.500	20.00	0	103	80	120				
Hexachloro-1,3-butadiene	20.7	0.500	20.00	0	103	80	120				
Naphthalene	22.3	1.25	20.00	0	112	80	120				

Work Order: 2201038
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **LCS-34969**	SampType: **LCS**	Units: **µg/L**	Prep Date: **1/7/2022**	RunNo: **72463**
Client ID: **LCSW**	Batch ID: **34969**		Analysis Date: **1/7/2022**	SeqNo: **1479192**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,3-Trichlorobenzene	21.4	0.700	20.00	0	107	80	120				
Surr: Dibromofluoromethane	24.4		25.00		97.5	80	120				
Surr: Toluene-d8	24.5		25.00		98.0	80	120				
Surr: 1-Bromo-4-fluorobenzene	26.3		25.00		105	80	120				

NOTES:
S - Outlying spike recovery observed (high bias). Detections will be qualified with a Q.

Sample ID: **MB-34969**	SampType: **MBLK**	Units: **µg/L**	Prep Date: **1/7/2022**	RunNo: **72463**
Client ID: **MBLKW**	Batch ID: **34969**		Analysis Date: **1/7/2022**	SeqNo: **1479198**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	1.25									Q
Chloromethane	ND	0.750									Q
Bromomethane	ND	1.20									
Trichlorofluoromethane (CFC-11)	ND	0.500									
Chloroethane	ND	1.00									
1,1-Dichloroethene	ND	0.500									
Acetone	ND	6.00									
Methylene chloride	ND	0.750									
trans-1,2-Dichloroethene	ND	0.500									
Methyl tert-butyl ether (MTBE)	ND	0.500									
1,1-Dichloroethane	ND	0.500									
cis-1,2-Dichloroethene	ND	0.500									
2-Butanone (MEK)	ND	1.50									
Chloroform	ND	0.500									
1,1,1-Trichloroethane (TCA)	ND	0.400									
1,1-Dichloropropene	ND	0.500									
Carbon tetrachloride	ND	0.750									
1,2-Dichloroethane (EDC)	ND	0.400									
Benzene	ND	0.440									
Trichloroethene (TCE)	ND	0.500									

Work Order: 2201038
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **MB-34969** SampType: **MBLK** Units: **µg/L** Prep Date: **1/7/2022** RunNo: **72463**
Client ID: **MBLKW** Batch ID: **34969** Analysis Date: **1/7/2022** SeqNo: **1479198**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloropropane	ND	0.500									
Bromodichloromethane	ND	0.500									
Dibromomethane	ND	0.500									
cis-1,3-Dichloropropene	ND	0.500									
Toluene	ND	0.750									
trans-1,3-Dichloropropylene	ND	0.500									
Methyl Isobutyl Ketone (MIBK)	ND	1.25									
1,1,2-Trichloroethane	ND	0.350									
1,3-Dichloropropane	ND	0.500									
Tetrachloroethene (PCE)	ND	0.400									
Dibromochloromethane	ND	1.00									
1,2-Dibromoethane (EDB)	ND	0.300									
2-Hexanone (MBK)	ND	1.00									
Chlorobenzene	ND	0.500									
1,1,1,2-Tetrachloroethane	ND	0.300									
Ethylbenzene	ND	0.400									
m,p-Xylene	ND	1.00									
o-Xylene	ND	0.500									
Styrene	ND	0.500									
Isopropylbenzene	ND	0.500									
Bromoform	ND	0.500									
1,1,2,2-Tetrachloroethane	ND	0.400									
n-Propylbenzene	ND	0.500									
Bromobenzene	ND	0.500									
1,3,5-Trimethylbenzene	ND	0.250									
2-Chlorotoluene	ND	0.500									
4-Chlorotoluene	ND	0.500									
tert-Butylbenzene	ND	0.500									
1,2,3-Trichloropropane	ND	0.400									
1,2,4-Trichlorobenzene	ND	0.750									

Work Order: 2201038
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **MB-34969** SampType: **MBLK** Units: **µg/L** Prep Date: **1/7/2022** RunNo: **72463**
Client ID: **MBLKW** Batch ID: **34969** Analysis Date: **1/7/2022** SeqNo: **1479198**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
sec-Butylbenzene	ND	0.500									
4-Isopropyltoluene	ND	0.500									
1,3-Dichlorobenzene	ND	0.500									
1,4-Dichlorobenzene	ND	0.500									
n-Butylbenzene	ND	0.500									
1,2-Dichlorobenzene	ND	0.500									
1,2-Dibromo-3-chloropropane	ND	1.00									
1,2,4-Trimethylbenzene	ND	0.500									
Hexachloro-1,3-butadiene	ND	0.500									
Naphthalene	ND	1.25									
1,2,3-Trichlorobenzene	ND	0.700									
Surr: Dibromofluoromethane	24.5		25.00		97.9	80	120				
Surr: Toluene-d8	24.0		25.00		95.9	80	120				
Surr: 1-Bromo-4-fluorobenzene	23.5		25.00		94.1	80	120				

NOTES:
Q - Associated calibration verification is below acceptance criteria. Result may be low-biased.

Sample ID: **2201058-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **1/7/2022** RunNo: **72463**
Client ID: **BATCH** Batch ID: **34969** Analysis Date: **1/7/2022** SeqNo: **1479182**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	1.25						0		30	Q
Chloromethane	ND	0.750						0		30	Q
Bromomethane	ND	1.20						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.500						0		30	
Chloroethane	ND	1.00						0		30	
1,1-Dichloroethene	ND	0.500						0		30	
Acetone	ND	6.00						0		30	
Methylene chloride	ND	0.750						0		30	
trans-1,2-Dichloroethene	ND	0.500						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.500						0		30	

Work Order: 2201038
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **2201058-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **1/7/2022** RunNo: **72463**
Client ID: **BATCH** Batch ID: **34969** Analysis Date: **1/7/2022** SeqNo: **1479182**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethane	ND	0.500						0		30	
cis-1,2-Dichloroethene	ND	0.500						0		30	
2-Butanone (MEK)	ND	1.50						0		30	
Chloroform	ND	0.500						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.400						0		30	
1,1-Dichloropropene	ND	0.500						0		30	
Carbon tetrachloride	ND	0.750						0		30	
1,2-Dichloroethane (EDC)	ND	0.400						0		30	
Benzene	ND	0.440						0		30	
Trichloroethene (TCE)	ND	0.500						0		30	
1,2-Dichloropropane	ND	0.500						0		30	
Bromodichloromethane	ND	0.500						0		30	
Dibromomethane	ND	0.500						0		30	
cis-1,3-Dichloropropene	ND	0.500						0		30	
Toluene	ND	0.750						0		30	
trans-1,3-Dichloropropylene	ND	0.500						0		30	
Methyl Isobutyl Ketone (MIBK)	ND	1.25						0		30	
1,1,2-Trichloroethane	ND	0.350						0		30	
1,3-Dichloropropane	ND	0.500						0		30	
Tetrachloroethene (PCE)	ND	0.400						0		30	
Dibromochloromethane	ND	1.00						0		30	
1,2-Dibromoethane (EDB)	ND	0.300						0		30	
2-Hexanone (MBK)	ND	1.00						0		30	
Chlorobenzene	ND	0.500						0		30	
1,1,1,2-Tetrachloroethane	ND	0.300						0		30	
Ethylbenzene	ND	0.400						0		30	
m,p-Xylene	ND	1.00						0		30	
o-Xylene	ND	0.500						0		30	
Styrene	ND	0.500						0		30	
Isopropylbenzene	ND	0.500						0		30	

Work Order: 2201038
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **2201058-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **1/7/2022** RunNo: **72463**
Client ID: **BATCH** Batch ID: **34969** Analysis Date: **1/7/2022** SeqNo: **1479182**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromoform	ND	0.500						0		30	
1,1,2,2-Tetrachloroethane	ND	0.400						0		30	
n-Propylbenzene	ND	0.500						0		30	
Bromobenzene	ND	0.500						0		30	
1,3,5-Trimethylbenzene	ND	0.250						0		30	
2-Chlorotoluene	ND	0.500						0		30	
4-Chlorotoluene	ND	0.500						0		30	
tert-Butylbenzene	ND	0.500						0		30	
1,2,3-Trichloropropane	ND	0.400						0		30	
1,2,4-Trichlorobenzene	ND	0.750						0		30	
sec-Butylbenzene	ND	0.500						0		30	
4-Isopropyltoluene	ND	0.500						0		30	
1,3-Dichlorobenzene	ND	0.500						0		30	
1,4-Dichlorobenzene	ND	0.500						0		30	
n-Butylbenzene	ND	0.500						0		30	
1,2-Dichlorobenzene	ND	0.500						0		30	
1,2-Dibromo-3-chloropropane	ND	1.00						0		30	
1,2,4-Trimethylbenzene	ND	0.500						0		30	
Hexachloro-1,3-butadiene	ND	0.500						0		30	
Naphthalene	ND	1.25						0		30	
1,2,3-Trichlorobenzene	ND	0.700						0		30	
Surr: Dibromofluoromethane	24.3		25.00		97.3	80	120		0		
Surr: Toluene-d8	24.2		25.00		96.7	80	120		0		
Surr: 1-Bromo-4-fluorobenzene	22.9		25.00		91.7	80	120		0		

NOTES:
Q - Associated calibration verification is below acceptance criteria. Result may be low-biased.

Work Order: 2201038
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **2201072-001BDUP** SampType: **DUP** Units: **µg/L** Prep Date: **1/7/2022** RunNo: **72463**
Client ID: **BATCH** Batch ID: **34969** Analysis Date: **1/7/2022** SeqNo: **1479184**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	1.25						0		30	Q
Chloromethane	ND	0.750						0		30	Q
Bromomethane	ND	1.20						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.500						0		30	
Chloroethane	ND	1.00						0		30	
1,1-Dichloroethene	ND	0.500						0		30	
Acetone	14.2	6.00						13.84	2.43	30	
Methylene chloride	ND	0.750						0		30	
trans-1,2-Dichloroethene	ND	0.500						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.500						0		30	
1,1-Dichloroethane	ND	0.500						0		30	
cis-1,2-Dichloroethene	ND	0.500						0		30	
2-Butanone (MEK)	ND	1.50						0		30	
Chloroform	ND	0.500						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.400						0		30	
1,1-Dichloropropene	ND	0.500						0		30	
Carbon tetrachloride	ND	0.750						0		30	
1,2-Dichloroethane (EDC)	ND	0.400						0		30	
Benzene	ND	0.440						0		30	
Trichloroethene (TCE)	ND	0.500						0		30	
1,2-Dichloropropane	ND	0.500						0		30	
Bromodichloromethane	ND	0.500						0		30	
Dibromomethane	ND	0.500						0		30	
cis-1,3-Dichloropropene	ND	0.500						0		30	
Toluene	ND	0.750						0		30	
trans-1,3-Dichloropropylene	ND	0.500						0		30	
Methyl Isobutyl Ketone (MIBK)	ND	1.25						0		30	
1,1,2-Trichloroethane	ND	0.350						0		30	
1,3-Dichloropropane	ND	0.500						0		30	
Tetrachloroethene (PCE)	ND	0.400						0		30	

Work Order: 2201038
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **2201072-001BDUP** SampType: **DUP** Units: **µg/L** Prep Date: **1/7/2022** RunNo: **72463**
Client ID: **BATCH** Batch ID: **34969** Analysis Date: **1/7/2022** SeqNo: **1479184**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibromochloromethane	ND	1.00						0		30	
1,2-Dibromoethane (EDB)	ND	0.300						0		30	
2-Hexanone (MBK)	ND	1.00						0		30	
Chlorobenzene	ND	0.500						0		30	
1,1,1,2-Tetrachloroethane	ND	0.300						0		30	
Ethylbenzene	ND	0.400						0		30	
m,p-Xylene	ND	1.00						0		30	
o-Xylene	ND	0.500						0		30	
Styrene	ND	0.500						0		30	
Isopropylbenzene	ND	0.500						0		30	
Bromoform	ND	0.500						0		30	
1,1,2,2-Tetrachloroethane	ND	0.400						0		30	
n-Propylbenzene	ND	0.500						0		30	
Bromobenzene	ND	0.500						0		30	
1,3,5-Trimethylbenzene	ND	0.250						0		30	
2-Chlorotoluene	ND	0.500						0		30	
4-Chlorotoluene	ND	0.500						0		30	
tert-Butylbenzene	ND	0.500						0		30	
1,2,3-Trichloropropane	ND	0.400						0		30	
1,2,4-Trichlorobenzene	ND	0.750						0		30	
sec-Butylbenzene	ND	0.500						0		30	
4-Isopropyltoluene	ND	0.500						0		30	
1,3-Dichlorobenzene	ND	0.500						0		30	
1,4-Dichlorobenzene	ND	0.500						0		30	
n-Butylbenzene	ND	0.500						0		30	
1,2-Dichlorobenzene	ND	0.500						0		30	
1,2-Dibromo-3-chloropropane	ND	1.00						0		30	
1,2,4-Trimethylbenzene	ND	0.500						0		30	
Hexachloro-1,3-butadiene	ND	0.500						0		30	
Naphthalene	ND	1.25						0		30	

Work Order: 2201038
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **2201072-001BDUP** SampType: **DUP** Units: **µg/L** Prep Date: **1/7/2022** RunNo: **72463**
Client ID: **BATCH** Batch ID: **34969** Analysis Date: **1/7/2022** SeqNo: **1479184**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,3-Trichlorobenzene	ND	0.700						0		30	
Surr: Dibromofluoromethane	24.6		25.00		98.4	80	120		0		
Surr: Toluene-d8	24.5		25.00		98.1	80	120		0		
Surr: 1-Bromo-4-fluorobenzene	23.3		25.00		93.1	80	120		0		

NOTES:
Q - Associated calibration verification is below acceptance criteria. Result may be low-biased.

Sample ID: **2201038-001AMS** SampType: **MS** Units: **µg/L** Prep Date: **1/7/2022** RunNo: **72463**
Client ID: **Cond-010522** Batch ID: **34969** Analysis Date: **1/7/2022** SeqNo: **1479180**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	13.1	1.25	20.00	0	65.5	6.06	158				
Chloromethane	16.0	0.750	20.00	0	79.8	8.94	177				
Bromomethane	18.1	1.20	20.00	0	90.3	24.1	196				
Trichlorofluoromethane (CFC-11)	18.3	0.500	20.00	0	91.7	64.9	138				
Chloroethane	17.8	1.00	20.00	0	89.0	62.2	137				
1,1-Dichloroethene	18.9	0.500	20.00	0	94.7	76.5	134				
Acetone	58.2	6.00	50.00	0	116	56.8	147				
Methylene chloride	18.7	0.750	20.00	0	93.3	75.7	128				
trans-1,2-Dichloroethene	19.0	0.500	20.00	0	95.2	80.1	129				
Methyl tert-butyl ether (MTBE)	21.1	0.500	20.00	0	106	59.5	138				
1,1-Dichloroethane	18.5	0.500	20.00	0	92.6	78.1	131				
cis-1,2-Dichloroethene	19.5	0.500	20.00	0	97.3	81.5	126				
2-Butanone (MEK)	59.3	1.50	50.00	0	119	60.4	134				
Chloroform	19.2	0.500	20.00	0	96.0	81.2	126				
1,1,1-Trichloroethane (TCA)	20.4	0.400	20.00	0	102	83.7	126				
1,1-Dichloropropene	19.2	0.500	20.00	0	96.2	79.9	131				
Carbon tetrachloride	19.4	0.750	20.00	0	97.2	82.3	127				
1,2-Dichloroethane (EDC)	19.3	0.400	20.00	0	96.7	76.3	123				
Benzene	19.5	0.440	20.00	0	97.5	80.1	128				
Trichloroethene (TCE)	20.1	0.500	20.00	0	100	78.4	128				

Work Order: 2201038
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **2201038-001AMS** SampType: **MS** Units: **µg/L** Prep Date: **1/7/2022** RunNo: **72463**
Client ID: **Cond-010522** Batch ID: **34969** Analysis Date: **1/7/2022** SeqNo: **1479180**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloropropane	19.3	0.500	20.00	0	96.7	77	129				
Bromodichloromethane	19.9	0.500	20.00	0	99.4	80.1	122				
Dibromomethane	20.0	0.500	20.00	0	100	79	123				
cis-1,3-Dichloropropene	17.4	0.500	20.00	0	87.0	76.2	120				
Toluene	19.7	0.750	20.00	0	98.5	83.3	125				
trans-1,3-Dichloropropylene	18.1	0.500	20.00	0	90.4	72.9	122				
Methyl Isobutyl Ketone (MIBK)	56.7	1.25	50.00	0	113	59.9	136				
1,1,2-Trichloroethane	20.4	0.350	20.00	0	102	77.9	124				
1,3-Dichloropropane	19.9	0.500	20.00	0	99.7	75.6	125				
Tetrachloroethene (PCE)	20.6	0.400	20.00	0.2395	102	85.7	124				
Dibromochloromethane	20.9	1.00	20.00	0	105	75.8	122				
1,2-Dibromoethane (EDB)	20.6	0.300	20.00	0	103	75.5	124				
2-Hexanone (MBK)	58.2	1.00	50.00	0	116	62.3	131				
Chlorobenzene	20.2	0.500	20.00	0	101	87.7	118				
1,1,1,2-Tetrachloroethane	21.0	0.300	20.00	0	105	81.1	122				
Ethylbenzene	20.3	0.400	20.00	0	101	85.5	124				
m,p-Xylene	40.7	1.00	40.00	0	102	86.8	122				
o-Xylene	20.3	0.500	20.00	0	101	86.4	121				
Styrene	20.2	0.500	20.00	0	101	79.7	123				
Isopropylbenzene	20.8	0.500	20.00	0	104	85.3	125				
Bromoform	21.7	0.500	20.00	0	108	65.6	132				
1,1,2,2-Tetrachloroethane	21.0	0.400	20.00	0	105	71.6	133				
n-Propylbenzene	20.0	0.500	20.00	0	99.9	79.6	128				
Bromobenzene	20.7	0.500	20.00	0	103	84	120				
1,3,5-Trimethylbenzene	19.7	0.250	20.00	0	98.7	82.9	124				
2-Chlorotoluene	20.1	0.500	20.00	0	101	84.6	123				
4-Chlorotoluene	19.7	0.500	20.00	0	98.6	81.1	124				
tert-Butylbenzene	20.3	0.500	20.00	0	101	84.2	126				
1,2,3-Trichloropropane	20.0	0.400	20.00	0	100	67.3	125				
1,2,4-Trichlorobenzene	20.8	0.750	20.00	0	104	59.1	132				

Work Order: 2201038
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **2201038-001AMS**	SampType: **MS**	Units: **µg/L**	Prep Date: **1/7/2022**	RunNo: **72463**
Client ID: **Cond-010522**	Batch ID: **34969**		Analysis Date: **1/7/2022**	SeqNo: **1479180**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
sec-Butylbenzene	20.0	0.500	20.00	0	99.9	81.8	127				
4-Isopropyltoluene	19.5	0.500	20.00	0	97.5	80.1	127				
1,3-Dichlorobenzene	21.0	0.500	20.00	0	105	84.7	121				
1,4-Dichlorobenzene	20.8	0.500	20.00	0	104	84.9	119				
n-Butylbenzene	19.3	0.500	20.00	0	96.5	76.8	129				
1,2-Dichlorobenzene	20.9	0.500	20.00	0	105	84.9	120				
1,2-Dibromo-3-chloropropane	21.9	1.00	20.00	0	110	53.4	138				
1,2,4-Trimethylbenzene	19.8	0.500	20.00	0	98.8	81.8	124				
Hexachloro-1,3-butadiene	20.3	0.500	20.00	0	102	71.1	131				
Naphthalene	25.3	1.25	20.00	0	127	42.6	147				
1,2,3-Trichlorobenzene	21.6	0.700	20.00	0	108	39.3	147				
Surr: Dibromofluoromethane	24.0		25.00		96.0	80	120				
Surr: Toluene-d8	24.0		25.00		96.1	80	120				
Surr: 1-Bromo-4-fluorobenzene	25.7		25.00		103	80	120				

Sample ID: **LCS-35006**	SampType: **LCS**	Units: **µg/L**	Prep Date: **1/12/2022**	RunNo: **72519**
Client ID: **LCSW**	Batch ID: **35006**		Analysis Date: **1/12/2022**	SeqNo: **1480129**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	16.0	0.200	20.00	0	80.2	80	120				
Surr: Dibromofluoromethane	24.5		25.00		97.9	80	120				
Surr: Toluene-d8	24.4		25.00		97.7	80	120				
Surr: 1-Bromo-4-fluorobenzene	26.4		25.00		106	80	120				

Sample ID: **MB-35006**	SampType: **MBLK**	Units: **µg/L**	Prep Date: **1/12/2022**	RunNo: **72519**
Client ID: **MBLKW**	Batch ID: **35006**		Analysis Date: **1/12/2022**	SeqNo: **1480128**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	ND	0.200									

Work Order: 2201038
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **MB-35006** SampType: **MBLK** Units: **µg/L** Prep Date: **1/12/2022** RunNo: **72519**
Client ID: **MBLKW** Batch ID: **35006** Analysis Date: **1/12/2022** SeqNo: **1480128**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	23.8		25.00		95.2	80	120				
Surr: Toluene-d8	23.5		25.00		93.9	80	120				
Surr: 1-Bromo-4-fluorobenzene	23.8		25.00		95.1	80	120				

Sample Log-In Check List

Client Name:	**PES**	Work Order Number:	**2201038**
Logged by:	**Gabrielle Coeuille**	Date Received:	**1/5/2022 2:33:00 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 Present ☐
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >2°C to 6°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
Sample 1	3.3

* 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: 1/5/22 Page: 1 of: 1

Laboratory Project No (internal): 2201038

Special Remarks:

Project Name: MVSC

Project No: 443019-1358001.02-015

Client: PES Environmental

Address: 2101 4th Ave #1310

City, State, Zip: Seattle, WA, 98121

Telephone: 206-529-3980

Fax: 206-529-3985

Collected by: Sean Kounovsky

Location: Normandy Park, WA

Report To (PM): Matt Dahl

PM Email: matt.dahl@nv5.com

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

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	# of Cont.	VOCs (EPA 8260 / 624)	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	Cond-010522	1/5/22	1200	W	3	X											
2																	
3																	
4																	
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 V Zn

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

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

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

Relinquished (Signature)	Print Name	Date/Time	Received (Signature)	Print Name	Date/Time
x	Sean Kounovsky	1/5/22 @1400	x Justine Mantz	Justine Mantz	1/5/22 14:33
Relinquished (Signature)	Print Name	Date/Time	Received (Signature)	Print Name	Date/Time
x			x		

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

PES Environmental, Inc.
Matt Dahl
2101 Fourth Avenue, Suite 1310
Seattle, WA 98121

RE: MVSC
Work Order Number: 2209092

September 16, 2022

Attention Matt Dahl:

Fremont Analytical, Inc. received 8 sample(s) on 9/7/2022 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: *09/16/2022*

CLIENT: PES Environmental, Inc.
Project: MVSC
Work Order: 2209092

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2209092-001	MW-2-29.5-090622	09/06/2022 10:18 AM	09/07/2022 4:53 PM
2209092-002	MW-2-33-090622	09/06/2022 10:31 AM	09/07/2022 4:53 PM
2209092-003	MW-1-30-090622	09/06/2022 1:33 PM	09/07/2022 4:53 PM
2209092-004	MW-1-35-090622	09/06/2022 1:35 PM	09/07/2022 4:53 PM
2209092-005	DC-5-30-090722	09/07/2022 9:35 AM	09/07/2022 4:53 PM
2209092-006	WDRUM-090722-1	09/07/2022 2:18 PM	09/07/2022 4:53 PM
2209092-007	TB-090722		09/07/2022 4:53 PM
2209092-008	TB-090722		09/07/2022 4:53 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **2209092**
Date: **9/16/2022**

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
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
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MCL - Maximum Contaminant Level
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **2209092**
Date Reported: **9/16/2022**

Client: PES Environmental, Inc.
Collection Date: 9/6/2022 10:18:00 AM
Project: MVSC
Lab ID: 2209092-001
Matrix: Soil
Client Sample ID: **MW-2-29.5-090622**

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 37734 Analyst: LAC

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0548	Q	mg/Kg-dry	1	9/14/2022 5:17:34 AM
Chloromethane	ND	0.0876		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Vinyl chloride	ND	0.0274		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Bromomethane	ND	0.164		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Trichlorofluoromethane (CFC-11)	ND	0.0548		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Chloroethane	ND	0.131		mg/Kg-dry	1	9/14/2022 5:17:34 AM
1,1-Dichloroethene	ND	0.110		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Acetone	ND	0.548		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Methylene chloride	ND	0.0164		mg/Kg-dry	1	9/14/2022 5:17:34 AM
trans-1,2-Dichloroethene	ND	0.0329		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Methyl tert-butyl ether (MTBE)	ND	0.0329		mg/Kg-dry	1	9/14/2022 5:17:34 AM
1,1-Dichloroethane	ND	0.0274		mg/Kg-dry	1	9/14/2022 5:17:34 AM
cis-1,2-Dichloroethene	ND	0.0274		mg/Kg-dry	1	9/14/2022 5:17:34 AM
(MEK) 2-Butanone	ND	0.493		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Chloroform	ND	0.0274		mg/Kg-dry	1	9/14/2022 5:17:34 AM
1,1,1-Trichloroethane (TCA)	ND	0.0274		mg/Kg-dry	1	9/14/2022 5:17:34 AM
1,1-Dichloropropene	ND	0.0274		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Carbon tetrachloride	ND	0.0822		mg/Kg-dry	1	9/14/2022 5:17:34 AM
1,2-Dichloroethane (EDC)	ND	0.0252		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Benzene	ND	0.0219		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Trichloroethene (TCE)	ND	0.0219		mg/Kg-dry	1	9/14/2022 5:17:34 AM
1,2-Dichloropropane	ND	0.0219		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Bromodichloromethane	ND	0.0274		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Dibromomethane	ND	0.0219		mg/Kg-dry	1	9/14/2022 5:17:34 AM
cis-1,3-Dichloropropene	ND	0.0876		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Toluene	ND	0.0329		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Trans-1,3-Dichloropropylene	ND	0.0548		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Methyl Isobutyl Ketone (MIBK)	ND	0.0822		mg/Kg-dry	1	9/14/2022 5:17:34 AM
1,1,2-Trichloroethane	ND	0.0186		mg/Kg-dry	1	9/14/2022 5:17:34 AM
1,3-Dichloropropane	ND	0.0219		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Tetrachloroethene (PCE)	ND	0.0329		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Dibromochloromethane	ND	0.0219		mg/Kg-dry	1	9/14/2022 5:17:34 AM
1,2-Dibromoethane (EDB)	ND	0.0110		mg/Kg-dry	1	9/14/2022 5:17:34 AM
2-Hexanone (MBK)	ND	0.0657		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Chlorobenzene	ND	0.0274		mg/Kg-dry	1	9/14/2022 5:17:34 AM
1,1,1,2-Tetrachloroethane	ND	0.0219		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Ethylbenzene	ND	0.0274		mg/Kg-dry	1	9/14/2022 5:17:34 AM
m,p-Xylene	ND	0.0548		mg/Kg-dry	1	9/14/2022 5:17:34 AM
o-Xylene	ND	0.0274		mg/Kg-dry	1	9/14/2022 5:17:34 AM

Analytical Report

Work Order: **2209092**
Date Reported: **9/16/2022**

Client: PES Environmental, Inc. **Collection Date:** 9/6/2022 10:18:00 AM
Project: MVSC
Lab ID: 2209092-001 **Matrix:** Soil
Client Sample ID: **MW-2-29.5-090622**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260D				Batch ID: 37734		Analyst: LAC
Styrene	ND	0.0274		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Isopropylbenzene	ND	0.0329		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Bromoform	ND	0.0274		mg/Kg-dry	1	9/14/2022 5:17:34 AM
1,1,2,2-Tetrachloroethane	ND	0.0164		mg/Kg-dry	1	9/14/2022 5:17:34 AM
n-Propylbenzene	ND	0.0329		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Bromobenzene	ND	0.0329		mg/Kg-dry	1	9/14/2022 5:17:34 AM
1,3,5-Trimethylbenzene	ND	0.0274		mg/Kg-dry	1	9/14/2022 5:17:34 AM
2-Chlorotoluene	ND	0.0329		mg/Kg-dry	1	9/14/2022 5:17:34 AM
4-Chlorotoluene	ND	0.0329		mg/Kg-dry	1	9/14/2022 5:17:34 AM
tert-Butylbenzene	ND	0.0329		mg/Kg-dry	1	9/14/2022 5:17:34 AM
1,2,3-Trichloropropane	ND	0.0274		mg/Kg-dry	1	9/14/2022 5:17:34 AM
1,2,4-Trichlorobenzene	ND	0.0438		mg/Kg-dry	1	9/14/2022 5:17:34 AM
sec-Butylbenzene	ND	0.0329		mg/Kg-dry	1	9/14/2022 5:17:34 AM
4-Isopropyltoluene	ND	0.0329		mg/Kg-dry	1	9/14/2022 5:17:34 AM
1,3-Dichlorobenzene	ND	0.0383		mg/Kg-dry	1	9/14/2022 5:17:34 AM
1,4-Dichlorobenzene	ND	0.0329		mg/Kg-dry	1	9/14/2022 5:17:34 AM
n-Butylbenzene	ND	0.0438		mg/Kg-dry	1	9/14/2022 5:17:34 AM
1,2-Dichlorobenzene	ND	0.0329		mg/Kg-dry	1	9/14/2022 5:17:34 AM
1,2-Dibromo-3-chloropropane	ND	0.0657		mg/Kg-dry	1	9/14/2022 5:17:34 AM
1,2,4-Trimethylbenzene	ND	0.0274		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Hexachloro-1,3-butadiene	ND	0.0548		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Naphthalene	ND	0.110		mg/Kg-dry	1	9/14/2022 5:17:34 AM
1,2,3-Trichlorobenzene	ND	0.0548		mg/Kg-dry	1	9/14/2022 5:17:34 AM
Surr: Dibromofluoromethane	101	74.9 - 120		%Rec	1	9/14/2022 5:17:34 AM
Surr: Toluene-d8	101	76.7 - 125		%Rec	1	9/14/2022 5:17:34 AM
Surr: 1-Bromo-4-fluorobenzene	96.0	63.3 - 136		%Rec	1	9/14/2022 5:17:34 AM

NOTES:
Q - Associated calibration verification is below acceptance criteria. Result may be low-biased.

Sample Moisture (Percent Moisture)				Batch ID: R78203		Analyst: me
Percent Moisture	11.8	0.500		wt%	1	9/13/2022 12:36:09 PM

Analytical Report

Work Order: **2209092**
Date Reported: **9/16/2022**

Client: PES Environmental, Inc.
Collection Date: 9/6/2022 10:31:00 AM
Project: MVSC
Lab ID: 2209092-002
Matrix: Soil
Client Sample ID: **MW-2-33-090622**

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 37734 Analyst: LAC

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0446	Q	mg/Kg-dry	1	9/14/2022 4:47:24 AM
Chloromethane	ND	0.0713		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Vinyl chloride	ND	0.0223		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Bromomethane	ND	0.134		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Trichlorofluoromethane (CFC-11)	ND	0.0446		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Chloroethane	ND	0.107		mg/Kg-dry	1	9/14/2022 4:47:24 AM
1,1-Dichloroethene	ND	0.0892		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Acetone	ND	0.446		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Methylene chloride	ND	0.0134		mg/Kg-dry	1	9/14/2022 4:47:24 AM
trans-1,2-Dichloroethene	ND	0.0267		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Methyl tert-butyl ether (MTBE)	ND	0.0267		mg/Kg-dry	1	9/14/2022 4:47:24 AM
1,1-Dichloroethane	ND	0.0223		mg/Kg-dry	1	9/14/2022 4:47:24 AM
cis-1,2-Dichloroethene	ND	0.0223		mg/Kg-dry	1	9/14/2022 4:47:24 AM
(MEK) 2-Butanone	ND	0.401		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Chloroform	ND	0.0223		mg/Kg-dry	1	9/14/2022 4:47:24 AM
1,1,1-Trichloroethane (TCA)	ND	0.0223		mg/Kg-dry	1	9/14/2022 4:47:24 AM
1,1-Dichloropropene	ND	0.0223		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Carbon tetrachloride	ND	0.0669		mg/Kg-dry	1	9/14/2022 4:47:24 AM
1,2-Dichloroethane (EDC)	ND	0.0205		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Benzene	ND	0.0178		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Trichloroethene (TCE)	ND	0.0178		mg/Kg-dry	1	9/14/2022 4:47:24 AM
1,2-Dichloropropane	ND	0.0178		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Bromodichloromethane	ND	0.0223		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Dibromomethane	ND	0.0178		mg/Kg-dry	1	9/14/2022 4:47:24 AM
cis-1,3-Dichloropropene	ND	0.0713		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Toluene	ND	0.0267		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Trans-1,3-Dichloropropylene	ND	0.0446		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Methyl Isobutyl Ketone (MIBK)	ND	0.0669		mg/Kg-dry	1	9/14/2022 4:47:24 AM
1,1,2-Trichloroethane	ND	0.0152		mg/Kg-dry	1	9/14/2022 4:47:24 AM
1,3-Dichloropropane	ND	0.0178		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Tetrachloroethene (PCE)	0.0393	0.0267		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Dibromochloromethane	ND	0.0178		mg/Kg-dry	1	9/14/2022 4:47:24 AM
1,2-Dibromoethane (EDB)	ND	0.00892		mg/Kg-dry	1	9/14/2022 4:47:24 AM
2-Hexanone (MBK)	ND	0.0535		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Chlorobenzene	ND	0.0223		mg/Kg-dry	1	9/14/2022 4:47:24 AM
1,1,1,2-Tetrachloroethane	ND	0.0178		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Ethylbenzene	ND	0.0223		mg/Kg-dry	1	9/14/2022 4:47:24 AM
m,p-Xylene	ND	0.0446		mg/Kg-dry	1	9/14/2022 4:47:24 AM
o-Xylene	ND	0.0223		mg/Kg-dry	1	9/14/2022 4:47:24 AM

Analytical Report

Work Order: **2209092**
Date Reported: **9/16/2022**

Client: PES Environmental, Inc. **Collection Date:** 9/6/2022 10:31:00 AM
Project: MVSC
Lab ID: 2209092-002 **Matrix:** Soil
Client Sample ID: **MW-2-33-090622**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260D				Batch ID: 37734		Analyst: LAC
Styrene	ND	0.0223		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Isopropylbenzene	ND	0.0267		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Bromoform	ND	0.0223		mg/Kg-dry	1	9/14/2022 4:47:24 AM
1,1,2,2-Tetrachloroethane	ND	0.0134		mg/Kg-dry	1	9/14/2022 4:47:24 AM
n-Propylbenzene	ND	0.0267		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Bromobenzene	ND	0.0267		mg/Kg-dry	1	9/14/2022 4:47:24 AM
1,3,5-Trimethylbenzene	ND	0.0223		mg/Kg-dry	1	9/14/2022 4:47:24 AM
2-Chlorotoluene	ND	0.0267		mg/Kg-dry	1	9/14/2022 4:47:24 AM
4-Chlorotoluene	ND	0.0267		mg/Kg-dry	1	9/14/2022 4:47:24 AM
tert-Butylbenzene	ND	0.0267		mg/Kg-dry	1	9/14/2022 4:47:24 AM
1,2,3-Trichloropropane	ND	0.0223		mg/Kg-dry	1	9/14/2022 4:47:24 AM
1,2,4-Trichlorobenzene	ND	0.0357		mg/Kg-dry	1	9/14/2022 4:47:24 AM
sec-Butylbenzene	ND	0.0267		mg/Kg-dry	1	9/14/2022 4:47:24 AM
4-Isopropyltoluene	ND	0.0267		mg/Kg-dry	1	9/14/2022 4:47:24 AM
1,3-Dichlorobenzene	ND	0.0312		mg/Kg-dry	1	9/14/2022 4:47:24 AM
1,4-Dichlorobenzene	ND	0.0267		mg/Kg-dry	1	9/14/2022 4:47:24 AM
n-Butylbenzene	ND	0.0357		mg/Kg-dry	1	9/14/2022 4:47:24 AM
1,2-Dichlorobenzene	ND	0.0267		mg/Kg-dry	1	9/14/2022 4:47:24 AM
1,2-Dibromo-3-chloropropane	ND	0.0535		mg/Kg-dry	1	9/14/2022 4:47:24 AM
1,2,4-Trimethylbenzene	ND	0.0223		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Hexachloro-1,3-butadiene	ND	0.0446		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Naphthalene	ND	0.0892		mg/Kg-dry	1	9/14/2022 4:47:24 AM
1,2,3-Trichlorobenzene	ND	0.0446		mg/Kg-dry	1	9/14/2022 4:47:24 AM
Surr: Dibromofluoromethane	101	74.9 - 120		%Rec	1	9/14/2022 4:47:24 AM
Surr: Toluene-d8	101	76.7 - 125		%Rec	1	9/14/2022 4:47:24 AM
Surr: 1-Bromo-4-fluorobenzene	96.3	63.3 - 136		%Rec	1	9/14/2022 4:47:24 AM

NOTES:
Q - Associated calibration verification is below acceptance criteria. Result may be low-biased.

Sample Moisture (Percent Moisture)				Batch ID: R78203		Analyst: me
Percent Moisture	8.41	0.500		wt%	1	9/13/2022 12:36:09 PM

Analytical Report

Work Order: **2209092**
Date Reported: **9/16/2022**

Client: PES Environmental, Inc.
Collection Date: 9/6/2022 1:33:00 PM
Project: MVSC
Lab ID: 2209092-003
Matrix: Soil
Client Sample ID: **MW-1-30-090622**

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 37734 Analyst: LAC

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0545	Q	mg/Kg-dry	1	9/14/2022 4:17:13 AM
Chloromethane	ND	0.0872		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Vinyl chloride	ND	0.0272		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Bromomethane	ND	0.163		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Trichlorofluoromethane (CFC-11)	ND	0.0545		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Chloroethane	ND	0.131		mg/Kg-dry	1	9/14/2022 4:17:13 AM
1,1-Dichloroethene	ND	0.109		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Acetone	ND	0.545		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Methylene chloride	ND	0.0163		mg/Kg-dry	1	9/14/2022 4:17:13 AM
trans-1,2-Dichloroethene	ND	0.0327		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Methyl tert-butyl ether (MTBE)	ND	0.0327		mg/Kg-dry	1	9/14/2022 4:17:13 AM
1,1-Dichloroethane	ND	0.0272		mg/Kg-dry	1	9/14/2022 4:17:13 AM
cis-1,2-Dichloroethene	ND	0.0272		mg/Kg-dry	1	9/14/2022 4:17:13 AM
(MEK) 2-Butanone	ND	0.490		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Chloroform	ND	0.0272		mg/Kg-dry	1	9/14/2022 4:17:13 AM
1,1,1-Trichloroethane (TCA)	ND	0.0272		mg/Kg-dry	1	9/14/2022 4:17:13 AM
1,1-Dichloropropene	ND	0.0272		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Carbon tetrachloride	ND	0.0817		mg/Kg-dry	1	9/14/2022 4:17:13 AM
1,2-Dichloroethane (EDC)	ND	0.0251		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Benzene	ND	0.0218		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Trichloroethene (TCE)	ND	0.0218		mg/Kg-dry	1	9/14/2022 4:17:13 AM
1,2-Dichloropropane	ND	0.0218		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Bromodichloromethane	ND	0.0272		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Dibromomethane	ND	0.0218		mg/Kg-dry	1	9/14/2022 4:17:13 AM
cis-1,3-Dichloropropene	ND	0.0872		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Toluene	ND	0.0327		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Trans-1,3-Dichloropropylene	ND	0.0545		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Methyl Isobutyl Ketone (MIBK)	ND	0.0817		mg/Kg-dry	1	9/14/2022 4:17:13 AM
1,1,2-Trichloroethane	ND	0.0185		mg/Kg-dry	1	9/14/2022 4:17:13 AM
1,3-Dichloropropane	ND	0.0218		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Tetrachloroethene (PCE)	0.0522	0.0327		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Dibromochloromethane	ND	0.0218		mg/Kg-dry	1	9/14/2022 4:17:13 AM
1,2-Dibromoethane (EDB)	ND	0.0109		mg/Kg-dry	1	9/14/2022 4:17:13 AM
2-Hexanone (MBK)	ND	0.0654		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Chlorobenzene	ND	0.0272		mg/Kg-dry	1	9/14/2022 4:17:13 AM
1,1,1,2-Tetrachloroethane	ND	0.0218		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Ethylbenzene	ND	0.0272		mg/Kg-dry	1	9/14/2022 4:17:13 AM
m,p-Xylene	ND	0.0545		mg/Kg-dry	1	9/14/2022 4:17:13 AM
o-Xylene	ND	0.0272		mg/Kg-dry	1	9/14/2022 4:17:13 AM

Client: PES Environmental, Inc. **Collection Date:** 9/6/2022 1:33:00 PM
Project: MVSC
Lab ID: 2209092-003 **Matrix:** Soil
Client Sample ID: **MW-1-30-090622**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260D				Batch ID: 37734		Analyst: LAC
Styrene	ND	0.0272		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Isopropylbenzene	ND	0.0327		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Bromoform	ND	0.0272		mg/Kg-dry	1	9/14/2022 4:17:13 AM
1,1,2,2-Tetrachloroethane	ND	0.0163		mg/Kg-dry	1	9/14/2022 4:17:13 AM
n-Propylbenzene	ND	0.0327		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Bromobenzene	ND	0.0327		mg/Kg-dry	1	9/14/2022 4:17:13 AM
1,3,5-Trimethylbenzene	ND	0.0272		mg/Kg-dry	1	9/14/2022 4:17:13 AM
2-Chlorotoluene	ND	0.0327		mg/Kg-dry	1	9/14/2022 4:17:13 AM
4-Chlorotoluene	ND	0.0327		mg/Kg-dry	1	9/14/2022 4:17:13 AM
tert-Butylbenzene	ND	0.0327		mg/Kg-dry	1	9/14/2022 4:17:13 AM
1,2,3-Trichloropropane	ND	0.0272		mg/Kg-dry	1	9/14/2022 4:17:13 AM
1,2,4-Trichlorobenzene	ND	0.0436		mg/Kg-dry	1	9/14/2022 4:17:13 AM
sec-Butylbenzene	ND	0.0327		mg/Kg-dry	1	9/14/2022 4:17:13 AM
4-Isopropyltoluene	ND	0.0327		mg/Kg-dry	1	9/14/2022 4:17:13 AM
1,3-Dichlorobenzene	ND	0.0381		mg/Kg-dry	1	9/14/2022 4:17:13 AM
1,4-Dichlorobenzene	ND	0.0327		mg/Kg-dry	1	9/14/2022 4:17:13 AM
n-Butylbenzene	ND	0.0436		mg/Kg-dry	1	9/14/2022 4:17:13 AM
1,2-Dichlorobenzene	ND	0.0327		mg/Kg-dry	1	9/14/2022 4:17:13 AM
1,2-Dibromo-3-chloropropane	ND	0.0654		mg/Kg-dry	1	9/14/2022 4:17:13 AM
1,2,4-Trimethylbenzene	ND	0.0272		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Hexachloro-1,3-butadiene	ND	0.0545		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Naphthalene	ND	0.109		mg/Kg-dry	1	9/14/2022 4:17:13 AM
1,2,3-Trichlorobenzene	ND	0.0545		mg/Kg-dry	1	9/14/2022 4:17:13 AM
Surr: Dibromofluoromethane	99.5	74.9 - 120		%Rec	1	9/14/2022 4:17:13 AM
Surr: Toluene-d8	99.3	76.7 - 125		%Rec	1	9/14/2022 4:17:13 AM
Surr: 1-Bromo-4-fluorobenzene	95.7	63.3 - 136		%Rec	1	9/14/2022 4:17:13 AM

NOTES:
Q - Associated calibration verification is below acceptance criteria. Result may be low-biased.

Sample Moisture (Percent Moisture)				Batch ID: R78203		Analyst: me
Percent Moisture	9.63	0.500		wt%	1	9/13/2022 12:36:09 PM

Analytical Report

Work Order: **2209092**
Date Reported: **9/16/2022**

Client: PES Environmental, Inc.
Collection Date: 9/6/2022 1:35:00 PM
Project: MVSC
Lab ID: 2209092-004
Matrix: Soil
Client Sample ID: **MW-1-35-090622**

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 37734 Analyst: LAC

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0511	Q	mg/Kg-dry	1	9/14/2022 7:48:16 AM
Chloromethane	ND	0.0818		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Vinyl chloride	ND	0.0256		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Bromomethane	ND	0.153		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Trichlorofluoromethane (CFC-11)	ND	0.0511		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Chloroethane	ND	0.123		mg/Kg-dry	1	9/14/2022 7:48:16 AM
1,1-Dichloroethene	ND	0.102		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Acetone	ND	0.511		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Methylene chloride	ND	0.0153		mg/Kg-dry	1	9/15/2022 10:56:02 AM
trans-1,2-Dichloroethene	ND	0.0307		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Methyl tert-butyl ether (MTBE)	ND	0.0307		mg/Kg-dry	1	9/14/2022 7:48:16 AM
1,1-Dichloroethane	ND	0.0256		mg/Kg-dry	1	9/14/2022 7:48:16 AM
cis-1,2-Dichloroethene	ND	0.0256		mg/Kg-dry	1	9/14/2022 7:48:16 AM
(MEK) 2-Butanone	ND	0.460		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Chloroform	ND	0.0256		mg/Kg-dry	1	9/14/2022 7:48:16 AM
1,1,1-Trichloroethane (TCA)	ND	0.0256		mg/Kg-dry	1	9/14/2022 7:48:16 AM
1,1-Dichloropropene	ND	0.0256		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Carbon tetrachloride	ND	0.0767		mg/Kg-dry	1	9/14/2022 7:48:16 AM
1,2-Dichloroethane (EDC)	ND	0.0235		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Benzene	ND	0.0204		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Trichloroethene (TCE)	ND	0.0204		mg/Kg-dry	1	9/14/2022 7:48:16 AM
1,2-Dichloropropane	ND	0.0204		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Bromodichloromethane	ND	0.0256		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Dibromomethane	ND	0.0204		mg/Kg-dry	1	9/14/2022 7:48:16 AM
cis-1,3-Dichloropropene	ND	0.0818		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Toluene	ND	0.0307		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Trans-1,3-Dichloropropylene	ND	0.0511		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Methyl Isobutyl Ketone (MIBK)	ND	0.0767		mg/Kg-dry	1	9/14/2022 7:48:16 AM
1,1,2-Trichloroethane	ND	0.0174		mg/Kg-dry	1	9/14/2022 7:48:16 AM
1,3-Dichloropropane	ND	0.0204		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Tetrachloroethene (PCE)	0.0586	0.0307		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Dibromochloromethane	ND	0.0204		mg/Kg-dry	1	9/14/2022 7:48:16 AM
1,2-Dibromoethane (EDB)	ND	0.0102		mg/Kg-dry	1	9/14/2022 7:48:16 AM
2-Hexanone (MBK)	ND	0.0613		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Chlorobenzene	ND	0.0256		mg/Kg-dry	1	9/14/2022 7:48:16 AM
1,1,1,2-Tetrachloroethane	ND	0.0204		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Ethylbenzene	ND	0.0256		mg/Kg-dry	1	9/14/2022 7:48:16 AM
m,p-Xylene	ND	0.0511		mg/Kg-dry	1	9/14/2022 7:48:16 AM
o-Xylene	ND	0.0256		mg/Kg-dry	1	9/14/2022 7:48:16 AM

Client: PES Environmental, Inc. **Collection Date:** 9/6/2022 1:35:00 PM
Project: MVSC
Lab ID: 2209092-004 **Matrix:** Soil
Client Sample ID: **MW-1-35-090622**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260D				Batch ID: 37734		Analyst: LAC
Styrene	ND	0.0256		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Isopropylbenzene	ND	0.0307		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Bromoform	ND	0.0256		mg/Kg-dry	1	9/14/2022 7:48:16 AM
1,1,2,2-Tetrachloroethane	ND	0.0153		mg/Kg-dry	1	9/14/2022 7:48:16 AM
n-Propylbenzene	ND	0.0307		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Bromobenzene	ND	0.0307		mg/Kg-dry	1	9/14/2022 7:48:16 AM
1,3,5-Trimethylbenzene	ND	0.0256		mg/Kg-dry	1	9/14/2022 7:48:16 AM
2-Chlorotoluene	ND	0.0307		mg/Kg-dry	1	9/14/2022 7:48:16 AM
4-Chlorotoluene	ND	0.0307		mg/Kg-dry	1	9/14/2022 7:48:16 AM
tert-Butylbenzene	ND	0.0307		mg/Kg-dry	1	9/14/2022 7:48:16 AM
1,2,3-Trichloropropane	ND	0.0256		mg/Kg-dry	1	9/14/2022 7:48:16 AM
1,2,4-Trichlorobenzene	ND	0.0409		mg/Kg-dry	1	9/14/2022 7:48:16 AM
sec-Butylbenzene	ND	0.0307		mg/Kg-dry	1	9/14/2022 7:48:16 AM
4-Isopropyltoluene	ND	0.0307		mg/Kg-dry	1	9/14/2022 7:48:16 AM
1,3-Dichlorobenzene	ND	0.0358		mg/Kg-dry	1	9/14/2022 7:48:16 AM
1,4-Dichlorobenzene	ND	0.0307		mg/Kg-dry	1	9/14/2022 7:48:16 AM
n-Butylbenzene	ND	0.0409		mg/Kg-dry	1	9/14/2022 7:48:16 AM
1,2-Dichlorobenzene	ND	0.0307		mg/Kg-dry	1	9/14/2022 7:48:16 AM
1,2-Dibromo-3-chloropropane	ND	0.0613		mg/Kg-dry	1	9/14/2022 7:48:16 AM
1,2,4-Trimethylbenzene	ND	0.0256		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Hexachloro-1,3-butadiene	ND	0.0511		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Naphthalene	ND	0.102		mg/Kg-dry	1	9/14/2022 7:48:16 AM
1,2,3-Trichlorobenzene	ND	0.0511		mg/Kg-dry	1	9/14/2022 7:48:16 AM
Surr: Dibromofluoromethane	99.2	74.9 - 120		%Rec	1	9/14/2022 7:48:16 AM
Surr: Toluene-d8	100	76.7 - 125		%Rec	1	9/14/2022 7:48:16 AM
Surr: 1-Bromo-4-fluorobenzene	92.6	63.3 - 136		%Rec	1	9/14/2022 7:48:16 AM

NOTES:
Q - Associated calibration verification is below acceptance criteria. Result may be low-biased.

Sample Moisture (Percent Moisture)				Batch ID: R78203		Analyst: me
Percent Moisture	7.20	0.500		wt%	1	9/13/2022 12:36:09 PM

Client: PES Environmental, Inc. **Collection Date:** 9/7/2022 9:35:00 AM
Project: MVSC
Lab ID: 2209092-005 **Matrix:** Soil
Client Sample ID: **DC-5-30-090722**

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 37734 Analyst: LAC

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0517	Q	mg/Kg-dry	1	9/14/2022 8:18:25 AM
Chloromethane	ND	0.0827		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Vinyl chloride	ND	0.0259		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Bromomethane	ND	0.155		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Trichlorofluoromethane (CFC-11)	ND	0.0517		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Chloroethane	ND	0.124		mg/Kg-dry	1	9/14/2022 8:18:25 AM
1,1-Dichloroethene	ND	0.103		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Acetone	ND	0.517		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Methylene chloride	ND	0.0155		mg/Kg-dry	1	9/14/2022 8:18:25 AM
trans-1,2-Dichloroethene	ND	0.0310		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Methyl tert-butyl ether (MTBE)	ND	0.0310		mg/Kg-dry	1	9/14/2022 8:18:25 AM
1,1-Dichloroethane	ND	0.0259		mg/Kg-dry	1	9/14/2022 8:18:25 AM
cis-1,2-Dichloroethene	ND	0.0259		mg/Kg-dry	1	9/14/2022 8:18:25 AM
(MEK) 2-Butanone	ND	0.465		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Chloroform	ND	0.0259		mg/Kg-dry	1	9/14/2022 8:18:25 AM
1,1,1-Trichloroethane (TCA)	ND	0.0259		mg/Kg-dry	1	9/14/2022 8:18:25 AM
1,1-Dichloropropene	ND	0.0259		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Carbon tetrachloride	ND	0.0776		mg/Kg-dry	1	9/14/2022 8:18:25 AM
1,2-Dichloroethane (EDC)	ND	0.0238		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Benzene	ND	0.0207		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Trichloroethene (TCE)	ND	0.0207		mg/Kg-dry	1	9/14/2022 8:18:25 AM
1,2-Dichloropropane	ND	0.0207		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Bromodichloromethane	ND	0.0259		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Dibromomethane	ND	0.0207		mg/Kg-dry	1	9/14/2022 8:18:25 AM
cis-1,3-Dichloropropene	ND	0.0827		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Toluene	ND	0.0310		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Trans-1,3-Dichloropropylene	ND	0.0517		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Methyl Isobutyl Ketone (MIBK)	ND	0.0776		mg/Kg-dry	1	9/14/2022 8:18:25 AM
1,1,2-Trichloroethane	ND	0.0176		mg/Kg-dry	1	9/14/2022 8:18:25 AM
1,3-Dichloropropane	ND	0.0207		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Tetrachloroethene (PCE)	ND	0.0310		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Dibromochloromethane	ND	0.0207		mg/Kg-dry	1	9/14/2022 8:18:25 AM
1,2-Dibromoethane (EDB)	ND	0.0103		mg/Kg-dry	1	9/14/2022 8:18:25 AM
2-Hexanone (MBK)	ND	0.0620		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Chlorobenzene	ND	0.0259		mg/Kg-dry	1	9/14/2022 8:18:25 AM
1,1,1,2-Tetrachloroethane	ND	0.0207		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Ethylbenzene	ND	0.0259		mg/Kg-dry	1	9/14/2022 8:18:25 AM
m,p-Xylene	ND	0.0517		mg/Kg-dry	1	9/14/2022 8:18:25 AM
o-Xylene	ND	0.0259		mg/Kg-dry	1	9/14/2022 8:18:25 AM

Analytical Report

Work Order: **2209092**
Date Reported: **9/16/2022**

Client: PES Environmental, Inc. **Collection Date:** 9/7/2022 9:35:00 AM
Project: MVSC
Lab ID: 2209092-005 **Matrix:** Soil
Client Sample ID: **DC-5-30-090722**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260D				Batch ID: 37734		Analyst: LAC
Styrene	ND	0.0259		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Isopropylbenzene	ND	0.0310		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Bromoform	ND	0.0259		mg/Kg-dry	1	9/14/2022 8:18:25 AM
1,1,2,2-Tetrachloroethane	ND	0.0155		mg/Kg-dry	1	9/14/2022 8:18:25 AM
n-Propylbenzene	ND	0.0310		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Bromobenzene	ND	0.0310		mg/Kg-dry	1	9/14/2022 8:18:25 AM
1,3,5-Trimethylbenzene	ND	0.0259		mg/Kg-dry	1	9/14/2022 8:18:25 AM
2-Chlorotoluene	ND	0.0310		mg/Kg-dry	1	9/14/2022 8:18:25 AM
4-Chlorotoluene	ND	0.0310		mg/Kg-dry	1	9/14/2022 8:18:25 AM
tert-Butylbenzene	ND	0.0310		mg/Kg-dry	1	9/14/2022 8:18:25 AM
1,2,3-Trichloropropane	ND	0.0259		mg/Kg-dry	1	9/14/2022 8:18:25 AM
1,2,4-Trichlorobenzene	ND	0.0414		mg/Kg-dry	1	9/14/2022 8:18:25 AM
sec-Butylbenzene	ND	0.0310		mg/Kg-dry	1	9/14/2022 8:18:25 AM
4-Isopropyltoluene	ND	0.0310		mg/Kg-dry	1	9/14/2022 8:18:25 AM
1,3-Dichlorobenzene	ND	0.0362		mg/Kg-dry	1	9/14/2022 8:18:25 AM
1,4-Dichlorobenzene	ND	0.0310		mg/Kg-dry	1	9/14/2022 8:18:25 AM
n-Butylbenzene	ND	0.0414		mg/Kg-dry	1	9/14/2022 8:18:25 AM
1,2-Dichlorobenzene	ND	0.0310		mg/Kg-dry	1	9/14/2022 8:18:25 AM
1,2-Dibromo-3-chloropropane	ND	0.0620		mg/Kg-dry	1	9/14/2022 8:18:25 AM
1,2,4-Trimethylbenzene	ND	0.0259		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Hexachloro-1,3-butadiene	ND	0.0517		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Naphthalene	ND	0.103		mg/Kg-dry	1	9/14/2022 8:18:25 AM
1,2,3-Trichlorobenzene	ND	0.0517		mg/Kg-dry	1	9/14/2022 8:18:25 AM
Surr: Dibromofluoromethane	98.3	74.9 - 120		%Rec	1	9/14/2022 8:18:25 AM
Surr: Toluene-d8	100	76.7 - 125		%Rec	1	9/14/2022 8:18:25 AM
Surr: 1-Bromo-4-fluorobenzene	93.3	63.3 - 136		%Rec	1	9/14/2022 8:18:25 AM

NOTES:
Q - Associated calibration verification is below acceptance criteria. Result may be low-biased.

Sample Moisture (Percent Moisture)				Batch ID: R78203		Analyst: me
Percent Moisture	16.3	0.500		wt%	1	9/13/2022 12:36:09 PM

Client: PES Environmental, Inc. **Collection Date:** 9/7/2022 2:18:00 PM
Project: MVSC
Lab ID: 2209092-006 **Matrix:** Wastewater
Client Sample ID: **WDRUM-090722-1**

Volatile Organic Compounds by EPA Method 8260D

Batch ID: 37726 Analyst: MS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	1.25		µg/L	1	9/9/2022 9:12:22 AM
Chloromethane	ND	0.750		µg/L	1	9/9/2022 9:12:22 AM
Vinyl chloride	ND	0.200		µg/L	1	9/9/2022 9:12:22 AM
Bromomethane	ND	1.20		µg/L	1	9/9/2022 9:12:22 AM
Trichlorofluoromethane (CFC-11)	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
Chloroethane	ND	1.00		µg/L	1	9/9/2022 9:12:22 AM
1,1-Dichloroethene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
Acetone	6.66	6.00		µg/L	1	9/9/2022 9:12:22 AM
Methylene chloride	ND	0.750		µg/L	1	9/9/2022 9:12:22 AM
trans-1,2-Dichloroethene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
Methyl tert-butyl ether (MTBE)	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
1,1-Dichloroethane	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
cis-1,2-Dichloroethene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
2-Butanone (MEK)	ND	1.50		µg/L	1	9/9/2022 9:12:22 AM
Chloroform	0.615	0.500		µg/L	1	9/9/2022 9:12:22 AM
1,1,1-Trichloroethane (TCA)	ND	0.400		µg/L	1	9/9/2022 9:12:22 AM
1,1-Dichloropropene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
Carbon tetrachloride	ND	0.750		µg/L	1	9/9/2022 9:12:22 AM
1,2-Dichloroethane (EDC)	ND	0.400		µg/L	1	9/9/2022 9:12:22 AM
Benzene	ND	0.440		µg/L	1	9/9/2022 9:12:22 AM
Trichloroethene (TCE)	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
1,2-Dichloropropane	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
Bromodichloromethane	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
Dibromomethane	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
cis-1,3-Dichloropropene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
Toluene	ND	0.750		µg/L	1	9/9/2022 9:12:22 AM
trans-1,3-Dichloropropylene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
Methyl Isobutyl Ketone (MIBK)	ND	1.25		µg/L	1	9/9/2022 9:12:22 AM
1,1,2-Trichloroethane	ND	0.350		µg/L	1	9/9/2022 9:12:22 AM
1,3-Dichloropropane	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
Tetrachloroethene (PCE)	1.12	0.400		µg/L	1	9/9/2022 9:12:22 AM
Dibromochloromethane	ND	1.00		µg/L	1	9/9/2022 9:12:22 AM
1,2-Dibromoethane (EDB)	ND	0.300		µg/L	1	9/9/2022 9:12:22 AM
2-Hexanone (MBK)	ND	1.00		µg/L	1	9/9/2022 9:12:22 AM
Chlorobenzene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
1,1,1,2-Tetrachloroethane	ND	0.300		µg/L	1	9/9/2022 9:12:22 AM
Ethylbenzene	ND	0.400		µg/L	1	9/9/2022 9:12:22 AM
m,p-Xylene	ND	1.00		µg/L	1	9/9/2022 9:12:22 AM
o-Xylene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM

Analytical Report

Work Order: **2209092**
Date Reported: **9/16/2022**

Client: PES Environmental, Inc.
Collection Date: 9/7/2022 2:18:00 PM
Project: MVSC
Lab ID: 2209092-006
Matrix: Wastewater
Client Sample ID: **WDRUM-090722-1**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260D				Batch ID: 37726		Analyst: MS
Styrene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
Isopropylbenzene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
Bromoform	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
1,1,2,2-Tetrachloroethane	ND	0.400		µg/L	1	9/9/2022 9:12:22 AM
n-Propylbenzene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
Bromobenzene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
1,3,5-Trimethylbenzene	ND	0.250		µg/L	1	9/9/2022 9:12:22 AM
2-Chlorotoluene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
4-Chlorotoluene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
tert-Butylbenzene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
1,2,3-Trichloropropane	ND	0.400		µg/L	1	9/9/2022 9:12:22 AM
1,2,4-Trichlorobenzene	ND	0.750		µg/L	1	9/9/2022 9:12:22 AM
sec-Butylbenzene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
4-Isopropyltoluene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
1,3-Dichlorobenzene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
1,4-Dichlorobenzene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
n-Butylbenzene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
1,2-Dichlorobenzene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
1,2-Dibromo-3-chloropropane	ND	1.00		µg/L	1	9/9/2022 9:12:22 AM
1,2,4-Trimethylbenzene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
Hexachloro-1,3-butadiene	ND	0.500		µg/L	1	9/9/2022 9:12:22 AM
Naphthalene	ND	1.25		µg/L	1	9/9/2022 9:12:22 AM
1,2,3-Trichlorobenzene	ND	0.700		µg/L	1	9/9/2022 9:12:22 AM
Surr: Dibromofluoromethane	108	80 - 120		%Rec	1	9/9/2022 9:12:22 AM
Surr: Toluene-d8	96.8	80 - 120		%Rec	1	9/9/2022 9:12:22 AM
Surr: 1-Bromo-4-fluorobenzene	91.3	80 - 120		%Rec	1	9/9/2022 9:12:22 AM

Work Order: 2209092
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **LCS-37734** SampType: **LCS** Units: **µg/L** Prep Date: **9/9/2022** RunNo: **78175**
Client ID: **LCSS** Batch ID: **37734** Analysis Date: **9/9/2022** SeqNo: **1607043**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.923	0.0500	1.000	0	92.3	80	120				
Chloromethane	1.20	0.0800	1.000	0	120	80	120				
Vinyl chloride	1.52	0.0250	1.000	0	152	80	120				S
Bromomethane	1.83	0.150	1.000	0	183	80	120				S
Trichlorofluoromethane (CFC-11)	0.520	0.0500	1.000	0	52.0	80	120				S
Chloroethane	0.873	0.120	1.000	0	87.3	80	120				
1,1-Dichloroethene	0.943	0.100	1.000	0	94.3	80	120				
Acetone	2.05	0.500	2.500	0	82.1	80	120				
Methylene chloride	1.06	0.0150	1.000	0	106	80	120				
trans-1,2-Dichloroethene	1.03	0.0300	1.000	0	103	80	120				
Methyl tert-butyl ether (MTBE)	0.942	0.0300	1.000	0	94.2	80	120				
1,1-Dichloroethane	0.936	0.0250	1.000	0	93.6	80	120				
cis-1,2-Dichloroethene	1.05	0.0250	1.000	0	105	80	120				
(MEK) 2-Butanone	2.30	0.450	2.500	0	91.8	80	120				
Chloroform	1.02	0.0250	1.000	0	102	80	120				
1,1,1-Trichloroethane (TCA)	1.05	0.0250	1.000	0	105	80	120				
1,1-Dichloropropene	1.08	0.0250	1.000	0	108	80	120				
Carbon tetrachloride	1.13	0.0750	1.000	0	113	80	120				
1,2-Dichloroethane (EDC)	0.984	0.0230	1.000	0	98.4	80	120				
Benzene	1.06	0.0200	1.000	0	106	80	120				
Trichloroethene (TCE)	1.12	0.0200	1.000	0	112	80	120				
1,2-Dichloropropane	1.04	0.0200	1.000	0	104	80	120				
Bromodichloromethane	1.14	0.0250	1.000	0	114	80	120				
Dibromomethane	1.07	0.0200	1.000	0	107	80	120				
cis-1,3-Dichloropropene	1.15	0.0800	1.000	0	115	80	120				
Toluene	1.04	0.0300	1.000	0	104	80	120				
Trans-1,3-Dichloropropylene	1.16	0.0500	1.000	0	116	80	120				
Methyl Isobutyl Ketone (MIBK)	2.55	0.0750	2.500	0	102	80	120				
1,1,2-Trichloroethane	1.09	0.0170	1.000	0	109	80	120				
1,3-Dichloropropane	1.08	0.0200	1.000	0	108	80	120				
Tetrachloroethene (PCE)	1.17	0.0300	1.000	0	117	80	120				
Dibromochloromethane	1.17	0.0200	1.000	0	117	80	120				

Work Order: 2209092
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **LCS-37734** SampType: **LCS** Units: **µg/L** Prep Date: **9/9/2022** RunNo: **78175**
Client ID: **LCSS** Batch ID: **37734** Analysis Date: **9/9/2022** SeqNo: **1607043**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromoethane (EDB)	1.13	0.0100	1.000	0	113	80	120				
2-Hexanone (MBK)	2.57	0.0600	2.500	0	103	80	120				
Chlorobenzene	1.02	0.0250	1.000	0	102	80	120				
1,1,1,2-Tetrachloroethane	1.06	0.0200	1.000	0	106	80	120				
Ethylbenzene	1.02	0.0250	1.000	0	102	80	120				
m,p-Xylene	1.94	0.0500	2.000	0	97.2	80	120				
o-Xylene	0.979	0.0250	1.000	0	97.9	80	120				
Styrene	0.952	0.0250	1.000	0	95.2	80	120				
Isopropylbenzene	1.01	0.0300	1.000	0	101	80	120				
Bromoform	1.07	0.0250	1.000	0	107	80	120				
1,1,2,2-Tetrachloroethane	1.01	0.0150	1.000	0	101	80	120				
n-Propylbenzene	1.01	0.0300	1.000	0	101	80	120				
Bromobenzene	1.03	0.0300	1.000	0	103	80	120				
1,3,5-Trimethylbenzene	1.04	0.0250	1.000	0	104	80	120				
2-Chlorotoluene	0.979	0.0300	1.000	0	97.9	80	120				
4-Chlorotoluene	1.02	0.0300	1.000	0	102	80	120				
tert-Butylbenzene	0.968	0.0300	1.000	0	96.8	80	120				
1,2,3-Trichloropropane	1.01	0.0250	1.000	0	101	80	120				
1,2,4-Trichlorobenzene	1.05	0.0400	1.000	0	105	80	120				
sec-Butylbenzene	1.06	0.0300	1.000	0	106	80	120				
4-Isopropyltoluene	1.04	0.0300	1.000	0	104	80	120				
1,3-Dichlorobenzene	1.11	0.0350	1.000	0	111	80	120				
1,4-Dichlorobenzene	1.04	0.0300	1.000	0	104	80	120				
n-Butylbenzene	1.11	0.0400	1.000	0	111	80	120				
1,2-Dichlorobenzene	1.06	0.0300	1.000	0	106	80	120				
1,2-Dibromo-3-chloropropane	1.02	0.0600	1.000	0	102	80	120				
1,2,4-Trimethylbenzene	1.08	0.0250	1.000	0	108	80	120				
Hexachloro-1,3-butadiene	1.11	0.0500	1.000	0	111	80	120				
Naphthalene	1.04	0.100	1.000	0	104	80	120				
1,2,3-Trichlorobenzene	1.05	0.0500	1.000	0	105	80	120				
Surr: Dibromofluoromethane	1.26		1.250		101	74.9	120				
Surr: Toluene-d8	1.37		1.250		110	76.7	125				

Work Order: 2209092
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **LCS-37734** SampType: **LCS** Units: **µg/L** Prep Date: **9/9/2022** RunNo: **78175**
Client ID: **LCSS** Batch ID: **37734** Analysis Date: **9/9/2022** SeqNo: **1607043**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 1-Bromo-4-fluorobenzene	1.25		1.250		99.8	63.3	136				

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect; result meets QC requirements.
S - Outlying spike recovery observed (low bias). Samples will be qualified with a Q.

Sample ID: **MB-37734** SampType: **MBLK** Units: **mg/Kg** Prep Date: **9/9/2022** RunNo: **78175**
Client ID: **MBLKS** Batch ID: **37734** Analysis Date: **9/9/2022** SeqNo: **1607042**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0500									
Chloromethane	ND	0.0800									
Vinyl chloride	ND	0.0250									
Bromomethane	ND	0.150									
Trichlorofluoromethane (CFC-11)	ND	0.0500									Q
Chloroethane	ND	0.120									
1,1-Dichloroethene	ND	0.100									
Acetone	ND	0.500									
Methylene chloride	ND	0.0150									
trans-1,2-Dichloroethene	ND	0.0300									
Methyl tert-butyl ether (MTBE)	ND	0.0300									
1,1-Dichloroethane	ND	0.0250									
cis-1,2-Dichloroethene	ND	0.0250									
(MEK) 2-Butanone	ND	0.450									
Chloroform	ND	0.0250									
1,1,1-Trichloroethane (TCA)	ND	0.0250									
1,1-Dichloropropene	ND	0.0250									
Carbon tetrachloride	ND	0.0750									
1,2-Dichloroethane (EDC)	ND	0.0230									
Benzene	ND	0.0180									LOD
Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0250									

Work Order: 2209092
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **MB-37734** SampType: **MBLK** Units: **mg/Kg** Prep Date: **9/9/2022** RunNo: **78175**
Client ID: **MBLKS** Batch ID: **37734** Analysis Date: **9/9/2022** SeqNo: **1607042**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibromomethane	ND	0.0200									
cis-1,3-Dichloropropene	ND	0.0800									
Toluene	ND	0.0300									
Trans-1,3-Dichloropropylene	ND	0.0500									
Methyl Isobutyl Ketone (MIBK)	ND	0.0750									
1,1,2-Trichloroethane	ND	0.0170									
1,3-Dichloropropane	ND	0.0200									
Tetrachloroethene (PCE)	ND	0.0300									
Dibromochloromethane	ND	0.0200									
1,2-Dibromoethane (EDB)	ND	0.0100									
2-Hexanone (MBK)	ND	0.0600									
Chlorobenzene	ND	0.0250									
1,1,1,2-Tetrachloroethane	ND	0.0200									
Ethylbenzene	ND	0.0250									
m,p-Xylene	ND	0.0500									
o-Xylene	ND	0.0250									
Styrene	ND	0.0250									
Isopropylbenzene	ND	0.0300									
Bromoform	ND	0.0250									
1,1,2,2-Tetrachloroethane	ND	0.0150									
n-Propylbenzene	ND	0.0300									
Bromobenzene	ND	0.0300									
1,3,5-Trimethylbenzene	ND	0.0250									
2-Chlorotoluene	ND	0.0300									
4-Chlorotoluene	ND	0.0300									
tert-Butylbenzene	ND	0.0300									
1,2,3-Trichloropropane	ND	0.0250									
1,2,4-Trichlorobenzene	ND	0.0400									
sec-Butylbenzene	ND	0.0300									
4-Isopropyltoluene	ND	0.0300									
1,3-Dichlorobenzene	ND	0.0350									
1,4-Dichlorobenzene	ND	0.0300									

Work Order: 2209092
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **MB-37734** SampType: **MBLK** Units: **mg/Kg** Prep Date: **9/9/2022** RunNo: **78175**
Client ID: **MBLKS** Batch ID: **37734** Analysis Date: **9/9/2022** SeqNo: **1607042**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
n-Butylbenzene	ND	0.0400									
1,2-Dichlorobenzene	ND	0.0300									
1,2-Dibromo-3-chloropropane	ND	0.0600									
1,2,4-Trimethylbenzene	ND	0.0250									
Hexachloro-1,3-butadiene	ND	0.0500									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.0500									
Surr: Dibromofluoromethane	1.27		1.250		101	74.9	120				
Surr: Toluene-d8	1.30		1.250		104	76.7	125				
Surr: 1-Bromo-4-fluorobenzene	1.18		1.250		94.8	63.3	136				

NOTES:
LOD - Analyte reported to the Limit of Detection (LOD)
Q - Associated calibration verification is below acceptance criteria. Result may be low-biased.

Sample ID: **2209027-002BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **9/9/2022** RunNo: **78175**
Client ID: **BATCH** Batch ID: **37734** Analysis Date: **9/9/2022** SeqNo: **1607028**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0559						0		30	
Chloromethane	ND	0.0894						0		30	
Vinyl chloride	ND	0.0279						0		30	
Bromomethane	ND	0.168						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0559						0		30	Q
Chloroethane	ND	0.134						0		30	
1,1-Dichloroethene	ND	0.112						0		30	
Acetone	ND	0.559						0		30	
Methylene chloride	ND	0.0168						0		30	
trans-1,2-Dichloroethene	ND	0.0335						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0335						0		30	
1,1-Dichloroethane	ND	0.0279						0		30	
cis-1,2-Dichloroethene	ND	0.0279						0		30	
(MEK) 2-Butanone	ND	0.503						0		30	

Work Order: 2209092
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **2209027-002BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **9/9/2022** RunNo: **78175**
Client ID: **BATCH** Batch ID: **37734** Analysis Date: **9/9/2022** SeqNo: **1607028**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloroform	ND	0.0279						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0279						0		30	
1,1-Dichloropropene	ND	0.0279						0		30	
Carbon tetrachloride	ND	0.0838						0		30	
1,2-Dichloroethane (EDC)	ND	0.0257						0		30	
Benzene	ND	0.0201						0		30	LOD
Trichloroethene (TCE)	ND	0.0223						0		30	
1,2-Dichloropropane	ND	0.0223						0		30	
Bromodichloromethane	ND	0.0279						0		30	
Dibromomethane	ND	0.0223						0		30	
cis-1,3-Dichloropropene	ND	0.0894						0		30	
Toluene	ND	0.0335						0		30	
Trans-1,3-Dichloropropylene	ND	0.0559						0		30	
Methyl Isobutyl Ketone (MIBK)	ND	0.0838						0		30	
1,1,2-Trichloroethane	ND	0.0190						0		30	
1,3-Dichloropropane	ND	0.0223						0		30	
Tetrachloroethene (PCE)	ND	0.0335						0		30	
Dibromochloromethane	ND	0.0223						0		30	
1,2-Dibromoethane (EDB)	ND	0.0112						0		30	
2-Hexanone (MBK)	ND	0.0670						0		30	
Chlorobenzene	ND	0.0279						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0223						0		30	
Ethylbenzene	ND	0.0279						0		30	
m,p-Xylene	ND	0.0559						0		30	
o-Xylene	ND	0.0279						0		30	
Styrene	ND	0.0279						0		30	
Isopropylbenzene	ND	0.0335						0		30	
Bromoform	ND	0.0279						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0168						0		30	
n-Propylbenzene	ND	0.0335						0		30	
Bromobenzene	ND	0.0335						0		30	
1,3,5-Trimethylbenzene	ND	0.0279						0		30	

Work Order: 2209092
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **2209027-002BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **9/9/2022** RunNo: **78175**
Client ID: **BATCH** Batch ID: **37734** Analysis Date: **9/9/2022** SeqNo: **1607028**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Chlorotoluene	ND	0.0335						0		30	
4-Chlorotoluene	ND	0.0335						0		30	
tert-Butylbenzene	ND	0.0335						0		30	
1,2,3-Trichloropropane	ND	0.0279						0		30	
1,2,4-Trichlorobenzene	ND	0.0447						0		30	
sec-Butylbenzene	ND	0.0335						0		30	
4-Isopropyltoluene	ND	0.0335						0		30	
1,3-Dichlorobenzene	ND	0.0391						0		30	
1,4-Dichlorobenzene	ND	0.0335						0		30	
n-Butylbenzene	ND	0.0447						0		30	
1,2-Dichlorobenzene	ND	0.0335						0		30	
1,2-Dibromo-3-chloropropane	ND	0.0670						0		30	
1,2,4-Trimethylbenzene	ND	0.0279						0		30	
Hexachloro-1,3-butadiene	ND	0.0559						0		30	
Naphthalene	ND	0.112						0		30	
1,2,3-Trichlorobenzene	ND	0.0559						0		30	
Surr: Dibromofluoromethane	1.43		1.397		102	74.9	120		0		
Surr: Toluene-d8	1.27		1.397		91.1	76.7	125		0		
Surr: 1-Bromo-4-fluorobenzene	2.77		6.983		39.7	63.3	136		0		S

NOTES:
LOD - Analyte reported to the Limit of Detection (LOD)
Q - Associated calibration verification is below acceptance criteria. Result may be low-biased.

Sample ID: **2209023-001BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **9/9/2022** RunNo: **78175**
Client ID: **BATCH** Batch ID: **37734** Analysis Date: **9/9/2022** SeqNo: **1607025**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	1.06	0.0510	1.021	0	104	7.77	152				
Chloromethane	1.51	0.0817	1.021	0	148	34.2	141				S
Vinyl chloride	1.30	0.0255	1.021	0	128	49.3	143				
Bromomethane	2.27	0.153	1.021	0	222	47.1	163				S
Trichlorofluoromethane (CFC-11)	0.874	0.0510	1.021	0	85.6	60.8	139				

Work Order: 2209092
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **2209023-001BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **9/9/2022** RunNo: **78175**
Client ID: **BATCH** Batch ID: **37734** Analysis Date: **9/9/2022** SeqNo: **1607025**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloroethane	2.06	0.123	1.021	0	202	48.9	150				S
1,1-Dichloroethene	1.56	0.102	1.021	0	153	68.8	133				S
Acetone	3.20	0.510	2.552	0	125	70	145				
Methylene chloride	1.62	0.0153	1.021	0	158	70.1	131				S
trans-1,2-Dichloroethene	1.66	0.0306	1.021	0	163	75.9	128				S
Methyl tert-butyl ether (MTBE)	1.42	0.0306	1.021	0	139	66.4	139				S
1,1-Dichloroethane	1.56	0.0255	1.021	0	153	72.3	131				S
cis-1,2-Dichloroethene	1.68	0.0255	1.021	0	164	79.9	123				S
(MEK) 2-Butanone	3.46	0.459	2.552	0	135	67.8	139				
Chloroform	1.62	0.0255	1.021	0	159	77.8	126				S
1,1,1-Trichloroethane (TCA)	1.08	0.0255	1.021	0	106	78.5	126				
1,1-Dichloropropene	1.12	0.0255	1.021	0	110	76.7	127				
Carbon tetrachloride	1.16	0.0766	1.021	0	113	75.7	127				
1,2-Dichloroethane (EDC)	0.986	0.0235	1.021	0	96.6	73.9	128				
Benzene	1.11	0.0204	1.021	0	109	76.9	128				
Trichloroethene (TCE)	1.66	0.0204	1.021	0	163	76.1	134				S
1,2-Dichloropropane	1.48	0.0204	1.021	0	145	74	129				S
Bromodichloromethane	1.64	0.0255	1.021	0	160	77.1	124				S
Dibromomethane	1.49	0.0204	1.021	0	146	79.1	124				S
cis-1,3-Dichloropropene	1.58	0.0817	1.021	0	155	74.5	122				S
Toluene	1.48	0.0306	1.021	0	145	79.5	127				S
Trans-1,3-Dichloropropylene	1.58	0.0510	1.021	0	155	72.9	123				S
Methyl Isobutyl Ketone (MIBK)	3.23	0.0766	2.552	0	127	63.8	142				
1,1,2-Trichloroethane	1.57	0.0174	1.021	0	154	76.9	126				S
1,3-Dichloropropane	1.55	0.0204	1.021	0	152	74	128				S
Tetrachloroethene (PCE)	1.71	0.0306	1.021	0	168	78.3	129				S
Dibromochloromethane	1.66	0.0204	1.021	0	163	73.3	127				S
1,2-Dibromoethane (EDB)	1.58	0.0102	1.021	0	155	76	126				S
2-Hexanone (MBK)	3.19	0.0613	2.552	0	125	60.7	146				
Chlorobenzene	1.00	0.0255	1.021	0	97.9	81.8	123				
1,1,1,2-Tetrachloroethane	1.01	0.0204	1.021	0	99.2	79.4	124				
Ethylbenzene	1.00	0.0255	1.021	0	98.1	81.6	130				

Work Order: 2209092
CLIENT: PES Environmental, Inc.
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QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **2209023-001BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **9/9/2022** RunNo: **78175**
Client ID: **BATCH** Batch ID: **37734** Analysis Date: **9/9/2022** SeqNo: **1607025**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
m,p-Xylene	1.94	0.0510	2.042	0	94.8	80.6	128				
o-Xylene	0.977	0.0255	1.021	0	95.7	80.1	126				
Styrene	0.953	0.0255	1.021	0	93.3	81.4	125				
Isopropylbenzene	1.01	0.0306	1.021	0	98.6	80.7	131				
Bromoform	1.01	0.0255	1.021	0	99.3	70.5	132				
1,1,2,2-Tetrachloroethane	0.929	0.0153	1.021	0	91.0	60.1	136				
n-Propylbenzene	0.988	0.0306	1.021	0	96.8	79.4	136				
Bromobenzene	1.02	0.0306	1.021	0	99.9	78.9	125				
1,3,5-Trimethylbenzene	1.01	0.0255	1.021	0	99.3	78.7	131				
2-Chlorotoluene	0.960	0.0306	1.021	0	94.0	79.5	130				
4-Chlorotoluene	1.00	0.0306	1.021	0	98.3	79.8	128				
tert-Butylbenzene	0.966	0.0306	1.021	0	94.6	78.1	131				
1,2,3-Trichloropropane	0.952	0.0255	1.021	0	93.3	70.2	131				
1,2,4-Trichlorobenzene	0.958	0.0408	1.021	0	93.8	76	129				
sec-Butylbenzene	1.05	0.0306	1.021	0	103	76.5	136				
4-Isopropyltoluene	1.04	0.0306	1.021	0	102	75.7	135				
1,3-Dichlorobenzene	1.06	0.0357	1.021	0	104	83.2	124				
1,4-Dichlorobenzene	1.02	0.0306	1.021	0	99.9	82.9	125				
n-Butylbenzene	1.05	0.0408	1.021	0	103	77.8	130				
1,2-Dichlorobenzene	1.02	0.0306	1.021	0	99.8	82.8	125				
1,2-Dibromo-3-chloropropane	0.899	0.0613	1.021	0	88.0	64.2	137				
1,2,4-Trimethylbenzene	1.05	0.0255	1.021	0	102	77.4	131				
Hexachloro-1,3-butadiene	1.05	0.0510	1.021	0	103	70.9	136				
Naphthalene	0.906	0.102	1.021	0	88.7	59.4	152				
1,2,3-Trichlorobenzene	0.913	0.0510	1.021	0	89.4	68.5	138				
Surr: Dibromofluoromethane	1.30		1.276		102	74.9	120				
Surr: Toluene-d8	2.02		1.276		158	76.7	125				S
Surr: 1-Bromo-4-fluorobenzene	1.26		1.276		99.0	63.3	136				

NOTES:
S - Outlying spike recoveries were associated with this sample.

Work Order: 2209092
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **LCS-37734** SampType: **LCS** Units: **µg/L** Prep Date: **9/9/2022** RunNo: **78234**
Client ID: **LCSS** Batch ID: **37734** Analysis Date: **9/14/2022** SeqNo: **1608621**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.772	0.0500	1.000	0	77.2	80	120				S
Chloromethane	0.896	0.0800	1.000	0	89.6	80	120				
Vinyl chloride	0.872	0.0250	1.000	0	87.2	80	120				
Bromomethane	1.18	0.150	1.000	0	118	80	120				
Trichlorofluoromethane (CFC-11)	0.838	0.0500	1.000	0	83.8	80	120				
Chloroethane	1.14	0.120	1.000	0	114	80	120				
1,1-Dichloroethene	1.10	0.100	1.000	0	110	80	120				
Acetone	2.75	0.500	2.500	0	110	80	120				
Methylene chloride	1.08	0.0150	1.000	0	108	80	120				
trans-1,2-Dichloroethene	1.26	0.0300	1.000	0	126	80	120				S
Methyl tert-butyl ether (MTBE)	1.16	0.0300	1.000	0	116	80	120				
1,1-Dichloroethane	1.17	0.0250	1.000	0	117	80	120				
cis-1,2-Dichloroethene	1.06	0.0250	1.000	0	106	80	120				
(MEK) 2-Butanone	2.57	0.450	2.500	0	103	80	120				
Chloroform	1.05	0.0250	1.000	0	105	80	120				
1,1,1-Trichloroethane (TCA)	1.10	0.0250	1.000	0	110	80	120				
1,1-Dichloropropene	1.09	0.0250	1.000	0	109	80	120				
Carbon tetrachloride	1.02	0.0750	1.000	0	102	80	120				
1,2-Dichloroethane (EDC)	0.981	0.0230	1.000	0	98.1	80	120				
Benzene	1.04	0.0200	1.000	0	104	80	120				
Trichloroethene (TCE)	1.03	0.0200	1.000	0	103	80	120				
1,2-Dichloropropane	1.03	0.0200	1.000	0	103	80	120				
Bromodichloromethane	0.947	0.0250	1.000	0	94.7	80	120				
Dibromomethane	0.962	0.0200	1.000	0	96.2	80	120				
cis-1,3-Dichloropropene	0.993	0.0800	1.000	0	99.3	80	120				
Toluene	1.04	0.0300	1.000	0	104	80	120				
Trans-1,3-Dichloropropylene	0.952	0.0500	1.000	0	95.2	80	120				
Methyl Isobutyl Ketone (MIBK)	2.32	0.0750	2.500	0	92.7	80	120				
1,1,2-Trichloroethane	0.920	0.0170	1.000	0	92.0	80	120				
1,3-Dichloropropane	0.952	0.0200	1.000	0	95.2	80	120				
Tetrachloroethene (PCE)	1.03	0.0300	1.000	0	103	80	120				
Dibromochloromethane	0.907	0.0200	1.000	0	90.7	80	120				

Work Order: 2209092
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **LCS-37734** SampType: **LCS** Units: **µg/L** Prep Date: **9/9/2022** RunNo: **78234**
Client ID: **LCSS** Batch ID: **37734** Analysis Date: **9/14/2022** SeqNo: **1608621**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromoethane (EDB)	0.915	0.0100	1.000	0	91.5	80	120				
2-Hexanone (MBK)	2.24	0.0600	2.500	0	89.5	80	120				
Chlorobenzene	1.02	0.0250	1.000	0	102	80	120				
1,1,1,2-Tetrachloroethane	0.952	0.0200	1.000	0	95.2	80	120				
Ethylbenzene	1.08	0.0250	1.000	0	108	80	120				
m,p-Xylene	2.17	0.0500	2.000	0	109	80	120				
o-Xylene	1.07	0.0250	1.000	0	107	80	120				
Styrene	1.04	0.0250	1.000	0	104	80	120				
Isopropylbenzene	1.12	0.0300	1.000	0	112	80	120				
Bromoform	0.888	0.0250	1.000	0	88.8	80	120				
1,1,2,2-Tetrachloroethane	0.932	0.0150	1.000	0	93.2	80	120				
n-Propylbenzene	1.10	0.0300	1.000	0	110	80	120				
Bromobenzene	0.995	0.0300	1.000	0	99.5	80	120				
1,3,5-Trimethylbenzene	1.10	0.0250	1.000	0	110	80	120				
2-Chlorotoluene	1.06	0.0300	1.000	0	106	80	120				
4-Chlorotoluene	1.05	0.0300	1.000	0	105	80	120				
tert-Butylbenzene	1.11	0.0300	1.000	0	111	80	120				
1,2,3-Trichloropropane	0.937	0.0250	1.000	0	93.7	80	120				
1,2,4-Trichlorobenzene	1.02	0.0400	1.000	0	102	80	120				
sec-Butylbenzene	1.12	0.0300	1.000	0	112	80	120				
4-Isopropyltoluene	1.13	0.0300	1.000	0	113	80	120				
1,3-Dichlorobenzene	1.04	0.0350	1.000	0	104	80	120				
1,4-Dichlorobenzene	1.03	0.0300	1.000	0	103	80	120				
n-Butylbenzene	1.18	0.0400	1.000	0	118	80	120				
1,2-Dichlorobenzene	1.01	0.0300	1.000	0	101	80	120				
1,2-Dibromo-3-chloropropane	0.877	0.0600	1.000	0	87.7	80	120				
1,2,4-Trimethylbenzene	1.10	0.0250	1.000	0	110	80	120				
Hexachloro-1,3-butadiene	1.11	0.0500	1.000	0	111	80	120				
Naphthalene	0.955	0.100	1.000	0	95.5	80	120				
1,2,3-Trichlorobenzene	1.01	0.0500	1.000	0	101	80	120				
Surr: Dibromofluoromethane	1.28		1.250		103	74.9	120				
Surr: Toluene-d8	1.27		1.250		101	76.7	125				

Work Order: 2209092
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **LCS-37734** SampType: **LCS** Units: **µg/L** Prep Date: **9/9/2022** RunNo: **78234**
Client ID: **LCSS** Batch ID: **37734** Analysis Date: **9/14/2022** SeqNo: **1608621**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 1-Bromo-4-fluorobenzene	1.33		1.250		106	63.3	136				

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect; result meets QC requirements.
S - Outlying spike recovery observed (low bias). Samples will be qualified with a Q.

Sample ID: **MB-37734** SampType: **MBLK** Units: **mg/Kg** Prep Date: **9/9/2022** RunNo: **78234**
Client ID: **MBLKS** Batch ID: **37734** Analysis Date: **9/14/2022** SeqNo: **1608617**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0500									
Chloromethane	ND	0.0800									
Vinyl chloride	ND	0.0250									
Bromomethane	ND	0.150									
Trichlorofluoromethane (CFC-11)	ND	0.0500									
Chloroethane	ND	0.120									
1,1-Dichloroethene	ND	0.100									
Acetone	ND	0.500									
Methylene chloride	0.0487	0.0150									
trans-1,2-Dichloroethene	ND	0.0300									
Methyl tert-butyl ether (MTBE)	ND	0.0300									
1,1-Dichloroethane	ND	0.0250									
cis-1,2-Dichloroethene	ND	0.0250									
(MEK) 2-Butanone	ND	0.450									
Chloroform	ND	0.0250									
1,1,1-Trichloroethane (TCA)	ND	0.0250									
1,1-Dichloropropene	ND	0.0250									
Carbon tetrachloride	ND	0.0750									
1,2-Dichloroethane (EDC)	ND	0.0230									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0250									

Work Order: 2209092
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **MB-37734** SampType: **MBLK** Units: **mg/Kg** Prep Date: **9/9/2022** RunNo: **78234**
Client ID: **MBLKS** Batch ID: **37734** Analysis Date: **9/14/2022** SeqNo: **1608617**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibromomethane	ND	0.0200									
cis-1,3-Dichloropropene	ND	0.0800									
Toluene	ND	0.0300									
Trans-1,3-Dichloropropylene	ND	0.0500									
Methyl Isobutyl Ketone (MIBK)	ND	0.0750									
1,1,2-Trichloroethane	ND	0.0170									
1,3-Dichloropropane	ND	0.0200									
Tetrachloroethene (PCE)	ND	0.0300									
Dibromochloromethane	ND	0.0200									
1,2-Dibromoethane (EDB)	ND	0.0100									
2-Hexanone (MBK)	ND	0.0600									
Chlorobenzene	ND	0.0250									
1,1,1,2-Tetrachloroethane	ND	0.0200									
Ethylbenzene	ND	0.0250									
m,p-Xylene	ND	0.0500									
o-Xylene	ND	0.0250									
Styrene	ND	0.0250									
Isopropylbenzene	ND	0.0300									
Bromoform	ND	0.0250									
1,1,2,2-Tetrachloroethane	ND	0.0150									
n-Propylbenzene	ND	0.0300									
Bromobenzene	ND	0.0300									
1,3,5-Trimethylbenzene	ND	0.0250									
2-Chlorotoluene	ND	0.0300									
4-Chlorotoluene	ND	0.0300									
tert-Butylbenzene	ND	0.0300									
1,2,3-Trichloropropane	ND	0.0250									
1,2,4-Trichlorobenzene	ND	0.0400									
sec-Butylbenzene	ND	0.0300									
4-Isopropyltoluene	ND	0.0300									
1,3-Dichlorobenzene	ND	0.0350									
1,4-Dichlorobenzene	ND	0.0300									

Work Order: 2209092
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **MB-37734** SampType: **MBLK** Units: **mg/Kg** Prep Date: **9/9/2022** RunNo: **78234**
Client ID: **MBLKS** Batch ID: **37734** Analysis Date: **9/14/2022** SeqNo: **1608617**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
n-Butylbenzene	ND	0.0400									
1,2-Dichlorobenzene	ND	0.0300									
1,2-Dibromo-3-chloropropane	ND	0.0600									
1,2,4-Trimethylbenzene	ND	0.0250									
Hexachloro-1,3-butadiene	ND	0.0500									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.0500									
Surr: Dibromofluoromethane	1.23		1.250		98.4	74.9	120				
Surr: Toluene-d8	1.23		1.250		98.2	76.7	125				
Surr: 1-Bromo-4-fluorobenzene	1.22		1.250		97.5	63.3	136				

Sample ID: **LCS-37734** SampType: **LCS** Units: **µg/L** Prep Date: **9/9/2022** RunNo: **78290**
Client ID: **LCSS** Batch ID: **37734** Analysis Date: **9/15/2022** SeqNo: **1609828**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methylene chloride	1.02	0.0150	1.000	0	102	80	120				

Sample ID: **MB-37734** SampType: **MBLK** Units: **mg/Kg** Prep Date: **9/9/2022** RunNo: **78290**
Client ID: **MBLKS** Batch ID: **37734** Analysis Date: **9/15/2022** SeqNo: **1609829**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methylene chloride	ND	0.0150									

Work Order: 2209092
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **LCS-37726** SampType: **LCS** Units: **µg/L** Prep Date: **9/8/2022** RunNo: **78131**
Client ID: **LCSW** Batch ID: **37726** Analysis Date: **9/8/2022** SeqNo: **1605730**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	16.6	1.25	20.00	0	83.1	80	120				
Chloromethane	17.6	0.750	20.00	0	88.0	80	120				
Vinyl chloride	20.2	0.200	20.00	0	101	80	120				
Bromomethane	18.9	1.20	20.00	0	94.7	80	120				
Trichlorofluoromethane (CFC-11)	21.9	0.500	20.00	0	109	80	120				
Chloroethane	20.2	1.00	20.00	0	101	80	120				
1,1-Dichloroethene	20.2	0.500	20.00	0	101	80	120				
Acetone	44.0	6.00	50.00	0	88.1	80	120				
Methylene chloride	18.8	0.750	20.00	0	93.9	80	120				
trans-1,2-Dichloroethene	19.2	0.500	20.00	0	95.8	80	120				
Methyl tert-butyl ether (MTBE)	17.6	0.500	20.00	0	87.9	80	120				
1,1-Dichloroethane	22.1	0.500	20.00	0	110	80	120				
cis-1,2-Dichloroethene	21.2	0.500	20.00	0	106	80	120				
2-Butanone (MEK)	44.8	1.50	50.00	0	89.6	80	120				
Chloroform	20.7	0.500	20.00	0	104	80	120				
1,1,1-Trichloroethane (TCA)	22.3	0.400	20.00	0	111	80	120				
1,1-Dichloropropene	21.4	0.500	20.00	0	107	80	120				
Carbon tetrachloride	21.7	0.750	20.00	0	109	80	120				
1,2-Dichloroethane (EDC)	18.9	0.400	20.00	0	94.6	80	120				
Benzene	20.4	0.440	20.00	0	102	80	120				
Trichloroethene (TCE)	20.8	0.500	20.00	0	104	80	120				
1,2-Dichloropropane	20.4	0.500	20.00	0	102	80	120				
Bromodichloromethane	20.2	0.500	20.00	0	101	80	120				
Dibromomethane	18.4	0.500	20.00	0	91.9	80	120				
cis-1,3-Dichloropropene	19.6	0.500	20.00	0	98.2	80	120				
Toluene	20.6	0.750	20.00	0	103	80	120				
trans-1,3-Dichloropropylene	19.2	0.500	20.00	0	95.8	80	120				
Methyl Isobutyl Ketone (MIBK)	44.5	1.25	50.00	0	89.1	80	120				
1,1,2-Trichloroethane	18.8	0.350	20.00	0	93.9	80	120				
1,3-Dichloropropane	18.6	0.500	20.00	0	92.8	80	120				
Tetrachloroethene (PCE)	21.3	0.400	20.00	0	107	80	120				
Dibromochloromethane	20.0	1.00	20.00	0	100	80	120				

Work Order: 2209092
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **LCS-37726** SampType: **LCS** Units: **µg/L** Prep Date: **9/8/2022** RunNo: **78131**
Client ID: **LCSW** Batch ID: **37726** Analysis Date: **9/8/2022** SeqNo: **1605730**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromoethane (EDB)	18.3	0.300	20.00	0	91.3	80	120				
2-Hexanone (MBK)	45.6	1.00	50.00	0	91.2	80	120				
Chlorobenzene	20.9	0.500	20.00	0	105	80	120				
1,1,1,2-Tetrachloroethane	20.7	0.300	20.00	0	104	80	120				
Ethylbenzene	21.7	0.400	20.00	0	109	80	120				
m,p-Xylene	43.2	1.00	40.00	0	108	80	120				
o-Xylene	21.8	0.500	20.00	0	109	80	120				
Styrene	21.4	0.500	20.00	0	107	80	120				
Isopropylbenzene	21.9	0.500	20.00	0	110	80	120				
Bromoform	20.0	0.500	20.00	0	99.9	80	120				
1,1,2,2-Tetrachloroethane	19.5	0.400	20.00	0	97.6	80	120				
n-Propylbenzene	21.8	0.500	20.00	0	109	80	120				
Bromobenzene	20.6	0.500	20.00	0	103	80	120				
1,3,5-Trimethylbenzene	21.7	0.250	20.00	0	109	80	120				
2-Chlorotoluene	21.4	0.500	20.00	0	107	80	120				
4-Chlorotoluene	21.4	0.500	20.00	0	107	80	120				
tert-Butylbenzene	22.0	0.500	20.00	0	110	80	120				
1,2,3-Trichloropropane	18.6	0.400	20.00	0	93.2	80	120				
1,2,4-Trichlorobenzene	19.5	0.750	20.00	0	97.4	80	120				
sec-Butylbenzene	22.3	0.500	20.00	0	112	80	120				
4-Isopropyltoluene	22.2	0.500	20.00	0	111	80	120				
1,3-Dichlorobenzene	21.3	0.500	20.00	0	107	80	120				
1,4-Dichlorobenzene	21.0	0.500	20.00	0	105	80	120				
n-Butylbenzene	22.7	0.500	20.00	0	114	80	120				
1,2-Dichlorobenzene	20.7	0.500	20.00	0	103	80	120				
1,2-Dibromo-3-chloropropane	18.1	1.00	20.00	0	90.3	80	120				
1,2,4-Trimethylbenzene	21.7	0.500	20.00	0	108	80	120				
Hexachloro-1,3-butadiene	21.9	0.500	20.00	0	109	80	120				
Naphthalene	18.8	1.25	20.00	0	94.0	80	120				
1,2,3-Trichlorobenzene	19.5	0.700	20.00	0	97.7	80	120				
Surr: Dibromofluoromethane	25.5		25.00		102	80	120				
Surr: Toluene-d8	25.2		25.00		101	80	120				

Work Order: 2209092
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **LCS-37726**	SampType: **LCS**	Units: **µg/L**	Prep Date: **9/8/2022**	RunNo: **78131**
Client ID: **LCSW**	Batch ID: **37726**		Analysis Date: **9/8/2022**	SeqNo: **1605730**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 1-Bromo-4-fluorobenzene	26.8		25.00		107	80	120				

Sample ID: **MB-37726**	SampType: **MBLK**	Units: **µg/L**	Prep Date: **9/8/2022**	RunNo: **78131**
Client ID: **MBLKW**	Batch ID: **37726**		Analysis Date: **9/9/2022**	SeqNo: **1605728**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	1.25									
Chloromethane	ND	0.750									
Vinyl chloride	ND	0.200									
Bromomethane	ND	1.20									
Trichlorofluoromethane (CFC-11)	ND	0.500									
Chloroethane	ND	1.00									
1,1-Dichloroethene	ND	0.500									
Acetone	ND	6.00									
Methylene chloride	ND	0.750									
trans-1,2-Dichloroethene	ND	0.500									
Methyl tert-butyl ether (MTBE)	ND	0.500									
1,1-Dichloroethane	ND	0.500									
cis-1,2-Dichloroethene	ND	0.500									
2-Butanone (MEK)	ND	1.50									
Chloroform	ND	0.500									
1,1,1-Trichloroethane (TCA)	ND	0.400									
1,1-Dichloropropene	ND	0.500									
Carbon tetrachloride	ND	0.750									
1,2-Dichloroethane (EDC)	ND	0.400									
Benzene	ND	0.440									
Trichloroethene (TCE)	ND	0.500									
1,2-Dichloropropane	ND	0.500									
Bromodichloromethane	ND	0.500									
Dibromomethane	ND	0.500									
cis-1,3-Dichloropropene	ND	0.500									

Work Order: 2209092
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **MB-37726** SampType: **MBLK** Units: **µg/L** Prep Date: **9/8/2022** RunNo: **78131**
Client ID: **MBLKW** Batch ID: **37726** Analysis Date: **9/9/2022** SeqNo: **1605728**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	0.750									
trans-1,3-Dichloropropylene	ND	0.500									
Methyl Isobutyl Ketone (MIBK)	ND	1.25									
1,1,2-Trichloroethane	ND	0.350									
1,3-Dichloropropane	ND	0.500									
Tetrachloroethene (PCE)	ND	0.400									
Dibromochloromethane	ND	1.00									
1,2-Dibromoethane (EDB)	ND	0.300									
2-Hexanone (MBK)	ND	1.00									
Chlorobenzene	ND	0.500									
1,1,1,2-Tetrachloroethane	ND	0.300									
Ethylbenzene	ND	0.400									
m,p-Xylene	ND	1.00									
o-Xylene	ND	0.500									
Styrene	ND	0.500									
Isopropylbenzene	ND	0.500									
Bromoform	ND	0.500									
1,1,2,2-Tetrachloroethane	ND	0.400									
n-Propylbenzene	ND	0.500									
Bromobenzene	ND	0.500									
1,3,5-Trimethylbenzene	ND	0.250									
2-Chlorotoluene	ND	0.500									
4-Chlorotoluene	ND	0.500									
tert-Butylbenzene	ND	0.500									
1,2,3-Trichloropropane	ND	0.400									
1,2,4-Trichlorobenzene	ND	0.750									
sec-Butylbenzene	ND	0.500									
4-Isopropyltoluene	ND	0.500									
1,3-Dichlorobenzene	ND	0.500									
1,4-Dichlorobenzene	ND	0.500									
n-Butylbenzene	ND	0.500									
1,2-Dichlorobenzene	ND	0.500									

Work Order: 2209092
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **MB-37726** SampType: **MBLK** Units: **µg/L** Prep Date: **9/8/2022** RunNo: **78131**
Client ID: **MBLKW** Batch ID: **37726** Analysis Date: **9/9/2022** SeqNo: **1605728**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromo-3-chloropropane	ND	1.00									
1,2,4-Trimethylbenzene	ND	0.500									
Hexachloro-1,3-butadiene	ND	0.500									
Naphthalene	ND	1.25									
1,2,3-Trichlorobenzene	ND	0.700									
Surr: Dibromofluoromethane	25.8		25.00		103	80	120				
Surr: Toluene-d8	24.4		25.00		97.7	80	120				
Surr: 1-Bromo-4-fluorobenzene	23.3		25.00		93.1	80	120				

Sample ID: **2209051-001AMS** SampType: **MS** Units: **µg/L** Prep Date: **9/8/2022** RunNo: **78131**
Client ID: **BATCH** Batch ID: **37726** Analysis Date: **9/9/2022** SeqNo: **1605722**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	40.5	1.25	40.00	0	101	1.35	172				E
Chloromethane	41.1	0.750	40.00	0.8142	101	27.2	164				E
Vinyl chloride	41.3	0.200	40.00	0	103	52.3	147				E
Bromomethane	41.4	1.20	40.00	0	104	24.2	186				E
Trichlorofluoromethane (CFC-11)	39.4	0.500	40.00	0	98.4	71.2	137				
Chloroethane	39.4	1.00	40.00	0	98.4	62.9	141				
1,1-Dichloroethene	43.3	0.500	40.00	0	108	76.5	136				E
Acetone	84.2	6.00	100.0	4.392	79.8	56.1	148				
Methylene chloride	44.1	0.750	40.00	0	110	73.7	132				E
trans-1,2-Dichloroethene	40.6	0.500	40.00	0	101	79.1	131				E
Methyl tert-butyl ether (MTBE)	38.4	0.500	40.00	0	96.1	60.2	140				
1,1-Dichloroethane	39.6	0.500	40.00	0	98.9	74.3	138				
cis-1,2-Dichloroethene	39.4	0.500	40.00	0	98.4	78.3	131				
2-Butanone (MEK)	86.5	1.50	100.0	0	86.5	61.5	139				
Chloroform	39.9	0.500	40.00	0	99.9	78.9	131				
1,1,1-Trichloroethane (TCA)	40.2	0.400	40.00	0	100	81.1	132				E
1,1-Dichloropropene	40.5	0.500	40.00	0	101	81.3	133				E
Carbon tetrachloride	40.4	0.750	40.00	0	101	79.5	133				E

Work Order: 2209092
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **2209051-001AMS** SampType: **MS** Units: **µg/L** Prep Date: **9/8/2022** RunNo: **78131**
Client ID: **BATCH** Batch ID: **37726** Analysis Date: **9/9/2022** SeqNo: **1605722**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloroethane (EDC)	39.7	0.400	40.00	0	99.3	73.4	132				
Benzene	40.2	0.440	40.00	0	101	78.5	133				E
Trichloroethene (TCE)	39.8	0.500	40.00	0	99.4	75	133				
1,2-Dichloropropane	39.6	0.500	40.00	0	98.9	76.2	134				
Bromodichloromethane	39.5	0.500	40.00	0	98.7	76.1	130				
Dibromomethane	39.1	0.500	40.00	0	97.7	75.5	130				
cis-1,3-Dichloropropene	38.5	0.500	40.00	0	96.3	68.4	128				
Toluene	40.0	0.750	40.00	0	100	77	133				E
trans-1,3-Dichloropropylene	37.4	0.500	40.00	0	93.5	63.8	132				
Methyl Isobutyl Ketone (MIBK)	89.5	1.25	100.0	0	89.5	59.1	143				
1,1,2-Trichloroethane	39.4	0.350	40.00	0	98.4	75.2	130				
1,3-Dichloropropane	39.6	0.500	40.00	0	99.1	73.9	131				
Tetrachloroethene (PCE)	40.0	0.400	40.00	0	99.9	78	131				
Dibromochloromethane	38.7	1.00	40.00	0	96.7	72.6	129				
1,2-Dibromoethane (EDB)	39.1	0.300	40.00	0	97.8	73.9	128				
2-Hexanone (MBK)	89.1	1.00	100.0	0	89.1	55.6	149				
Chlorobenzene	39.0	0.500	40.00	0	97.5	80.9	124				
1,1,1,2-Tetrachloroethane	39.1	0.300	40.00	0	97.7	79.3	123				
Ethylbenzene	39.3	0.400	40.00	0	98.4	77.9	133				
m,p-Xylene	77.9	1.00	80.00	0	97.4	74.8	133				
o-Xylene	38.6	0.500	40.00	0	96.5	81.2	126				
Styrene	37.1	0.500	40.00	0	92.7	75.7	126				
Isopropylbenzene	39.3	0.500	40.00	0	98.3	79.1	132				
Bromoform	37.1	0.500	40.00	0	92.7	68.3	132				
1,1,2,2-Tetrachloroethane	39.4	0.400	40.00	0	98.5	72.7	141				
n-Propylbenzene	39.1	0.500	40.00	0	97.9	77.2	137				
Bromobenzene	38.0	0.500	40.00	0	95.0	79.9	124				
1,3,5-Trimethylbenzene	38.4	0.250	40.00	0	96.1	77.4	132				
2-Chlorotoluene	38.8	0.500	40.00	0	97.0	77.9	133				
4-Chlorotoluene	38.4	0.500	40.00	0	96.1	78	130				
tert-Butylbenzene	39.0	0.500	40.00	0	97.4	79.5	131				
1,2,3-Trichloropropane	37.0	0.400	40.00	0	92.5	66.3	132				

Work Order: 2209092
CLIENT: PES Environmental, Inc.
Project: MVSC

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260D

Sample ID: **2209051-001AMS** SampType: **MS** Units: **µg/L** Prep Date: **9/8/2022** RunNo: **78131**
Client ID: **BATCH** Batch ID: **37726** Analysis Date: **9/9/2022** SeqNo: **1605722**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	36.7	0.750	40.00	0	91.7	67.6	131				
sec-Butylbenzene	39.0	0.500	40.00	0	97.5	77.9	136				
4-Isopropyltoluene	38.7	0.500	40.00	0	96.9	76.3	134				
1,3-Dichlorobenzene	39.0	0.500	40.00	0	97.6	83.5	123				
1,4-Dichlorobenzene	38.8	0.500	40.00	0	97.0	84.2	121				
n-Butylbenzene	39.7	0.500	40.00	0	99.3	76	137				
1,2-Dichlorobenzene	38.8	0.500	40.00	0	97.1	83.3	124				
1,2-Dibromo-3-chloropropane	36.1	1.00	40.00	0	90.3	57.7	146				
1,2,4-Trimethylbenzene	37.9	0.500	40.00	0	94.8	75.3	134				
Hexachloro-1,3-butadiene	39.4	0.500	40.00	0	98.4	68.5	136				
Naphthalene	37.3	1.25	40.00	0	93.4	51.6	149				
1,2,3-Trichlorobenzene	36.7	0.700	40.00	0	91.8	62.9	138				
Surr: Dibromofluoromethane	26.1		25.00		104	80	120				
Surr: Toluene-d8	26.1		25.00		105	80	120				
Surr: 1-Bromo-4-fluorobenzene	26.3		25.00		105	80	120				

Sample Log-In Check List

Client Name:	PES	Work Order Number:	2209092
Logged by:	Gabrielle Coeuille	Date Received:	9/7/2022 4:53:00 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 Present ☑
6.	Was an attempt made to cool the samples?	Yes	☑	No ☐	NA ☐
7.	Were all items received at a temperature of >2°C to 6°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
Sample 1	4.5

* 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: 09-06-22 | Page: 1 of: | Laboratory Project No (internal): 2209092

Project Name: MVSC | Special Remarks:

Client: PBS Environmental

Project No: 1358.001.03.012

Address: 21014th Ave Suite 1310

Collected by: A. Semerano

City, State, Zip: Seattle, WA, 98121

Location: Normandy Park

Telephone: 206-529-3980

Report To (PM): Matt Dahl | Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Fax:

PM Email: matt.dahl@nv5.com

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	# of Cont.	VOCs (EPA 8260 / 624)	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)	Hold	Comments
1	MW-2-29.5-090622	09/06/22	10:18	S	3	X												
2	MW-2-33-090622		10:31	S	3	X												
3	MW-1-30-090622		13:33	S	3	X												
4	MW-1-35-090622		13:35	S	3	X												
5	~~MW-~~ (ARS)																	
(ARS) 6	~~DC-5-090722~~	~~09/07/22~~	~~09:35~~		~~3~~	~~X~~												
7	DC-5-30-090722	09/07/22	09:35	S	3	X												
8	WDRUM-090722-1	09/07/22	14:18	WW	3	X												
9	TB-090722	08/31/22	13:00	—	2											X		
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 V Zn

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

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

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

Relinquished (Signature)	Print Name	Date/Time	Received (Signature)	Print Name	Date/Time
x	Anthony Semerano	09/07/22 16:49	x	Lauren Curee	9/7/22 16:53
Relinquished (Signature)	Print Name	Date/Time	Received (Signature)	Print Name	Date/Time
x			x		