Urban Environmental Partners llc

Diligent, responsive, and practical consulting

REMEDIAL INVESTIGATION/FEASIBILITY STUDY & CLEANUP ACTION PLAN

PINE LAKE CLEANERS

2830 228TH AVENUE SOUTHEAST

SAMMAMISH, WASHINGTON



Prepared for:

PL Plateau LLC
140 Lakeside Avenue, #351
Seattle, Washington 98122-6538

Report Date:

November 14, 2021

Urban Environmental Partners llc

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ACRONYMS & ABBREVIATIONS

amsl	Above mean sea level
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
CAP	Cleanup Action Plan
CAR	Cleanup Action Report
COC	Chemical of concern
CUL	Cleanup level
DRPH	Diesel-range petroleum hydrocarbons
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
GAC	Granular-activated carbon
GRPH	Gasoline-range petroleum hydrocarbons
HASP	Site-Specific Health and Safety Plan
MTCA	Washington State Model Toxics Control Act
NAVD88	North American Vertical Datum of 1988
NWTPH	Northwest Total Petroleum Hydrocarbon
ORPH	Oil-range petroleum hydrocarbons
PCS	Petroleum-contaminated soil
PID	Photoionization detector
ppm	Parts per million
The Property/Site	2830 228th Avenue SE, Sammamish, WA 98057
RI	Remedial investigation
ROW	Right-of-way
Sanborn map	Sanborn Fire Insurance Map
TEE	Terrestrial Ecological Evaluation
UEP	Urban Environmental Partners llc
UST	Underground storage tank
VCP	Voluntary Cleanup Program
VOC	Volatile organic compound
WAC	Washington Administrative Code

EXECUTIVE SUMMARY

Property Background

The Property includes one tax parcel that covers 0.70 acres (Figures 1 and 2). The Property is currently occupied by a one-story commercial building built in 1990 that encloses approximately 7,272 square feet of space. The masonry-framed structure is heated by electricity. Each section of the building is built with a 6-inch thick, continuous (e.g., no expansion joints) concrete floor slab and a continuous plastic sheet below the slab that functions as a moisture barrier.

The western tenant space (the Site as shown on Figure 2) has been occupied by a dry cleaner (Pine Lake Cleaners or PLC) since the Property was initially developed. In addition, the current tenant mix within the building includes a jewelry store, therapy offices, a chiropractic clinic, insurance offices, and a day spa. Exterior areas of the Property include parking areas to the south and east of the building (Figure 2). In 2019, pursuant to their revised lease agreement, PLC removed all solvent based operations, including replacing the solvent-based cleaner (SuperStar) with a hydrocarbon-based cleaner (Union HL 840) and terminated the use of Picrin®, a TCE-based spot cleaner.

Conceptual Site Model Summary for PCE and TCE at the Cleaners

The Pine Lake Cleaners (PLC) RI/FS/CAP report reaches the following CSM conclusions:

- PCE and TCE are the only relevant chemicals of concern at the PLC Site.
- PCE and TCE in soil do not pose a risk to the Site (commercial) employees and retail visitors at the Site under current conditions.
- PCE and TCE in sub slab soil vapor are a potential exposure risk to (commercial) facility and construction workers performing maintenance or repair work under the existing concrete floor slab.
- PCE and TCE do not pose an unacceptable VI risk for any land use under current conditions.
- Groundwater has not been impacted by the Site's shallow soil impacts.

Focused Feasibility Analysis and Findings

The Site selected cleanup alternative – *Physical Barrier (to prevent contact and VI) and Monitoring with Covenant* – provides the appropriate level of protectiveness and both short- and long-term permanence and effectiveness to address the exposure pathway(s) associated with CVOCs in soil and soil vapor below the concrete floor slab within the footprint of the cleaner's shop.

Cleanup Action Plan Details

The PLC ownership intends to submit this report to Ecology's Voluntary Cleanup Program and request an Opinion on the proposed cleanup action (No Further Action Likely). Once these

elements are in place and reviewed/approved by Ecology, the PLC ownership will request an Opinion of No Further Action.

The Site selected cleanup alternative consists of the following four actions or elements:

1) Physical Barrier consisting of the existing concrete slab at the cleaner's shop
2) Routine Inspection of the Barrier
3) Periodic Indoor Air Monitoring
4) Environmental Covenant, including Engineering Controls and Reporting

This executive summary is presented solely for introductory purposes, and the information contained in this section should be used only in conjunction with the full text of this report. A complete description of the project, site conditions, investigative methods, and investigation results is contained within this report.

1.0 INTRODUCTION

Urban Environmental Partners llc (UEP) has prepared this Remedial Investigation/Feasibility Study/Cleanup Action Plan report (RI/FS/CAP) on behalf of PL Plateau LLC to present the preferred cleanup action based on a comprehensive investigation and focused feasibility study for the property located at 2830 228th Avenue Southeast in Sammamish, Washington (the Property), as shown on Figures 1 and 2. This RI/FS/CAP was prepared to meet the requirements of the Washington State Model Toxics Control Act (MTCA) Cleanup Regulations as established in Chapter 340 of Title 173 of the Washington Administrative Code (WAC 173-340). The Property will be enrolled in Washington State Department of Ecology's Voluntary Cleanup Program (VCP).

1.1. PURPOSE

The objective of the cleanup action will be to mitigate and control all known soil and soil vapor (or soil gas) impacts at the Property, thereby eliminating the exposure pathways for soil, soil vapor and indoor air. This report will be submitted to the VCP for the purpose of a) obtaining an Opinion regarding the investigation work conducted to date and the proposed cleanup plan, and b) a final determination of No Further Action once the appropriate cleanup measures are completed or in place (e.g., covenant).

1.2. REPORT ORGANIZATION

This report is organized into the following sections:

- **Section 2.0 Property Background**. This section discusses the Property location and description, the land use history of the Property and surrounding parcels, and Property geology and hydrology.
- **Section 3.0 Remedial Investigation**. This section summarizes all known subsurface investigations conducted to date.
- **Section 4.0 Conceptual Site Model**. The CSM serves as the basis for developing technically feasible cleanup alternatives and selecting a final cleanup action
- **Section 5.0 Focused Feasibility Study and Cleanup Action Plan**. This section describes the rationale for the selected action and a description of the final remedy.
- **Section 6.0 Limitations**. This section presents UEP's standard limitations associated with conducting the work reported herein and preparing this report.
- **Section 7.0 References**. This section lists references cited in this document.

2.0 PROPERTY BACKGROUND

The Property includes one tax parcel that covers 0.70 acres (Figure 1). The Property is currently occupied by a one-story commercial building built in 1990 that encloses approximately 7,272 square feet of space. The masonry-framed structure is heated by electricity. The western tenant

space (the Site) has been occupied by a dry cleaner (Pine Lake Cleaners or PLC) since the Property was developed. The remaining tenants of the building include a jewelry store, therapy offices, a chiropractic office, insurance offices, and a day spa. Exterior areas of the Property include paved parking areas to the south and east of the building (Figure 2).

2.1. PROPERTY LOCATION AND DESCRIPTION

The Property is located at 2830 228th Avenue Southeast in Sammamish, Washington, approximately 2 miles south of downtown Sammamish, Washington, as shown in Figure 1. Figure 2 depicts a plan view/layout of the Property. The Property consists of an irregularly shaped tax parcel (King County Parcel No. 1024069111) that covers approximately 30,501 square feet (0.70 acres) of land in Township 24 N/Range 6E/Section 10. According to the United States Geologic Survey (USGS) Topographic Map of the Issaquah, Washington Quadrangle, the Property is located between approximate elevations of 430 to 455 feet above mean sea level (amsl) and slopes moderately downward to the west.

The Property's one-story commercial building is heated by electricity. The Property building is constructed in four separate sections, with each section to the east approximately four feet higher in elevation than the last. Pine Lake Cleaners occupies the lowest elevation and Plateau Jewelers occupying the second lowest elevation. Each section of the building is built with a 6-inch thick, continuous (e.g., no expansion joints) concrete floor slab separated by an 8-inch thick, 4-foot-high concrete footing between each flooring elevation. The building has a continuous plastic sheet below the slab that functions as a moisture barrier. The footing extends approximately 10 inches below the lower floor slab and widens to 1 foot 4 inches at its bottom. The footings are shown on the cross section on Figure 9. Additional improvements include parking areas to the south and east of the building as shown on Figure 2.

Potable water and sewer service are provided to the Property by the Sammamish Plateau Water and Sewer District. Puget Sound Energy provides electricity to the building. Solid waste disposal and recycling services are provided by Republic Services. No evidence of potable or process water supply wells on the Property was found.

According to King County tax assessor records, the Property is zoned Commercial Business and is confirmed used for commercial purposes. Exterior areas of the Property include parking areas to the south and east of the building.

The current land use of the Property and surrounding area is residential and commercial. Uses of nearby properties are summarized below (Figure 2).

2.1.1. North

A single-family residence is located to the north, approximately 350 feet from the cleaners.

2.1.2. East

An animal hospital is located approximately 500 feet to the east.

2.1.3. South

The properties to the south are occupied by a restaurant and physical therapy clinic. Pine Lake Plaza I is located to the southeast approximately 300 feet.

2.1.4. West

A condominium complex is located approximately 500 feet to the west from the cleaners, across 228th Avenue Southeast.

2.2. PINE LAKE CLEANERS' OPERATIONS

The cleaner first opened when the building was newly developed in 1990. Its location and at the far west end of the building has not changed since then. During its operations, the cleaner has always operated both a chemical-based dry machine (cleaner) and a second, water-based, detergent machine (laundry machine).

In 1990, the PLC opened with a solvent-based cleaner that was located adjacent to and south of the boiler room (current location for their spot-cleaning operations, see Figure 4).

In 2000, PLC replaced the cleaner with a new, solvent-based machine (SuperStar machine) and installed it in a new location, about 5 feet west of the boiler room. The machine was set on a commercial grade, steel-floor pan, separating and protecting the floor of the premises. Solvent spot cleaning then resumed in a space south of the boiler room (former location of the 1990 cleaner). Note that it was reported by PLC that they used a spot cleaner called Picrin®, which contained 75%-by-weight the solvent trichloroethylene (TCE).

In 2019, PLC replaced the solvent-based cleaner with a hydrocarbon-based (i.e., solvent free) cleaner (Union HL840) in the same location (Figure 4). The cleaner removal and replacement were observed by an Ecology representative. Spot cleaning was continued in the same location, south of the boiler room using a solvent-free spot cleaner (Picrin® discontinued).

2.3. LAND USE HISTORY

The Property was undeveloped until the current commercial building was constructed in 1990. The western tenant space (the Site) has been occupied by a dry cleaner (Pine Lake Cleaners) since the Property was developed. The commercial shop adjacent to and east of the cleaners is a jeweler that is built approximately 4-feet higher than the cleaners to the west.

Surrounding Properties included the following historical uses:

- The north-adjoining property (22912 Southeast 27th Court) was first developed with the existing single-family residence in 1998. The residence is heated by natural gas.
- The west-adjoining property (22720 Southeast 25th Street) was first developed with the existing condominium complex in 2000. The buildings are heated by electricity.
- The southwest-adjoining parcel (2904 228th Avenue Southeast) was developed in 1985 with the existing restaurant. The restaurant is heated by electricity.

- The southeast-adjoining property (2850 228th Avenue Southeast) was developed in 1991 with the existing commercial building. The building is heated by electricity.
- The east-adjoining parcel (2834 228th Avenue Southeast) was developed with the existing animal hospital in 1990. The building is heated by electricity.
- The southeast-adjoining (2912 228th Avenue Southeast) property was developed in 1994 with the existing commercial building. The building is heated using electricity.

2.4. PROPERTY GEOLOGY AND HYDROLOGY

A summary of the geology and hydrogeology for the Property, are provided below.

2.4.1. Geology

The Geologic Map of King County (Booth et al. 2007) indicates that the Property is underlain by approximately 120 feet of Vashon till. These glacially compacted deposits consist of a very dense mixture of silt, sand, gravel, and clay, which typically are characterized by relatively low vertical hydraulic conductivity. The Property is in the Sammamish glacial plateau, which is also characterized by glacial deposits of silts and sands and Vashon drift deposits including compacted sand, silt, and gravel (Vashon glacial till).

Underlying the Vashon glacial till is the Vashon advance outwash characterized by well-sorted, well-stratified sandy pebble to cobble gravel.

The building and concrete slab were constructed with a sandy silt subbase (reworked local till) that is approximately 2 to 3 feet thick.

2.4.2. Hydrology

The Washington State Department of Natural Resources (DNR) geologic database identifies 4 regional groundwater wells that have been installed within approximately 1,400 feet of the Property as shown on Figure 3. The database records show the wells were drilled to elevations between approximately 292 and 302 feet AMSL, and groundwater was measured at elevations between 311 and 317 feet AMSL, which corresponds with the Advanced Outwash formation. Copies of the well information obtained from DNR are included in Appendix A. The water table and glacial formations (Till and Outwash) are depicted on cross-section figures produced by Conestoga-Rovers & Associates (CRA) for the Shell-Branded Wholesale Facility Site located approximately 500 feet south of the Property and Associated Earth Sciences, Inc. (AESI) for the Norris Estates Project approximately 1 mile east of the Property. Copies of both cross sections are included in Appendix A.

In addition to the regional wells, boring logs from explorations in the vicinity of the Property were reviewed to provide additional geological information. These wells are shown on Figures 3 and 4, and include URS boring B-2, Hong West (HW) Borings BH-2, and BH-11, and AESI boring EB-3. According to well logs obtained from DNR, URS boring

B-2 was started from an approximate elevation of 440 feet AMSL, completed to 40.5 feet BGS (an approximate elevation of 400 feet AMSL) and reported no groundwater in the well installation (a dry well). The HW borings B-2 and B-11 were started at reported elevations of 410 and 430 feet AMSL, respectively, and completed at approximate elevations of 396 and 414 feet AMSL, respectively, and both borings were reported to be dry wells. The AESI boring EB-3 was started at an elevation of approximately 395 feet AMSL and drilled to a depth of 85 feet below ground surface (BGS) (approximate elevation of 310 feet AMSL). The water level was measured at 74 feet BGS (approximate elevation of 321 feet AMSL). Copies of the boring logs for these borings included in Appendix A.

Based on the stratigraphic information presented herein, including the observations of no groundwater in the shallow and intermediate borings, and geologic information that indicates the water bearing zone of advance outwash is below approximately 110 to 120 feet of dense glacial till in the general area of the Site, no groundwater occurrence under the Property was encountered between grade and at least 65 feet below the cleaner shop, and highly unlikely between 65- and110-feet BGS (320 feet AMSL). As a result, the RI findings assume that the deep groundwater occurrence below the Property has not been impacted by the Site's shallow soil PCE release at the cleaners.

Between approximately 11 and 12 feet below ground surface UEP personnel observed moist to wet sandy gravel underlain by a compacted layer of silty sand. Free water was not observed in the layer of sandy gravel. Once the boring was completed the drillers backfilled the boring with bentonite chips to approximately 14 feet bgs and inserted 5 feet of 2-inch pvc well screen with solid riser to the ground surface. The temporary well was allowed to sit un-disturbed for approximately 2 hours when groundwater levels were checked. Groundwater was not observed in the well screen. When the well screen was removed from the borehole UEP personnel observed the exterior to be moist to wet with silty sand but not saturated. It is our opinion that this layer of sandy gravel does not represent a water bearing unit below the site.

3.0 REMEDIAL INVESTIGATION

This section summarizes activities and results from previous investigations conducted by SoundEarth Solutions (SES) and UEP at the Site as well as supplemental investigations conducted by UEP and Pioneer Technology Corporation in 2020 and 2021. The information below includes all known sampling data collected between 2018 and 2021 at the Site. Soil, soil vapor, indoor air, and Gore Sorber™ survey sample locations are shown on Figure 4. A Gore Sorber™ survey heat map is presented on Figure 5. Soil, soil vapor and indoor air sample analytical results are summarized in Tables 1 through 3 and presented on Figures 6 through 8.

Note for Ecology – Gore Sorber™ data collected for this study are used for shallow, subsurface and sub slab nature and extent soil gas screening only. These data were not used for evaluating VI or compliance purposes. From EPA's Environmental Technology Verification Report (August 1998): *The GORE-SORBER Screening Survey uses GORE-SORBER modules to collect soil gas*

samples. The GORE ® SORBER module is a passive soil gas sampler that is designed to collect a broad range of VOCs and semivolatile organic compounds (SVOC), including halogenated compounds, petroleum hydrocarbons, and polynuclear aromatic hydrocarbons. A typical GORE-SORBER® module contains two or more passive collection units called sorbers. Each sorber contains an equal amount of sorbent materials (polymeric and carbonaceous resins). These granular adsorbent materials are used because of their affinity for a broad range of VOCs and SVOCs. The sorbers are constructed of inert, hydrophobic, microporous GORE-TEX® expanded polytetrafluoroethene (ePTFE). The microporous structure of ePTFE allows vapors to move freely across the membrane and onto the sorbent material. This microporous structure also protects the granular adsorbents from physical contact with soil particulates and water. The GORE-SORBER® module is installed to a depth of 2 to 3 feet. The module is retrieved by hand and must be analyzed by the developer.

EPA concludes that: *The demonstration results indicate that the GORE-SORBER® Screening Survey can provide useful, cost-effective data for environmental problem-solving. The GORE-SORBER® modules successfully collected soil gas samples in clay and sandy soils. The sampler provided positive identification of target compounds and may detect lower concentrations of VOCs in the soil gas than can the reference soil gas sampling method. Based on the results of this demonstration, there appears to be a general correlation between the GORE-SORBER® Screening Survey and reference method data. However, at higher contaminant levels, the ratio between the mass of contaminant detected in the soil gas using the GORE-SORBER® module and the concentration of contaminant detected using the reference method decreases. As with any technology selected, the user must determine what is appropriate for the application and the project data quality objectives.*

3.1. PREVIOUS INVESTIGATIONS

Previous investigations performed at the Site are summarized below.

3.1.1. SoundEarth Strategies Phase I ESA

SES conducted a Phase I ESA at the Property in October 2018. SES determined that the property was initially developed in 1990 with the current commercial structure and Pine Lake Cleaners has occupied the western portion of the commercial building since construction. Additional tenants included a chiropractic clinic, therapy office, insurance office, day spa, and jewelry store. Nearby properties include a mix of residential and commercial development. SES identified the operation of a dry-cleaning facility on the Property as a recognized environmental condition.

3.1.2. SoundEarth Strategies Subsurface Investigation

On October 5, 2018, SES collected one sub-slab soil vapor (SSSV) sample at the Site. The SSSV sample SS-01 was located in the northwest portion of the Site, approximately 1 foot north of the existing dry-cleaning machine. Soil sample SS-01-01 was collected from the same location at a depth of 1 foot below the concrete slab. The samples were submitted to Friedman & Bruya, Inc. (FBI) of Seattle, Washington for analysis of chlorinated volatile organic compounds (CVOCs) by Method TO-15 (sub-slab soil vapor

or SSSV) and Environmental Protection Agency (EPA) Method 8260C (soil). A copy of the chemical analytical laboratory report is provided in Appendix B. Concentrations of soil vapor were compared to the Washington State Model Toxics Control Act (MTCA) Method B Sub-Slab Soil Gas Screening Levels (SL).

Tetrachloroethylene (PCE) was detected in sub-slab soil vapor sample SS-01 at a concentration of 7,000 micrograms per cubic liter ($\mu g/m^3$), which exceeds the MTCA Method B Sub-Slab Soil Gas SL of 321 $\mu g/m^3$. Trichloroethene (TCE) was detected in soil vapor at a concentration of 18 $\mu g/m^3$, which exceeds the MTCA Method B Sub-Slab Soil Gas SL of 12.3 $\mu g/m^3$.
All other CVOCs were either not detected at concentrations above the applicable laboratory reporting limits or were detected at concentrations less than MTCA Method B Sub-Slab Soil Gas SLs.

CVOCs were not detected in soil sample SS-01-01 at concentrations greater than the laboratory method reporting limits.

3.1.3. UEP Focused Phase II Assessment

In October 2018, UEP conducted a Focused Phase II Assessment at the Site that included collecting 16 SSSV samples using Gore Sorber™ passive samplers and collecting two shallow soil samples. Sixteen Gore Sorber™ SSSV samples (SV-1 through SV-16) were installed in a grid pattern both inside and outside the project site building. Amplified Geochemical Imaging LLC (AGI) provided the Gore Sorber™ samplers, lab analysis, data analysis, and presentation.

Each Gore Sorber™ passive sampler was installed through the concrete floor slab using a hand-held roto-hammer drilling device to penetrate the concrete then augered to a depth of approximately 2 feet below the top of the slab. At each drilled location, the Gore Sorber™ passive sampler was installed at the bottom or final depth of the augured hole, the hole sealed in place with plastic tape, and left in place for the duration of the sampling period.

Once in place, the Gore Sorber™ samplers containing the sorbent media were left to equilibrate over several days (approximately 110 total hours) with the immediate pore-space soil vapor. At the end of the sampling period, the samplers were retrieved, sealed in lab-provided air-tight sample containers, and shipped overnight under chain of custody to the AGI lab. The sorbent media in each of the 16 passive samplers was analyzed for total VOCs. AGI, using their proprietary algorithm, determined the lateral distribution of the identified CVOC compounds (primarily PCE) collected by the passive samplers. The AGI analytical algorithm results create a soil gas plume map that visually presents the contours of the PCE contamination distribution for the Site. A copy of the laboratory results is included in Appendix B and a copy of the plume map is included in Figure 5. From this representation, a qualitative approximation of the PCE source and release impact area was interpreted.

Soil samples were collected by advancing a direct push sampling probe through two of the Gore Sorber™ sample locations, SV-2 and SV-3, within the expected area of release adjacent to the dry cleaner machine. Soil samples were conducted using a hand-driven direct-push sampling probe. The direct push probe was advanced in intervals of 1-foot to approximately 2 feet BGS. Soil samples from the selected interval were immediately transferred to laboratory-provided sample containers using EPA 5035 sampling methodology.

PCE was detected in Gore Sorber™ samples SV-1 through SV-12 at concentrations two to three factors greater than the MTCA Method B Sub-Slab Soil Gas SL of 320 µg/m^3. PCE was detected in Gore Sorber™ samples SV-13 through SV-16 at concentrations greater than the laboratory reporting limits but less than the MTCA Method Sub-Slab Soil Gas B SL. TCE was detected in Gore Sorber™ samples SV-6 and SV-7 at concentrations greater than the MTCA Method B Sub-Slab Soil Gas SL of 11 µg/m^3. TCE was not detected in the remaining Gore Sorber™ samples at concentrations greater than the laboratory reporting limits. Chloroform was detected in Gore Sorber™ sample SV-4 at a concentration of 136 µg/m^3, greater than the MTCA Method B Sub-Slab Soil Gas SL of 3.6 µg/m^3. Naphthalene was detected in Gore Sorber™ sample SV-11 at a concentration of 20.4 µg/m^3, greater than the MTCA Method B Sub-Slab Soil Gas SL of 2.5 µg/m^3. Other chlorinated VOCs were not detected at concentrations greater than the laboratory reporting limits.

PCE was detected in soil sample SV-2 at a concentration of 0.041 mg/kg at 2 feet below the slab. PCE was detected in soil sample SV-3 at a concentration of 0.035 mg/kg at 2 feet below the slab. The PCE concentration in soil for both these soil sample locations, at 2 feet of depth, is below the MTCA Method A Soil Cleanup Level (CUL) of 0.05 mg/kg. Chemical analytical results are presented on Tables 1 and 3. A copy of the chemical analytical laboratory report is presented in Appendix B.

The Gore Sorber™ results show that a release, with a relatively small mass of CVOC, has occurred somewhere in the proximity to sample locations SV-6, SV-7, and SV-8, which includes the 2 samples with the highest PCE concentrations. The AGI PCE concentration plume map definitively illustrates the Gore Sorber™ results: it identifies the Site area with the highest PCE impacts; and, indicates the probable source and location where the release has occurred.

3.1.4. UEP Supplemental Soil Sampling

In November 2018, based on results from the Focused Phase II Assessment, UEP collected 10 soil samples from four locations at the Site. Soil sample locations S17 and S18 were placed adjacent to sub-slab vapor sample locations SV-7 and SV-8, respectively. Soil sample locations S19 and S20 were placed southeast and south, respectively, of the inferred release location. Soil sample locations are shown on Figure 4. Soil samples were collected below the concrete slab using the hand driven direct-push probe methodology as described in the previous section. Ten soil samples (S17-1, S17-2, S17-3, S18-1, S18-2, S18-3, S19-1, S19-2, S20-1, and S20-2) were submitted to

Apex Laboratories of Tigard, Oregon for analysis of VOCs by EPA Method 8260C. PCE was detected in shallow soil in nine of the samples, with soil sample S20-1 containing PCE at concentrations between 0.0941 and 3.29 mg/kg, greater than the MTCA Method A soil CUL of 0.05 mg/kg. Chemical analytical results are presented on Table 3 and a copy of the chemical analytical laboratory report is presented in Appendix B. The lab results for soil samples are illustrated by location and concentration on Figures 9 and 10.

3.2. SUPPLEMENTAL UEP REMEDIAL INVESTIGATION

The investigations conducted by SES and UEP in 2018 indicated that soil and SSSV underneath the PLC tenant space were impacted by PCE and TCE at concentrations greater than both established cleanup or screening levels. In July 2020, UEP and PTC developed a work plan to evaluate the vapor intrusion (VI) pathway. The work plan proposed collecting indoor air and SSSV samples as follows:

- A paired sample location (IA01/SV17) at the location with the highest previous PCE soil vapor concentration (SV-7)
- A paired sample location (IA02/SV18) approximately 5 feet from the southern exterior wall of the PLC tenant suite to determine concentrations of PCE and other constituents south of SV-7.
- Two paired sampling locations (IA-03/SV-19 and IA-04/SV-20) located within the eastern adjacent jeweler suite to evaluate the concentrations of PCE and other constituents east of SV-7.

In order to estimate ambient air background concentrations during the sampling period, an up-wind ambient air sample (AA-01) would be collected each day of SSSV and indoor air sampling. A copy of the work plan, which details the sampling protocol, is included with PTC's *Vapor Intrusion Investigation Report* included in Appendix C. Sample locations are presented on Figures 4, 6, and 7.

Sampling events were conducted on August 5, 2020, January 20, 2021, and February 24, 2021. Indoor air, ambient air, and soil vapor samples were collected using 6-liter evacuated SUMMA Canisters, individually certified 'clean' by the laboratory, and equipped with Swagelok 0.25-inch stainless steel bellows valve, brass cap, particulate filter, and vacuum gauge. Each flow-rate regulator was adjusted to collect an 8-hour sample collection. The SSSV samples were collected using Vapor Pin™ technology, 6-liter SUMMA canisters, and water dam leak testing. The details of the sampling protocol and results are included in the Vapor Intrusion Investigation Report presented in Appendix C.

A data quality review of the laboratory data was performed and is documented in Appendix C. The data quality review indicated that the quality of the results produced by the laboratory were acceptable and that all data were usable for the purpose of this Remedial Investigation as qualified by the laboratory. No additional data qualifiers were added to the laboratory results as a result of the data quality review.

All investigation activities were conducted in general accordance with the Work Plan (see Appendix C). However, a few minor deviations from the Work Plan occurred. These minor deviations did not compromise the investigation objectives, or the use of the data obtained during the investigation. The Work Plan deviations were:

- Sampling locations IA-03/SV-19 and IA-04/SV-20 in the jeweler were adjusted slightly to minimize damage to the jewelry display area.
- An additional soil vapor sampling location (SV-21) was added after the August 5, 2020 sampling event in order to determine soil vapor concentrations to the south of SV-18.
- Indoor air and ambient air samples were collected for two winter (shop heating period) sampling events rather than one sampling event. The soil vapor results from the January 20, 2021 sampling event were not valid because a field sampling error occurred with the soil vapor tubing valves during the event. As a result, a soil vapor, indoor air and ambient air event was conducted on February 24, 2021 to provide a synoptic event with all media. Although the January 20, 2021 soil vapor samples are invalid, the indoor air and ambient air samples provide a second, valid set of winter conditions and data.
- Although not specified in the Work Plan, a field duplicate soil vapor sample was collected during each sampling event.
- Although sample canisters were filled over an approximately eight-hour period as specified in the work plan, some of the sample canisters were stopped before the stoppage criteria included in the Work Plan (i.e., "sampling will stop when the remaining canister vacuum is approximately three to five inches of mercury or after ten hours of sampling, whichever occurs first"). Valid samples with a final vacuum greater than five inches of mercury were SV-17, SV-18, IA-01, IA-02, IA-03, IA-04, and AA-01 during the August 5, 2020 sampling event (ranging from six to ten inches of mercury), IA-01, IA-02, IA-03, and IA-04 during the January 20, 2021 sampling event (ranging from seven to eight inches of mercury), and SV-20 and IA-04 during the February 24, 2021 sampling event (ranging from six to seven inches of mercury). The sampling duration for the jeweler samples was limited to the hours of operation, which affected the stopping time for some samples.
- Photoionization detector (PID) measurements adjacent to chemical products were not obtained during the August 5, 2020, and January 20, 2021 sampling events as recommended in the Work Plan.
- The data quality review of 2020-2021 sampling results was performed by PTC rather than an independent data quality validator because the anticipated data quality validator was not available when the work needed to be performed.

3.2.1. August 2020 Vapor Intrusion Sampling Event

On August 5, 2020, five air samples (IA-IA-01-080520 through IA-IA-04-080520 and AA-AA-01-080520) and five SSSV samples (SG-SV-07-0-1-080520 and SG-SV-17-0-1-080520 through SG-SV-20-0-1-080520) were collected and submitted to Friedman and Bruya, Inc. of Seattle, Washington for analysis of VOCs by Method TO-15. The analytical results were compared to

Ecology's MTCA Method B Sub-Slab Soil Gas SLs for the sub-slab vapor samples and Method B Indoor Air CULs for indoor air samples. If Cancer CULs have not been established, Non-Cancer SLs or CULs were used. Sample locations are shown on Figure 4, the analytical results are presented on Tables 1 and 2 and Figures 6 and 7, and a copy of the chemical analytical laboratory report is included in Appendix D.

PCE was detected in SSSV samples SG-SV-07-0-1-080520, SG-SV-17-0-1-080520, SG-SV-18-0-1-080520, and SG-SV-19-0-1-080520 at concentrations of 27,000, 30,000, 15,000, and 480 µg/m^3, respectively, exceeding the Method B Sub-Slab Soil Gas SL of 320 µg/m^3. PCE was detected in SSSV sample SG-SV-20-0-1-080520 at a concentration of 33 µg/m^3, less than the Method B Sub-Slab Soil Gas SL. TCE was detected in SSSV samples SG-SV-07-0-1-080520 and SG-SV-17-01-080520 at concentrations of 42 and 46 µg/m^3, respectively, exceeding the Method B Sub-Slab Soil Gas SL of 11 µg/m^3. Chloroform was detected in SSSV samples SG-SV-07-0-1-080520 and SG-SV-17-0-1-080520 at concentrations of 14 and 15 µg/m^3, respectively, exceeding the Method B Sub-Slab Soil Gas SL of 3.6 µg/m^3. All other VOCs were either not detected at concentrations greater than the laboratory reporting limits or were detected at concentrations less than applicable SLs.

TCE was detected in indoor air sample IA-IA-01-080520 at a concentration of 0.41 µg/m^3, greater than the Method B Indoor Air CUL of 0.33 µg/m^3. Chloroform was detected in the four indoor air samples at concentrations greater than the CUL of 0.11 µg/m^3. Additionally, chloroform was detected in the ambient air sample at a concentration of 0.10 µg/m^3, just under the Method B Indoor Air CUL. Naphthalene was detected in all five air samples at concentrations greater than the Method B Indoor Air CUL of 0.074 µg/m^3 however, the laboratory noted that naphthalene was detected in the method blank, indicating the results are likely erroneous. PCE was detected in the ambient air sample AA-AA-01-080520 at a concentration of 7.3 µg/m^3, less than the Method B Indoor Air CUL of 9.6 µg/m^3. PCE was not detected in any of the indoor samples at concentrations greater than the laboratory reporting limits.

3.2.2. January 2021 Vapor Intrusion Sampling Event

On January 12, 2021, five air samples (IA-IA-01-011221 through IA-IA-04-011221 and AA-AA-01-011221) and five SSSV samples (SG-SV-17-0-1-012021 through SG-SV-21-0-1-012021) were collected and submitted to FBI for analysis of VOCs by Method TO-15. PTC reported an issue with collecting the SSSV samples and the results are not included in this investigation. The analytical results were compared to Ecology's MTCA Method B Indoor Air CULs for indoor air samples. If Cancer CULs have not been established, Non-Cancer SLs or CULs were used. Sample locations are shown on Figure 4, the analytical results are presented on Table 2 and Figure 7, and a copy of the chemical analytical laboratory report is included in Appendix D.

PCE was detected in indoor air sample IA-IA-01-012021 at a concentration of 7.4 µg/m^3, less than the Method B Indoor Air CUL of 9.6 µg/m^3. Chloroform was detected in the four indoor air samples at concentrations greater than the Method B Indoor Air CUL of 0.11 µg/m^3. Additionally, chloroform was detected in the ambient air sample at a concentration of 0.10

µg/m^3, just under the Method B Indoor Air CUL. Naphthalene was detected in all five air samples at concentrations greater than the Method B Indoor Air CUL of 0.074 µg/m^3.

3.2.3. February 2021 Vapor Intrusion Sampling Event

On February 24, 2021, five air samples (IA-IA-01-022421 through IA-IA-04-022421 and AA-AA-01-022421) and five SSSV samples (SG-SV-17-0-1-022421 through SG-SV-21-0-1-022421) were collected and submitted to FBI for analysis of VOCs by Method TO-15. The analytical results were compared to Ecology's MTCA Method B Sub-Slab Soil Gas SLs for the SSSV samples and Method B Indoor Air CULs for indoor air samples. If Cancer CULs have not been established, Non-Cancer SLs or CULs were used. Sample locations are shown on Figure 4, the analytical results are presented on Tables 1 and 2 and Figures 6 and 7, and a copy of the chemical analytical laboratory report is included in Appendix D.

PCE was detected in SSSV samples SG-SV-17-0-1-022421, SG-SV-18-0-1-022421, and SG-SV-19-0-1-022421 at concentrations of 20,000, 7,800, and 420 µg/m^3, respectively, exceeding the Method B Sub-Slab Soil Gas SLs of 320 µg/m^3. PCE was detected in SSSV sample SG-SV-20-0-1-022421 at a concentration of 45 µg/m^3, less than the Method B Sub-Slab Soil Gas SL. TCE was detected in SSSV sample SG-SV-17-0-1-022421 at a concentration of 18 µg/m^3, exceeding the Method B Sub-Slab Soil Gas SL of 11 µg/m^3. Chloroform was detected in SSSV sample SG-SV-17-0-1-022421 at a concentration of 6.1 µg/m^3, exceeding the Method B Sub-Slab Soil Gas Cancer SL of 3.6 µg/m^3. All other VOCs were either not detected at concentrations greater than the laboratory reporting limits or were detected at concentrations less than applicable SLs.

Chloroform was detected in the four indoor air samples at concentrations greater than the Method B Indoor Air CUL of 0.11 µg/m^3. Additionally, chloroform was detected in the ambient air sample at a concentration of 0.078 µg/m^3. Naphthalene was detected in all five air samples at concentrations greater than the Method B Indoor Air CUL of 0.074 µg/m^3 PCE was detected in the indoor air samples IA-IA-01-022421 and IA-IA-02-022421 at concentrations of 7.9 and 7.5 µg/m^3, respectively, less than the Method B Indoor Air CUL of 9.6 µg/m^3. PCE was not detected in any of the other indoor air samples or the ambient air sample at concentrations greater than the laboratory reporting limits.

3.2.1. October 2021 Deep Downgradient and Angled Shop Borings

To address two significant data gaps for the Site and following a discussion with Ecology staff, UEP returned to the Site in October 2021 and advanced and logged two additional soil borings and collected two strategically located soil samples from each boring. The boring locations are shown on Figures 5 and 9 and described below:

1) UB1: Confirming No Groundwater Occurrence Underlying the Source Area (Cleaner Shop) – A deep soil boring was advanced immediately west and downgradient of the source area (cleaner's shop) to determine whether a shallow or deep groundwater occurrence is present at the Site. Based on known shallow and deep soil stratigraphy in the immediate area (see Section 2.4.2), the boring was advanced to confirm there was no groundwater occurrence within approximately 65 feet bgs of the source area. Except for the first three feet of fill and a thin, wet layer described below, the entire boring

consisted of dry, brown glacial till (silty Sand with some gravel). See Appendix G for photos of the boring soil samples from surface to the bottom of the boring.

Between approximately 11 and 12 feet bgs, the UEP geologist observed a 2-inch layer of moist to wet sandy gravel over- and underlain by a compacted layer of silty sand. Free water was not observed in the layer of sandy gravel. Once the boring was completed the boring was backfilled with bentonite chips to approximately 14 feet bgs and a 5-foot length of 2-inch well screen with solid riser to the ground surface was installed. The temporary well was allowed to rest undisturbed for the rest of the day (while the second angled boring was installed and sampled), and at the end of the day the temporary well was checked for water. Groundwater was not observed or detected in the well screen. When the well screen was removed from the borehole, UEP personnel observed the exterior to be moist to wet with silty sand but not saturated. It is our opinion that this layer of sandy gravel does not represent a water bearing unit below the site.

During the advancement and logging of UB1, two soil samples UB1-3 and UB1-12 were collected at 3- and 12-feet bgs, respectively, and analyzed for CVOCs. Soil sample UB1-12 consisted of brown, moist sandy gravel from the 2-inch layer of moist to wet soil. No odors were field detected by the field geologist or the PID instrument. The laboratory results contained no detectable concentrations of CVOCs from both samples.

2) UB2: Establishing a Vertical Extent of the CVOC Shallow Soil Source Area – Soil boring UB2 was an angled boring that established a vertical extent of the CVOC soil source area, which is located approximately 15- to 20-feet north of the shop entrance. Figures 6 and 9 depict the approximate center of the shallow-soil source area (see SV-6/7 and S-17), which indicate impacts to shallow soil were detected at least 3-feet below the shop floor. Sample UB2-28(16) was collected 28 lineal feet along the angled boring (at 35 degrees off of horizontal), which places the sample 4-feet south of S-17 and 22-feet bgs. Sample UB2-35(20) was collected 35 lineal feet along the angled boring, which place the sample 29-feet below S-17. The laboratory results contained no detectable concentrations of CVOCs from both samples.

4.0 CONCEPTUAL SITE MODEL

This section provides a summary of the conceptual understanding of the Site and is derived from the results of the historical research and subsurface investigations performed at the Site. Included is a discussion of the confirmed and suspected source areas, potential exposure pathways, and the chemicals and media of concern.

The conceptual site model (CSM) serves as the basis for developing technically feasible cleanup alternatives and selecting an appropriate final cleanup action. The CSM is considered to be dynamic and may be refined throughout the cleanup action process as additional information becomes available. A cross section showing a vertical representation of the CSM with actual soil, soil vapor and indoor air data is presented on Figure 10.

4.1. SOURCE AREAS AND EXTENT OF CONTAMINATION AT THE SITE

Tetrachloroethene (PCE)

Soil concentrations and distribution. PCE has been detected at concentrations greater than the MTCA Method A Soil Cleanup Level of 0.05 mg/kg in soil samples collected only within 3 feet below the cleaner's concrete floor slab**.** As shown on Figure 9, these sample locations begin with the highest concentrations (S17) in the historic dry cleaning machine location and current spot cleaning area and decline moving east toward the jeweler shop. Two soil samples (UB2-28(16) and UB2-35(20)) collected below S17 contained no detectable concentrations of CVOCs. UB2 samples provide a vertical extent or boundary to PCE contaminated soil.

Sub-slab soil vapor concentrations and distribution. PCE was detected in every SSSV (except SV-21) and Gore Sorber™ samples collected below the cleaner's concrete floor slab (i.e., SS-01, SV-1 through SV-12, SV-17, and SV-20) and both SSSV samples collected in the adjacent jewelers (SV-19 and -20). Except for a few of these samples, PCE was detected in all samples at concentrations exceeding the MTCA Method B SSSV Screening Level of 320 µg/m^3 for unrestricted land use and 1,300 ug/m^3 for commercial/industrial land uses.

The highest PCE SSSV concentrations were present in a sample collected adjacent to the historic solvent-based cleaner machine location (PCE concentrations ranging from 20,000 µg/m^3 to 30,000 µg/m^3 at SV-7/SV-17). From SV-17, PCE SSSV concentrations were delineated to concentrations less than SSSV SLs for unrestricted land use in all directions (i.e., SV-13 and SV-14 to the west; SV-15 and SV-16 to the north; SV-20 to the east; and, SV-21 to the south; see Figures 5 and 6).

PCE was not detected in five SSSV samples collected outside of the cleaner or jeweler spaces.

The sub-slab vapor results at SV-2, SV-3, SV-7/SV17, and SV-8 with corresponding soil sampling results at SV-2, SV-3, S17, and S18, respectively, show a correlation between PCE sub-slab vapor concentrations greater than 10,000 µg/m^3 and soil concentrations greater than the CUL of 0.05 mg/kg.

Indoor air concentrations and distribution. Indoor air sampling locations consisted of two in the cleaner; two in the jeweler; and one ambient air. All three locations were sampled three times between August 2020 and February 2021. All samples were compared to indoor air SLs for unrestricted land use and commercial/industrial land use (see Table 2) and presented on Figure 7. Over the course of three sampling events (15 total samples), PCE detections consisted of:

- three of six samples within the cleaners, at concentrations of 7.4, 7.5 and 7.9 µg/m^3 (consistent concentrations over the course of a year);
- all six samples within the jeweler contained no PCE concentrations above the laboratory detection limit of 6.8 µg/m^3; and,
- one ambient air sample collected adjacent to the building contained PCE at a concentration of 7.3 µg/m^3. The remaining five samples contained no PCE concentrations above the laboratory detection limit of 6.8 µg/m^3.

PCE is the primary chemical of potential concern (COPC) for the vapor intrusion pathway.

Trichloroethene (TCE)

TCE is a PCE degradation byproduct and is also consider a primary COPC for the Site's vapor intrusion pathway. TCE was not detected at concentrations greater than the laboratory reporting limits in 13 soil samples collected from seven locations. The MTCA Method A soil CUL for TCE is 0.03 mg/kg.

TCE was detected in five SSSV samples collected under the cleaners at concentrations greater than the Method B (unrestricted) SSSV SL of 11 µg/m^3. TCE was not detected at concentrations greater than the laboratory reporting limits in SSSV samples collected under the jeweler shop.

Out of a total of 15 TCE IA samples, only one sample (IA-IA-01-080520, located at the cleaner's spot-cleaning area) contained TCE at a concentration of 0.41 µg/m^3, slightly higher than the MTCA Method B (unrestricted land use) IA CUL of 0.33 µg/m^3, but below the commercial/industrial CUL of 2.0 µg/m^3. The remaining 14 IA samples from the cleaner, jeweler and ambient air sample locations did not contain TCE concentrations above the laboratory reporting limit of 0.27 µg/m^3.

TCE does not pose an unacceptable VI risk for current and anticipated future commercial land use based on current conditions. Furthermore, it is highly unlikely that there would ever be a TCE permissible exposure limit exceedance (which is the applicable indoor air human health standard) as long as Picrin® is no longer used as part of the cleaner operations.

Chloroform

Chloroform was detected in Gore Sorber™ sample SV-4 and sub-slab vapor samples SV-07 and SV-17 at concentrations greater than the MTCA Method B SSSV SL of 3.6 µg/m^3, and eight indoor air samples at concentrations greater than the MTCA Method B Indoor Air CUL of 0.11 µg/m^3. As presented by an FBI lab chemist (see insert below), chloroform is a byproduct of water chlorination and not dry-cleaning activities. Chloroform was detected at two sub-slab sample locations (SV-07 and SV-17); it is likely due to a water or pipe leak and is not a compound of concern at the Site.

Naphthalene

Naphthalene was detected in Gore Sorber™ sample SV-11 at a concentration greater than the MTCA Method B SSSV SL of 2.5 µg/m^3. Naphthalene was also detected in all indoor air samples, including the ambient air control samples. Naphthalene was only detected in one Gore Sorber™ sample and was not detected in any of the SSSV samples at concentrations greater than laboratory detection limits. Referencing the chemist note below, naphthalene is a motor vehicle emission compound and is not associated with dry cleaning activities. Therefore, it is our professional opinion that naphthalene is not a chemical of concern at the Site and is an ambient background chemical ubiquitous to the urban environment.

Additional compounds such as benzene, 1,2-Dichloroethane (EDC), and 1,3-Butadiene were detected in some indoor air samples at concentrations exceeding their respective Method B Indoor Air CULs. In a February 23, 2021 email, Eric Young with Friedman & Bruya stated the following:

"1,3-butadiene, benzene and naphthalene are all motor vehicle emission compounds and are expected in urban air. Chloroform is a byproduct of water chlorination, so could come from a sewer line, tap water, bleach, hot tub, etc. EDC is in every (>95%) indoor air sample we run, ambient or not, so I would categorize it as another expected urban air contaminant."

Therefore, it is our professional opinion that the detections of 1,3 butadiene, benzene, and EDC, while of potential concern at the Site, are not due to the operation or release of dry-cleaning chemicals at the Site and are not constituents of concern at the Site.

4.2. CHEMICALS AND MEDIA OF CONCERN

The COCs for the Site are those chemicals or constituents that were detected at concentrations exceeding their applicable screening or cleanup levels. The media of concern are the subsurface components that are known or suspected to contain those contaminants of concern.

4.2.1. Chemicals of Concern

Based on the findings of the remedial investigation, the primary COCs and media of concern are presented below:

- PCE in soil and sub-slab soil vapor
- TCE in soil and sub-slab soil vapor

4.2.2. Media of Concern

Soil. PCE is present in soil at the eastern portion of the site (under the cleaners) at concentrations exceeding MTCA Method A CULs. The impacts have been identified in the upper three feet of soil, immediately below the concrete slab. The Property and surrounding area are largely capped by concrete or asphalt paving and redevelopment is not currently anticipated.

Groundwater. As detailed in Section 2, well logs from nearby sites and one deep Site boring UB1 indicate groundwater is not present withing at least 65-feet bgs but more likely approximately 110 to 120 feet below the Property in an Advanced Outwash geologic formation overlain by approximately 120 feet of compacted Vashon Till. It is our opinion that due to the depth to groundwater, overlying geologic formation of compacted glacial till, limited vertical and lateral extent of the release to soil, and the lack of stormwater entering or penetrating the vadose zone, groundwater underlying the Site has not been impacted by the shallow soil release at the Site.

Soil Vapor and Indoor Air. The presence of PCE and TCE in SSSV at concentrations greater than their respective MTCA Method B SSSV SLs indicate that soil vapor are media of potential concern. Further, recent indoor air sampling for PCE and TCE indicate that the SSSV concentrations of PCE and TCE do not pose an unacceptable vapor intrusion (VI) risk to indoor air and the current occupants (commercial use).

Surface Water. The nearest surface water body to the Property is Pine Lake located approximately 1,300 feet to the west. The site is mostly paved with a formal stormwater collection and conveyance system. Groundwater under the Site is unlikely to be contaminated therefore discharge to a surface water body is not considered a media of concern.

4.3. POTENTIAL EXPOSURE PATHWAYS

There are two general types of receptors that are potentially at risk from exposure associated with the presence of PCE and TCE in soil and soil vapor at the Site. The receptors include terrestrial wildlife (birds and burrowing animals) and humans (commercial, utility, construction, and environmental workers). Because the Site qualifies for a TEE exclusion based on WAC 173-340-7491 and discussed further below, mitigating the potential human health risk, if any, associated with exposure to the COCs in the affected medium at the Site will be the primary objective of any cleanup action implemented. This section presents the evaluation and conclusions pertaining to the exposure pathways at the Site. The goal of this section is to identify potential exposure scenarios that will assist in the evaluation of potential feasible cleanup alternatives that are protective of terrestrial and human health. The CSM highlighting the source areas, potential pathways, and potential receptors for each medium of concern is discussed below.

4.3.1. Soil

Soil located below the slab with concentrations of PCE exceeding applicable MTCA Method A cleanup levels presents a potential risk to human receptors (commercial utility and construction workers). The potential release mechanism for soil at the Site includes dermal contact and ingestion, inhalation of airborne dust, and volatilized contaminants in the soil. The potential exposure pathways for soil that could be complete are as follows:

- **Dermal Contact and Ingestion or Inhalation (Direct Contact) of Contaminated Soil.** The release mechanisms for this exposure pathway include direct contact or inhalation of soil and soil dust. This exposure pathway is incomplete under current conditions for commercial workers in the cleaners. However, this pathway may be complete for environmental field personnel and construction and utility workers who come in contact with contaminated soil below the cleaner's concrete floor slab during excavation operations for future building repairs or renovation.
- **Inhalation of Soil Vapors.** The release mechanism for this exposure pathway is volatilization from soil to soil gas/air. This exposure pathway is currently incomplete for current commercial workers in the cleaners. However, this pathway may be complete for environmental, construction, and utility workers during any potential future repairs, renovation, or redevelopment below the slab at the Property. If the Site is redeveloped in the future, contaminated soil removal will likely occur and eliminate this pathway for future uses and receptors.

4.3.2. Groundwater

As described in Section 2.3.2, shallow groundwater under the Property is expected at a depth of approximately 110 feet bgs. Given the depth to groundwater, overlying geologic formation of compacted glacial till, and limited extent of the release to soil, it is our professional opinion that groundwater is not impacted from the release at the Site. Therefore, groundwater is not considered a potential exposure pathway.

4.3.3. Vapor Intrusion and Indoor Air

The exposure pathway for inhalation of indoor air containing volatile CVOCs that originated from below the slab is considered incomplete for current or future commercial workers and occupants in both the cleaners and jeweler. In this case, SSSV is contaminated from volatilization of PCE and TCE, specifically from PCE and TCE adsorbed to soil mineral surfaces below the slab. PCE and TCE have been detected in SSSV at concentrations greater than MTCA Method B (unrestricted and commercial/industrial) Sub-Slab Soil Gas SLs. However, only TCE was detected in indoor air at the cleaners at a concentration greater than MTCA Method B Indoor Air CUL for unrestricted land use, but below the Method B CUL for commercial/industrial uses. The single indoor air TCE exceedance in August 2020 at IA-01 may be due to ongoing storage or floor staining of Picrin® (a TCE-based solvent cleaner, see Appendix F) in the spot-cleaning area. During IA sampling, TCE does not pose an unacceptable VI risk for current and anticipated future commercial land use based on current conditions. Furthermore, it is highly unlikely that there would ever be a TCE permissible exposure limit exceedance (which is the applicable indoor air human health standard) as long as Picrin® is not used in the cleaner's operations.

Therefore, the soil (direct contact) and soil vapor (inhalation) pathways are the only complete pathways for potential future environmental, construction and utility workers during any future repairs, renovation, or redevelopment that would occur below the concrete slab at the cleaners.

4.4. TERRESTRIAL ECOLOGICAL EVALUATION

A TEE is required by WAC 173-340-7940 at locations where a release of a hazardous substance to soil has occurred. The TEE is intended to assess potential risk to plants and animals that live entirely or primarily on affected land. UEP concluded that the site qualifies for an exclusion from further evaluation using the criteria in WAC 173-340-7491. The qualifications include the following criteria:

- All contaminated soil is, or will be, covered by physical barriers.
- There is less than 1.5 acres of contiguous undeveloped land on or within 500 feet of any area of the site.

No further consideration of ecological impacts is required under MTCA. A copy of the TEE form is included in Appendix E.

4.5. FATE AND TRANSPORT

Initial metabolism of PCE typically involves a biochemical process referenced as reductive dehalogenation or dechlorination. Reductive dehalogenation occurs by sequential dechlorination from PCE to TCE to DCE to vinyl chloride to ethene. Reductive dehalogenation of solvents is typified by the accumulation of degradation products and an increase in the concentrations of chloride ions. As noted in Section 4.1, the presence of TCE in SSSV samples, although relatively low, indicate that reductive dehalogenation is occurring within the subsurface. The presence of TCE in indoor air is likely due to the historic use of Picrin® as a spot cleaner in the cleaner's shop.

Subsurface transport mechanisms that affect the distribution of contaminant mass in the subsurface include the physical and chemical characteristics of the subsurface materials (such as porosity, permeability and organic carbon content), the hydraulics of the flow system (advection - hydraulic conductivity and gradient), the nature of the contaminants, and the natural processes that tend to remove or degrade the contaminant mass (advection, dispersion, partitioning and biological transformation).

CVOC contamination in the subsurface at the Site exists in two separate phases: residual contamination in soil (contaminants sorbed onto soil particles); and subsurface soil vapor. The highest concentrations for PCE in soil (S17 at 3.29 mg/kg) and in soil vapor (SV-17 30,000 $\mu g/m^3$) are located immediately below the previous location of the first solvent based dry-cleaning machine at the Site (see Figures 4 and 9). This area within the cleaner is also the current location for spot cleaning, up until recently the shop used Picrin®, a liquid cleaner consisting of 75% by weight TCE. Given the PCE concentration gradient in S17 (3.29 mg/kg at 1-feet bgs, 1.38 mg/kg at 2-feet bgs, and 0.267 mg/kg at 3-feet bgs), PCE likely dripped from the historic machine onto and penetrated the concrete floor contaminating the shallow soil below.

CVOC contamination can also exist in the subsurface in two other phases: aqueous (contaminants dissolved in groundwater); and as a dense non-aqueous phase liquid (DNAPL) or free product. However, aqueous and DNAPL have not been observed or detected during any of the previous sampling events. Each phase exists in equilibrium in the subsurface with the other phases, and the relative ratio of total subsurface contamination between the four phases is controlled by partitioning, including the following:

- Sorption (transfer between contaminant and solids – leads to "retardation")
- Dissolution/precipitation (transfer between liquid and contaminant)
- Volatilization (transfer from liquid or solid phase of contaminant to gas phase)

Data has shown that CVOCs documented in shallow soil and SSSV beneath the Site have not significantly transported from the source area (former dry-cleaning machine location and current spot-clean area) and distributed throughout the Site. The vertical and lateral extent of the CVOC plume depends on the volume of the release and the physical properties of the subsurface (such as soil density, particle size, and seepage velocity), in this case, a relatively small or minor product release.

Volatilization of the contaminant plume can result in mass removal of CVOCs from soil into soil vapor in the vadose (unsaturated) zone, where CVOC soil vapor can be biodegraded to an extent not possible in DNAPL or dissolved phases, depending on environmental conditions. Sorption of contaminants onto soil particles or interstitial soil spaces can retard and immobilize contaminants (sorbed contaminants cannot transport via advection). Residual contamination, although not necessarily broken down quickly over time, is generally immobile. At the Site, the CVOC soil vapor appears to be limited to under the cleaners, and not radially in all directions. The elevation difference and significant stem wall between the cleaner and the jeweler has impeded the movement of soil vapor to the east under the jeweler shop.

4.6. PROPOSED CLEANUP LEVELS

The proposed CUL for PCE and TCE (i.e., the COCs) in soil at the Property is the MTCA Method B CUL for unrestricted land use. The CULs for COCs in SSSV at the Site are Method B Sub-Slab Soil Gas SLs. The CULs for COCs in indoor air are the MTCA Method B Indoor Air CULs for unrestricted land use.

Table 4-1: Cleanup Levels for Soil

Chemical of Concern	PCE	TCE
MTCA Method A Cleanup Level (mg/kg)	0.05	0.03
MTCA Method B Cleanup Level (mg/kg)	480	12

NOTES:
mg/kg = milligrams per kilogram
PCE = Tetrachlorethylene
TCE = Trichloroethene
MTCA = Washington State Model Toxics Control Act
Source = MTCA Method A Soil Cleanup Levels for Unrestricted Land Use; Ecology CLARC Tables, revised February 2021.

Table 4-2: Cleanup Levels for Sub-Slab Soil Vapor and Indoor Air

Chemical of Concern	PCE	TCE
Sub-Slab Soil Gas Screening Level, Unrestricted Land Use ($\mu g/m^3$)	320	11
Sub-Slab Soil Gas Screening Level, Commercial/Industrial Land Use ($\mu g/m^3$)	1,300	67
Indoor Air Cleanup Level, Unrestricted Land Use ($\mu g/m^3$)	9.6	0.33
Indoor Air Cleanup Level, Commercial/Industrial Land Use ($\mu g/m^3$)	40	2.0

NOTES:
$\mu g/m^3$ = micrograms per cubic meter
PCE = Tetrachlorethylene
TCE = Trichloroethene
MTCA = Washington State Model Toxics Control Act

Source = MTCA Method B Soil Gas and Indoor Air Cleanup Levels; Ecology CLARC Tables, revised February 2021.

4.7. POINTS OF COMPLIANCE

4.7.1. Soil

Because groundwater is not a media of concern, the point of compliance for soil is throughout the Site from the ground surface to 15 feet bgs, or to 6 feet with institutional controls, WAC 173-340-740(6)(d).

4.7.2. Air

In accordance with WAC 173-340-750(6), the point of compliance for air is defined as the ambient air throughout the Site.

5.0 FOCUSED FEASIBILITY STUDY AND CLEANUP ACTION PLAN

This section presents the focused feasibility study (FS) considerations for the Site's complete exposure pathway(s), and then promptly selects and describes the appropriate cleanup action plan. Pursuant to WAC 173-340-350(8)(a), the purpose of an FS is to develop and evaluate cleanup alternatives to enable a cleanup action to be selected for a site that will mitigate or eliminate identified exposure pathways. The objective of a selected cleanup action is to protect human health and the environment and to meet the requirements of MTCA. For the Site, the only identified complete pathway is future commercial or construction workers/receptors exposure to PCE and TCE contaminated soil and soil vapor below the existing (concrete floor slab) cleaner's shop.

A cleanup action must satisfy the following threshold criteria, as specified in WAC 173 340 360(2)(a):

- Protect human health and the environment.
- Comply with cleanup standards.
- Comply with applicable state and federal laws.
- Provide for compliance monitoring.

These criteria represent the minimum standards for an acceptable cleanup action. In addition to meeting the threshold criteria, cleanup actions under MTCA must:

- Provide for a reasonable restoration time frame based on the factors provided in WAC 173-340-360(4)(b).
- Use permanent solutions to the maximum extent practicable based on the criteria defined in WAC 173-340-360(3)(f).
- Consider public concerns raised during public comment on the Cleanup Action Plan (WAC 173-340-600).

Under WAC 173-340-350 and 173-340-710, a cleanup action must comply with applicable or relevant and appropriate requirements (ARARs). MTCA defines ARARs as:

> *Those cleanup action standards, standards of control, and other human health and environmental requirements, criteria or limitations established under state and federal law that, while not legally applicable to the hazardous substance, cleanup action, location, or other circumstances at a site, address problems or situations sufficiently similar to those encountered at the site that their use is well suited to the particular site.*

The following table summarizes the ARARs identified for the Site.

ARAR	Citation or Source
Model Toxics Control Act	Chapter 70.105 RCW
MTCA Cleanup Regulations	Chapter 173-340 WAC
Ecology, Toxics Cleanup Program – *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action*	Publication No. 09-09-047. October 2009; Review Draft Revised February 2016.
Comprehensive Environmental Response, Compensation, and Liability Act (CERCAL) of 1980	42 United States Code 9601 et seq. and 40 CFR 300
Solid Waste Management Act	RCW 70.95; WAC 173-304 and 173-351
Occupational Safety and Health Administration Regulations (Hazwoper regulations)	29 CFR Parts 1910, 1926
Washington Department of Labor and Industries Regulations	Chapter 296 WAC
Water Quality Standards for Ground Water	WAC 173-200
Department of Transportation Hazardous Materials Regulations	40 CFR Parts 100 through 185
Washington State Water Well Construction Act	RCW 18.104; WAC 173-160
City of Seattle regulations, codes, and standards	All applicable or relevant and appropriate regulations, codes, and standards.

5.1. MTCA EVALUATION OF THE SELECTED CLEANUP ALTERNATIVE

The selected cleanup alternative must address the exposure pathway(s) associated with CVOCs in soil and soil vapor below the concrete floor slab within the footprint of the cleaner's shop, i.e., the contractors and utility workers repairing subslab utilities and accessing the area below the cleaner's floor slab. The combined SSSV and indoor air sampling data results demonstrate that there is no vapor intrusion (VI) into the building space that results in an indoor air exposure pathway to commercial shop workers (e.g., dry cleaning staff and jeweler salespeople).

The Site selected cleanup alternative – *Physical Barrier (to prevent soil and soil vapor contact and VI) and Monitoring with Covenant* – consists of the following four actions or elements, below. Considering the limited exposure pathways or scenarios, the appropriate remedy is

selected without a comprehensive feasibility analysis. However, a focused feasibility evaluation and selection/assembly of the selected remedy is provided below.

5) Physical Barrier consisting of the existing concrete slab at the Property building
6) Routine Inspection of the Barrier
7) Periodic Indoor Air Monitoring
8) Environmental Covenant, including a detailed Work Plan

All of the required engineering and procedural measures above, including agency reporting and Hazwoper training, is required to ensure contractors and utility worker and commercial shop workers safety and will be presented in an Environmental Covenant, recorded with the King County courthouse.

The focused feasibility analysis of the selected cleanup action for each MTCA criteria is as follows:

Protectiveness. The exposure risk associated with the presence of CVOCs below the cleaner's concrete floor slab are direct contract with soil and inhalation of soil gas. There is no complete exposure pathway for the VI scenario. The Site qualifies for a TEE exclusion. The timeframe to reduce risk and attain cleanup standards is considered immediate since the concrete slab is already in place.

The selected remedy provides an immediate solution (concrete slab is already present), while also providing adequate protection from the VI pathway. No additional steps or implementation measures are necessary to modify the existing concrete slab.

Permanence. Alternatives are evaluated based on their ability to permanently reduces or eliminate the toxicity, mobility, or volume of hazardous substances on the Site, including the adequacy of the alternative in destroying the contaminants.

The selected remedy provides permeance to reduce risk to commercial workers, including workers that occupy the space in the cleaner. This has been demonstrated through three rounds of combined SSSV and IA sampling. Sampling results have demonstrated there are no unacceptable VI risk for current and anticipated future commercial land use based on current conditions.

Effectiveness over the Long Term. Long-term effectiveness defines the degree of certainty that the alternative will effectively perform as intended and the magnitude and time frame that the remedy relies on Site controls (e.g., concrete slab barrier and monitoring).

The selected remedy provides adequate effectiveness, as demonstrated in tiered VI sampling. As a result, additional treatment or destruction of the contaminates below the slab is not necessary to eliminate the VI pathway. Further, periodic monitoring is intended to demonstrate continued compliance (e.g., confirm this pathway remains incomplete) with the IA exposure pathway.

Management of Short-Term Risks. The risk to human health and the environment associated with the implementation and construction of the alternative.

Implementing the selected remedy is not expected to modify or increase the short-term risks associated with the contaminants below the concrete slab.

Technical and Administrative Implementability. The ability for an alternative to be implemented – technically feasible, availability of infrastructure and services, and complexity and size of the project, to name a few criteria.

The ability to implement selected remedy requires no specialized or difficult technical or administrative tasks.

Public Concerns. These criteria weigh the relative familiarity, concerns, or support for an alternative. For this Site, the public is defined as the retail community and commercial workers within the cleaners.

As a function of implementing the environmental covenant and it's required elements (monitoring, slab inspection, and reporting to Ecology and the cleaner business), the business owner and their commercial workers will be notified of the results of this study and requirements of the covenant.

5.2. DESCRIPTION OF THE SELECTED CLEANUP ACTIONS (OR ELEMENTS)

The PLC ownership intends to submit this report to Ecology's Voluntary Cleanup Program and request an Opinion on the proposed cleanup (No Further Action Likely). Subsequently, PLC ownership will submit to Ecology for review a draft Environmental Covenant and Site Inspection and Monitoring Work Plan that provides a detailed approach to the cleanup actions or elements. The Work Plan will include a Sampling and Analysis Plan and QAPP. All collected environmental data will be uploaded to Ecology's Electronic Information Management (EIM) system.

With the cleanup action elements approved (covenant recorded) and in place, the PLC ownership will request an Opinion of No Further Action.

<u>Physical Barrier to Prevent Direct Contact and Vapor Intrusion</u>

The selected remedy for the CVOC in soil and soil gas below the cleaner's floor is intended to meet cleanup levels for unrestricted land use. RI sampling has demonstrated that appropriate screening levels have been met in both the Site's soil, SSSV and indoor air, and that the VI pathway is incomplete. Therefore, the continuous (e.g., no expansion joints), existing 6-inch-thick concrete floor slab, is considered an engineering control for the Site and will be maintained at all times.

<u>Inspection of the Barrier (Concrete Floor Slab) and Repairs as Needed</u>

With the existing concrete floor slab in place, inspection of its continued presence and satisfactory condition of the barrier will be performed annually. The first two inspections will be performed by the property owner, the cleaner owner and operator, and a qualified environmental professional. After two years, the inspection will be performed by the cleaner's

owner and operator and results shared with the property owner immediately. An inspection form (included as an appendix to the Work Plan) will be filled out by the inspection team and include sufficient photos to document the condition of the barrier. The purpose of the inspection will be to ensure there is continued integrity of the concrete floor slab, and therefore continued effective functioning of the barrier.

The visual inspection shall be performed with adequate lighting (bring a construction flood light if necessary) and made from within three to four feet distance from the surface of the concrete (i.e., close range). The inspection shall make note of any cracks, discolorations or moisture (including penetrating seeps) on the concrete surface. All discovered cracks in the floor shall be immediately sealed using a chemical-resistant, epoxy-based concrete sealer, such as Sitka-Pro™.

Results of the inspection shall be documented and reported to Ecology every 5 years along with indoor air monitoring results. If a floor crack is discovered, this information shall be reported to Ecology immediately after the discovery and repair.

Periodic Indoor Air Sampling of the Cleaner Space

An indoor air compliance monitoring plan will be implemented to demonstrate and confirm that the VI pathway, using a multiple lines of evidence approach, continues to remain incomplete. The co-located indoor air (IA) and sub-slab vapor (SSV) will be monitored to ensure continued performance of the existing floor slab as a barrier to vapor intrusion. Elements (multiple lines of evidence) of the monitoring plan will include:

- Periodic inspection of the concrete floor and interior space/uses/chemicals used in the cleaner shop
- Periodic co-located IA and SSV samples analyzed for CVOCs
- Ambient, indoor, and sub-slab pressure and temperature readings

A pair of IA and SSV samples will be collected during the colder seasons and once in the first two years, followed by every other year for four years, followed by one event every five years. The two co-located samples (IA-01 and -02) will be collected in the north and south half of the cleaner's space and analyzed for CVOCs. All sampling will be performed in accordance with Ecology guidance for indoor air sampling. A standard sampling and analysis work plan for IA monitoring will be provided in the final covenant. Exceedances of indoor air results will be reported to Ecology immediately, otherwise results of the CMP will be reported every five years.

A contingency plan for IA sampling results that are at or above the IA CULs involves a progressive use of action steps that are generally followed by an IA sampling event. These steps will continue until two rounds of IA results are collected that comply with the IA CULs.

Environmental Covenant, including Engineering Controls

The PLC owner shall prepare an Environmental Covenant (EC) based on Ecology's standard EC template that is reviewed and approved by Ecology and recorded with the County. The EC will include a Work Plan that consists of the following:

1. Introduction and Summary of Existing Environmental Conditions
2. Warning and restrictions for sub-slab construction and modifications. All sub-slab work shall be prepared using an Ecology reviewed plan and using properly trained (Hazwoper) workers
3. Barrier Inspection Requirements and Protocols (Engineering Control)
4. Indoor Air and Sub-Slab Vapor Sampling Plan
5. Quality Assurance Project Plan
6. Ecology Reporting Plan
7. Field Forms for Sampling and Inspections

5.3. CONTINGENCY ACTION FOR VI PATHWAY

A contingency plan for IA sampling results that are at or above the IA CULs involves a progressive use of action steps that are generally followed by an IA sampling event. These steps will continue until the owner has collected two rounds of IA results that comply with the IA CULs.

1. Reinspect the concrete floor surfaces and inventory the space. Note any changes during this inspection. Repair or replace any noted concerns, such as a crack in the wall or storage of new chemicals in the space. Consider an epoxy coating (10-mil dry film thickness) on the concrete floors or walls.
2. Perform additional rounds of IA sampling in accordance with the CMP. If the IA results are above the CULs, then continue with:
3. Design and install a sub-slab depressurization system on the east side of the cleaner. These depressurization systems are available 'off-the-shelf' and provided by local vendors at a cost range of $50k to $100k for 2 to 4 floor penetrations.
4. Perform 2 rounds (separate events) of IA sampling in accordance with this sampling plan. If the IA results are both above the CULs, then meet with Ecology to develop a

plan for additional site characterization (identify what has changed) and possible mitigation measures.

The purpose of this contingency summary is to provide contingency actions for the management of potential conditions beneath the Property if elevated levels of vapors in the indoor air quality samples are detected above the Method B CULs.

In the event that IA quality confirmation monitoring reports CVOC constituents above MTCA Method B for vapors, and resampling was performed to confirm the exceedance, Ecology shall review and approve a contingency action prior to implementation. The approval of a contingency work plan may lead to an NFA "re-opener and rescission" pending completion of further action. After vapor mitigation efforts are completed under the contingency plan, performance vapor monitoring of consecutive semi-annual air quality sampling events will be conducted to demonstrate compliance, to support re-issuance of the NFA pending the next 5-year Review.

6.0 LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, expressed or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client and Ecology unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report are derived, in part, from data gathered by others, and from conditions evaluated when services were performed, and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We do not warrant and are not responsible for the accuracy or validity of work performed by others, nor from the impacts of changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the use of segregated portions of this report.

7.0 REFERENCES

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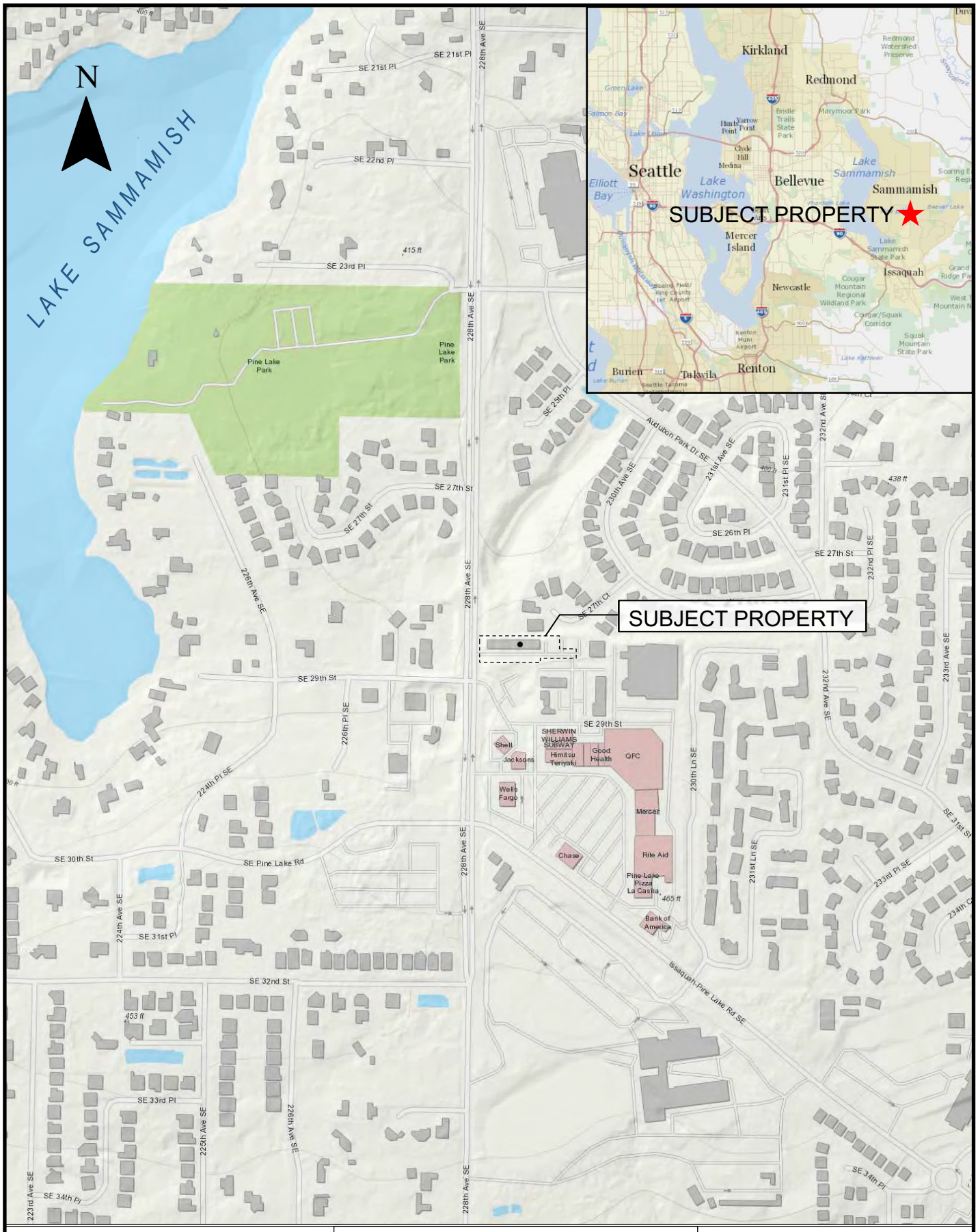
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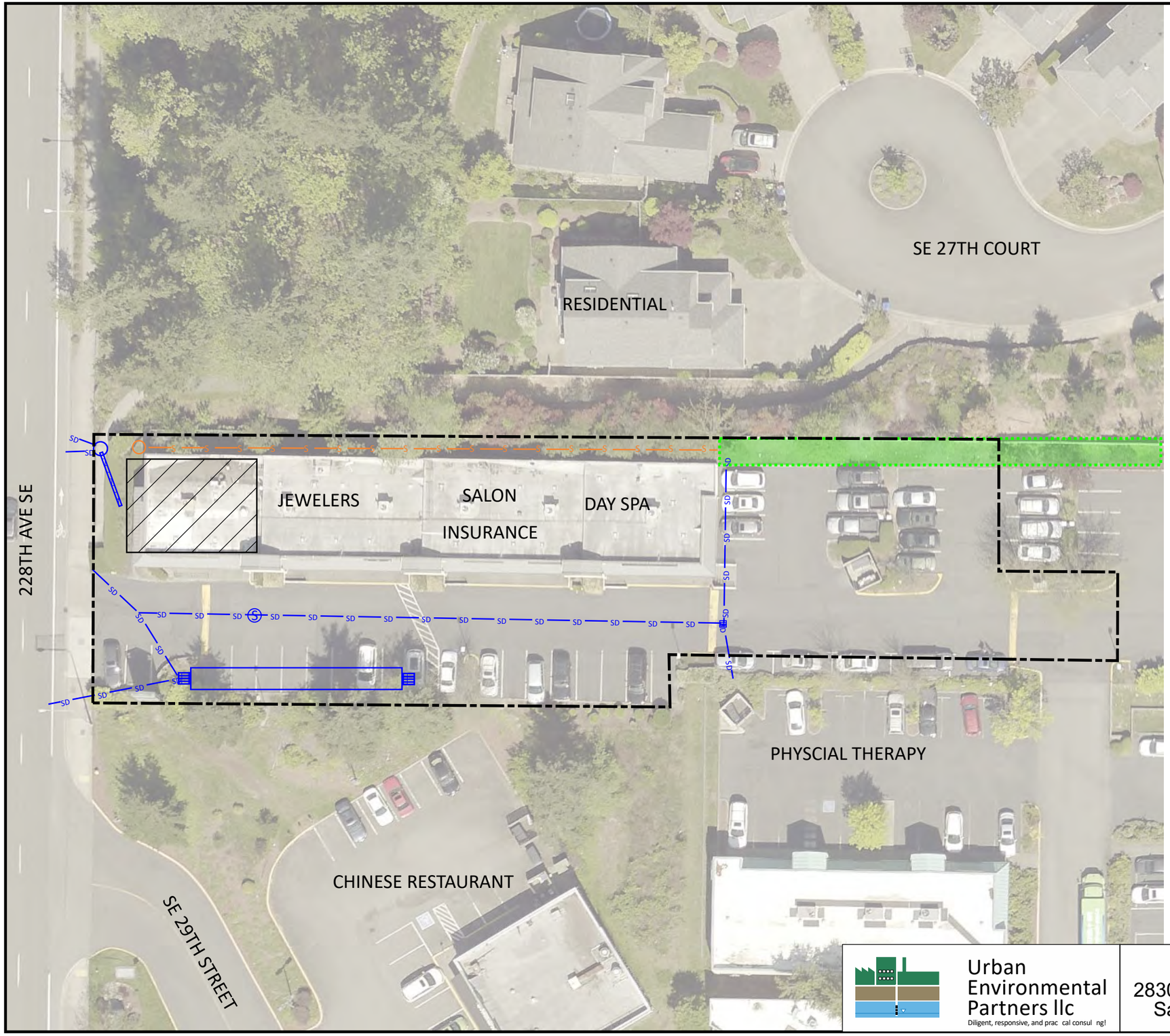
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FIGURES



Urban Environmental Partners llc Diligent, responsive, and prac cal consul ng!	Pine Lake Cleaners 2830 228th Avenue Southeast Sammamish, Washington	Figure 1 Site Location Map



LEGEND

- PROPERTY BOUNDARY
- PINE LAKE CLEANERS
- CATCH BASIN
- STORMWATER LINE
- STORMWATER ACCESS
- VEGETATED SWALE
- SANITARY SEWER LINE
- SANITARY SEWER PUMP

N

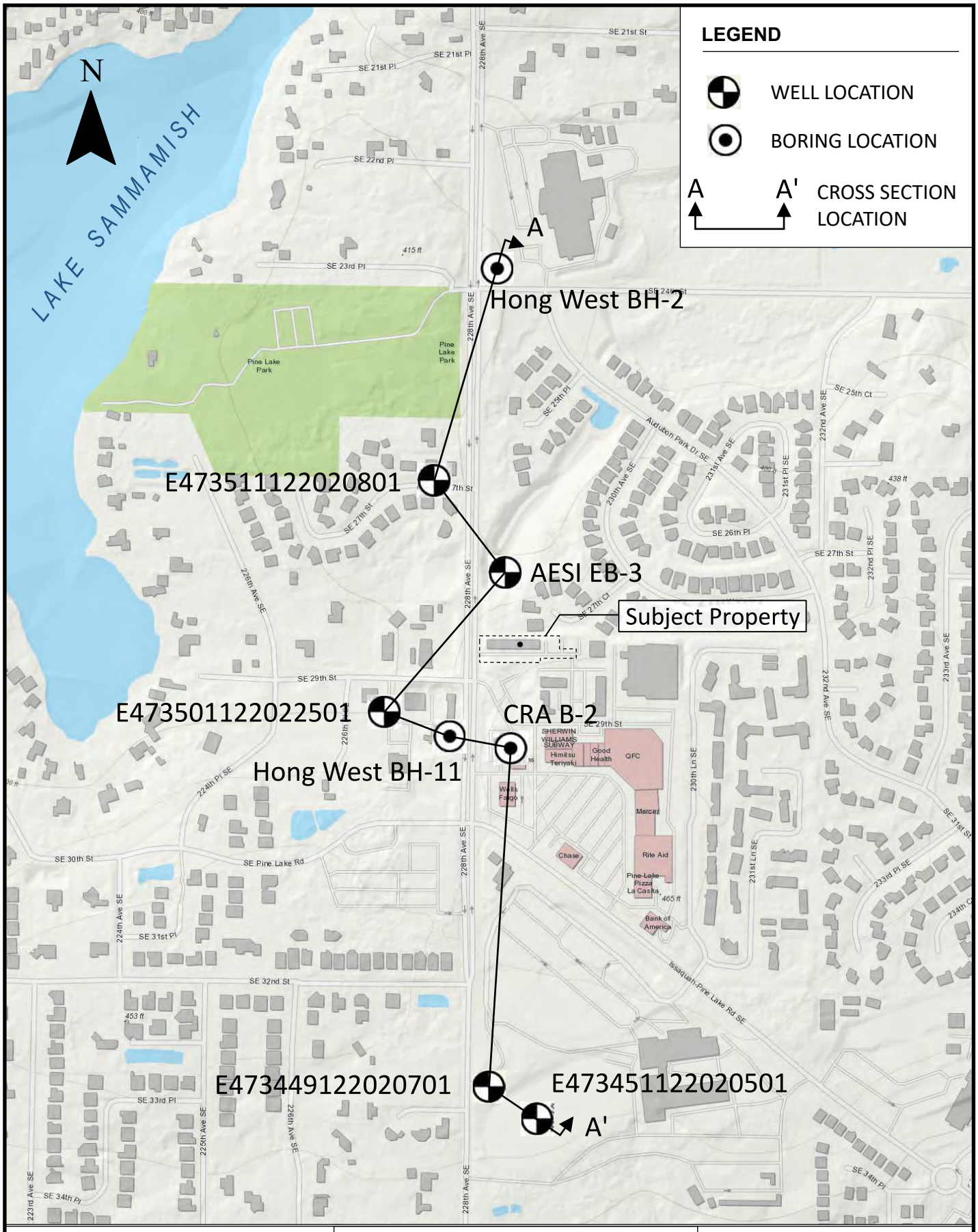
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APPROXIMATE SCALE IN FEET

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Pine Lake Cleaners
2830 228th Avenue Southeast
Sammamish, Washington

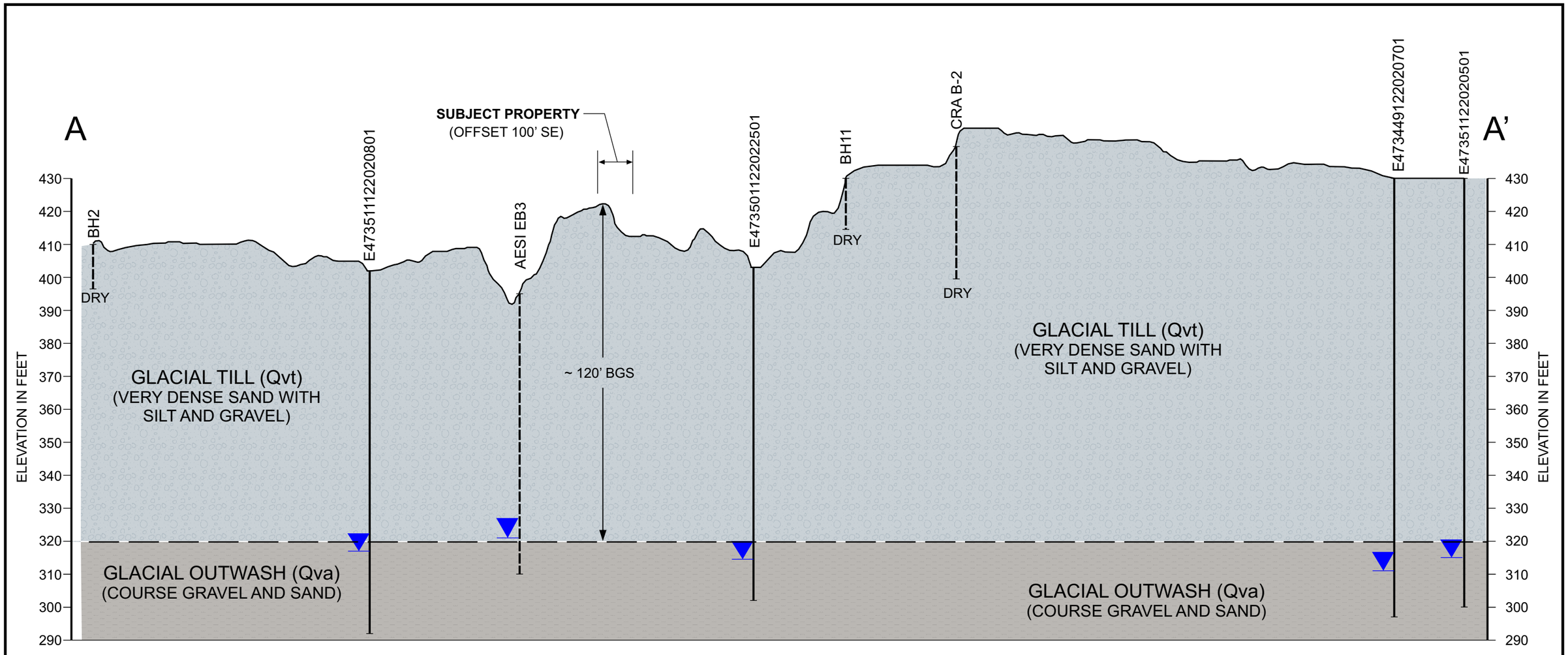
Figure 2
Site Features Map



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Pine Lake Cleaners
2830 228th Avenue Southeast
Sammamish, Washington

Figure 3
Well Location Map



LEGEND

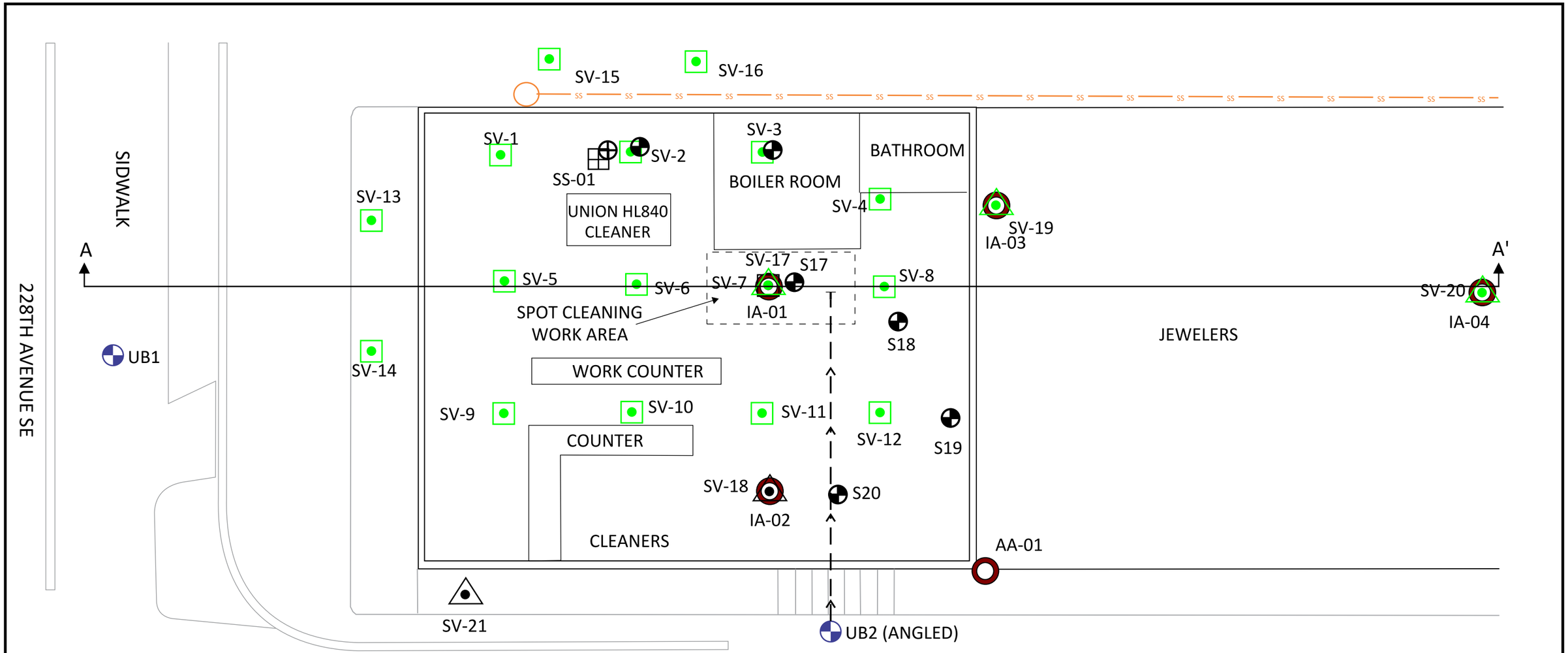
- MONITORING WELL
- GROUNDWATER LEVEL
- BORING

HORIZONTAL SCALE IN FEET
0 300 600
0 30 60
VERTICAL SCALE IN FEET
VERTICAL EXAGGERATION X 10

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Pine Lake Cleaners
2830 228th Avenue Southeast
Sammamish, Washington

Figure 4
Cross Section A-A'



LEGEND

- SOIL SAMPLE (UEP 2021)
- SS-01 — SUB-SLAB VAPOR SAMPLE LOCATION (SOUNDEARTH 2018)
- SV-1 — GORE-SORBER SUB-SLAB SAMPLE LOCATION (UEP 2018)
- SV-20 — SUB-SLAB VAPOR SAMPLE LOCATION (UEP/PTC 2020/2021)
- IA-01 — INDOOR AIR SAMPLE LOCATION (UEP/PTC 2020/2021)
- SS-01 — SOIL SAMPLE LOCATION (SOUNDEARTH 2018)
- SV-3 — SOIL SAMPLE LOCATION (UEP 2018)
- SS — SANITARY SEWER LINE
- A A' — CROSS SECTION

N

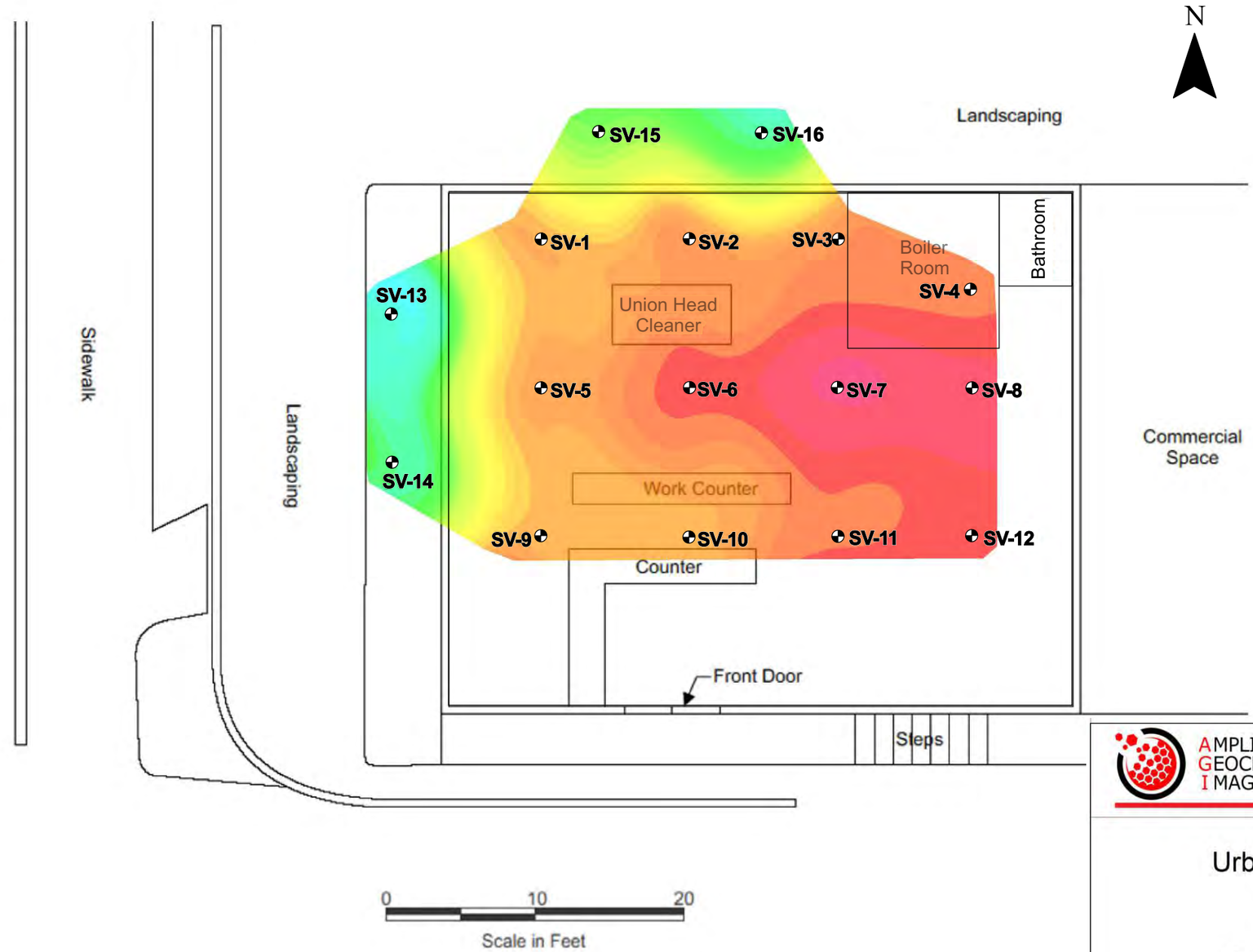
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APPROXIMATE SCALE IN FEET

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Pine Lake Cleaners
2830 228th Avenue Southeast
Sammamish, Washington

Figure 5
Site Plan - Sample Locations



LEGEND

20202.262
12920.818
8263.804
5285.304
3380.337
2161.972
1382.738
884.362
565.614
361.751
231.366
147.976
94.641
60.530
38.713
24.760
15.836
10.128
6.478
4.143
2.650

PCE
Estimated Soil Gas Concentrations (ug/m^3)

SV-1 Soil Vapor Sampling Location (UEP, LLC)

AMPLIFIED GEOCHEMICAL IMAGING, LLC
210 EXECUTIVE DRIVE, SUITE 1
NEWARK, DELAWARE 19702-3335 USA
PHONE: +1-302-266-2428
FAX: +1-302-266-2429
WWW.AGISURVEYS.NET

Urban Environmental Partners, LLC
Green/Syrdal - Pine Lake
Tetrachloroethene
Estimated Soil Gas Concentrations (ug/m^3)

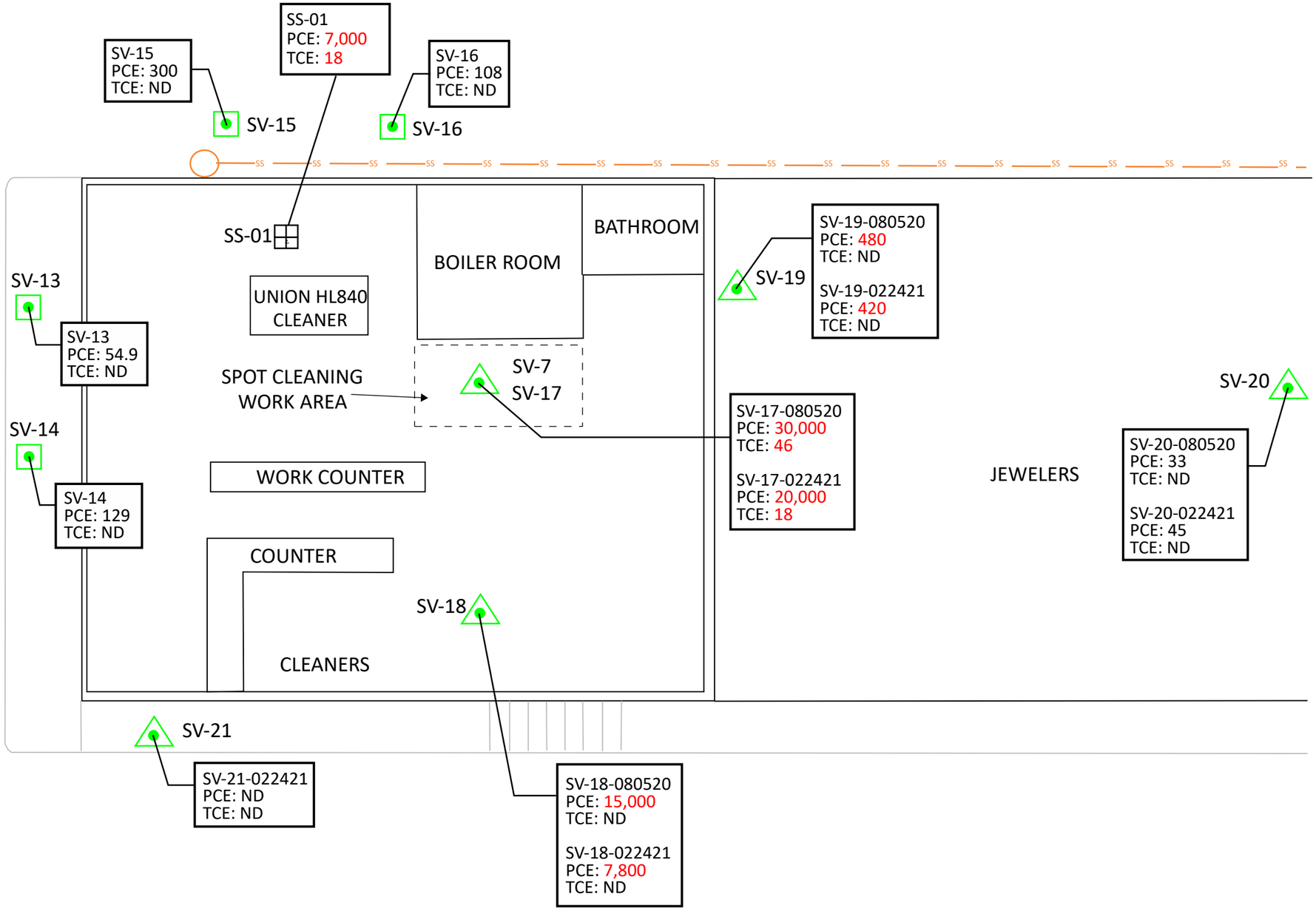
DATE DRAWN: Oct 24, 2018	DRAWN BY: RF	ORIG. CAD: Pine Lake Cleaners Sampling Plan (1) fig.pdf
REV. DATE: Oct 25, 2018	REV. #: 1	PROJECT NUMBER: 02064

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Figure 6
Gore Sorber[tm] Survey Plume Map



LEGEND

SS-01 — SUB-SLAB VAPOR SAMPLE LOCATION (SOUNDEARTH 2018)

SV-1 — GORE-SORBER SUB-SLAB SAMPLE LOCATION (UEP 2018)

SV-20 — SUB-SLAB VAPOR SAMPLE LOCATION (UEP 2020)

SS — SANITARY SEWER LINE

PCE: TETRACHLOROETHYLENE
TCE: TRICHLOROETHYLENE
ND: NON-DETECT (ALL LABORATORY NON-DETECT REPORTING LIMITS ARE LESS THAN APPLICABLE SCREENING OR CLEANUP LEVELS.)
NA: NOT ANALYZED
RED DENOTES COMPOUND EXCEEDS APPLICABLE CLEANUP LEVELS FOR UNRESTRICTED LAND USE. SAMPLE CONCENTRATIONS PRESENTED IN MICROGRAMS PER CUBIC METER (UG/M^3).

MTCA SUB SLAB SOIL GAS SCREENING LEVELS	PCE	TCE
METHOD B UNRESTRICTED LAND USE	320	11
METHOD C COMMERICIAL/INDUSTRIAL	1,300	67

N

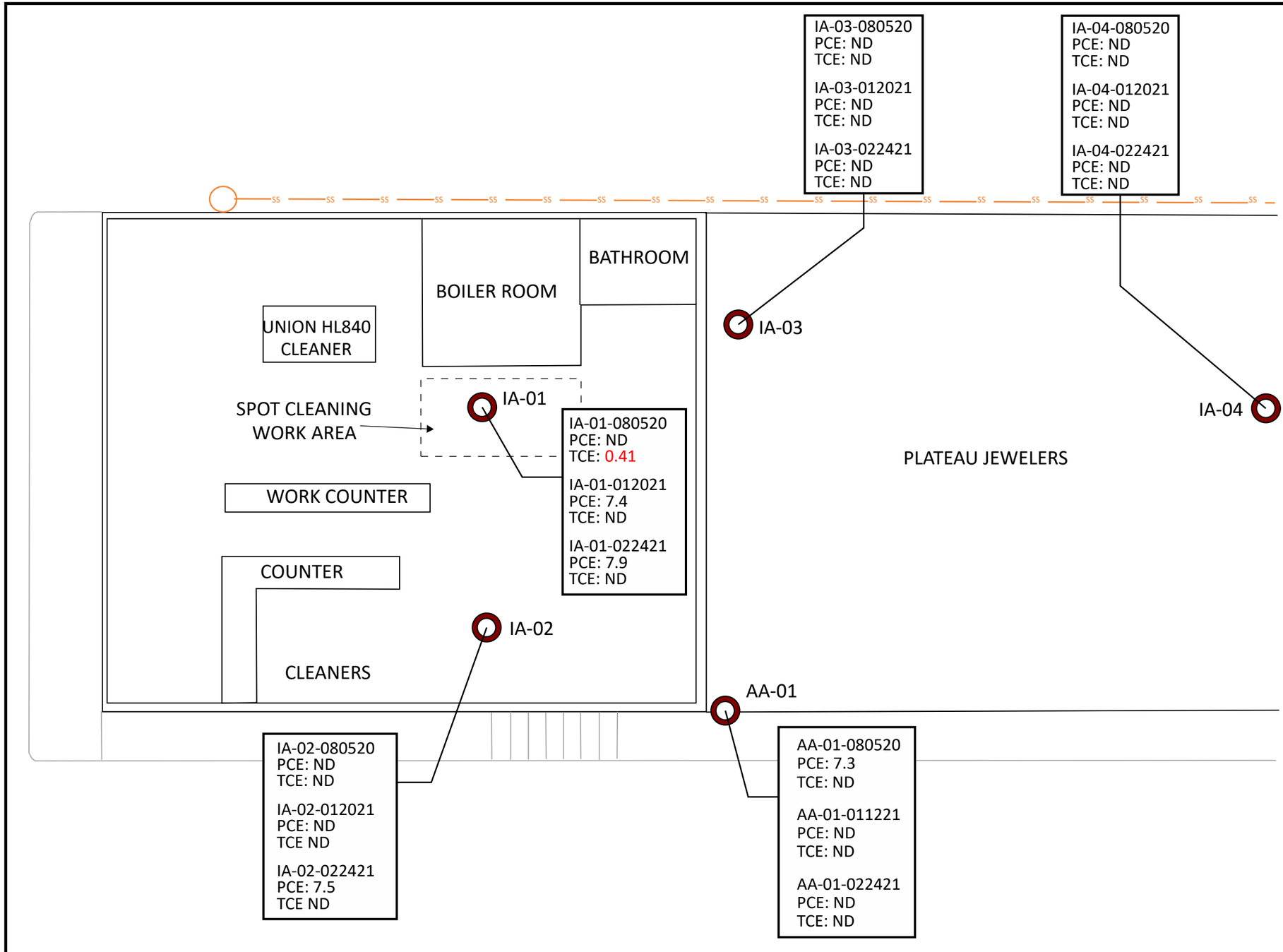
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APPROXIMATE SCALE IN FEET

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2830 228th Avenue Southeast
Sammamish, Washington

Figure 7
Sub-Slab Vapor Sample Results



LEGEND

IA-01 — INDOOR AIR SAMPLE LOCATION (UEP 2020)

SS — SANITARY SEWER LINE

PCE: TETRACHLOROETHYLENE
TCE: TRICHLOROETHYLENE
ND: NON-DETECT (ALL LABORATORY NON-DETECT REPORTING LIMITS ARE LESS THAN APPLICABLE SCREENING OR CLEANUP LEVELS.)
NA: NOT ANALYZED
RED DENOTES COMPOUND EXCEEDS APPLICABLE CLEANUP LEVELS FOR UNRESTRICTED LAND USE. SAMPLE CONCENTRATIONS PRESENTED IN MICROGRAMS PER CUBIC METER (UG/M^3)

MTCA INDOOR AIR CLEANUP LEVELS	PCE	TCE
METHOD B UNRESTRICTED LAND USE	9.6	0.33
METHOD C COMMERICIAL/INDUSTRIAL	40	2.0

N

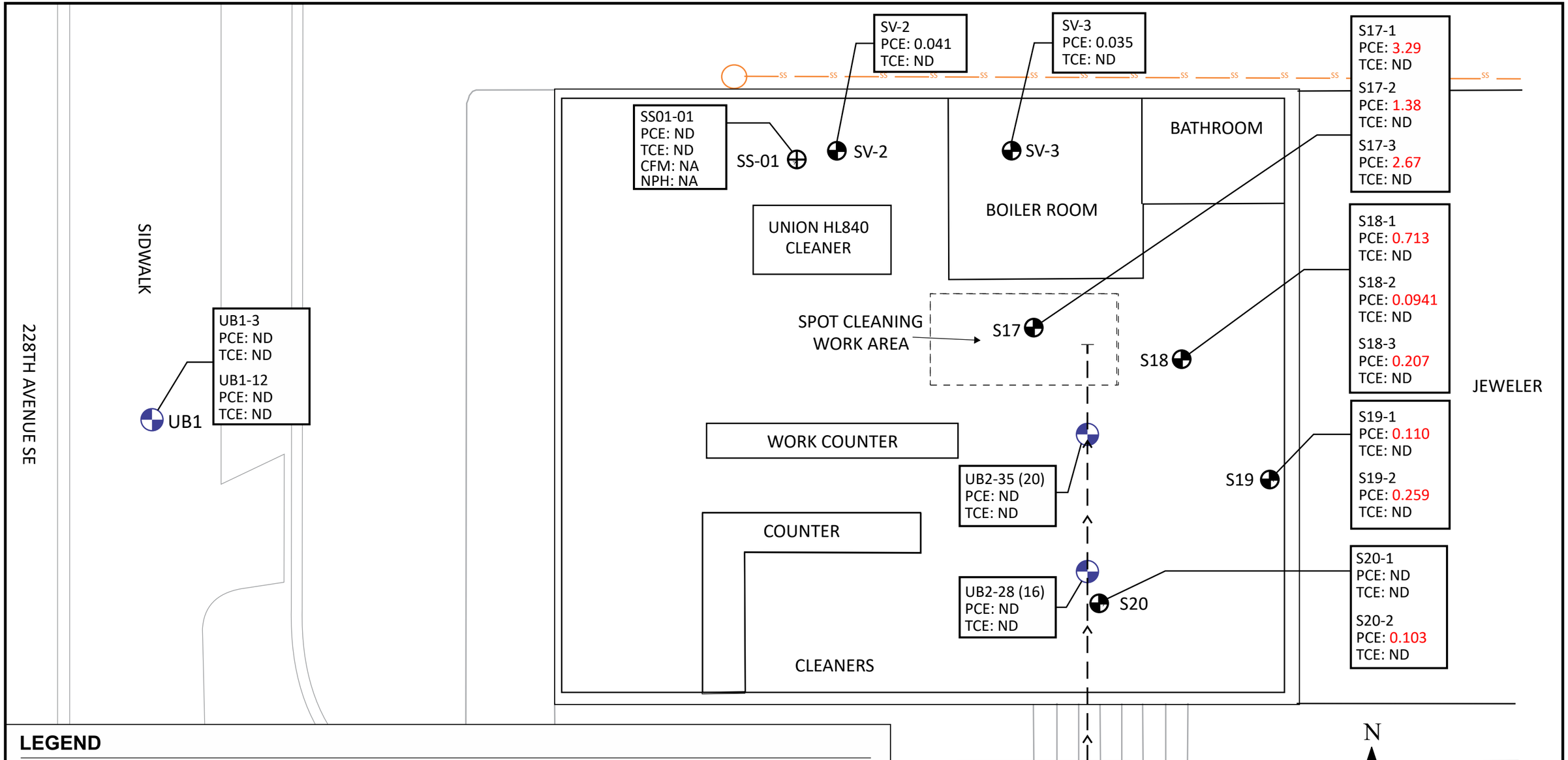
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APPROXIMATE SCALE IN FEET

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Sammamish, Washington

Figure 8
Indoor Air Sample Results



LEGEND

UB1 — SOIL SAMPLE (UEP 2021)

SS-01 — SOIL SAMPLE LOCATION (SOUNDEARTH 2018)

SV-3 — SOIL SAMPLE LOCATION (UEP 2018)

SS — SANITARY SEWER LINE

PCE: TETRACHLOROETHYLENE
TCE: TRICHLOROETHYLENE
ND: NON-DETECT (ALL LABORATORY NON-DETECT REPORTING LIMITS ARE LESS THAN APPLICABLE SCREENING OR CLEANUP LEVELS.)
NA: NOT ANALYZED
RED DENOTES COMPOUND EXCEEDS APPLICABLE CLEANUP LEVELS FOR UNRESTRICTED LAND USE.
SAMPLE CONCENTRATIONS PRESENTED IN MILLIGRAMS PER KILOGRAM (MG/KG)

	PCE	TCE
MTCA METHOD A CLEANUP LEVELS (MG/KG)	0.05	0.03
MTCA METHOD B CLEANUP LEVELS (MG/KG)	480	12

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Sammamish, Washington

Figure 9
Soil Sampling Results

A

A’

CLEANERS

JEWELERS

(Indoor Air)
IA-01-080520
PCE: ND
TCE: 0.41

IA-01-012021
PCE: 7.4
TCE: ND

IA-01-022421
PCE: 7.9
TCE: ND

(Indoor Air)
IA-02-080520
PCE: ND
TCE: ND

IA-02-012021
PCE: ND
TCE ND

IA-02-022421
PCE: 7.5
TCE ND

(Indoor Air)
IA-03-080520
PCE: ND
TCE: ND

IA-03-012021
PCE: ND
TCE: ND

IA-03-022421
PCE: ND
TCE: ND

(Indoor Air)
IA-04-080520
PCE: ND
TCE: ND

IA-04-012021
PCE: ND
TCE: ND

IA-04-022421
PCE: ND
TCE: ND

(Soil Vapor)
SV-13
PCE: 54.9
TCE: ND

(Soil Vapor)
SV-14
PCE: 129
TCE: ND

(Soil Vapor)
SV-21-022421
PCE: ND
TCE: ND

(Soil Vapor)
SS-01
PCE: 7,000
TCE: 18

(Soil Vapor)
SV-07-080520
PCE: 27,000
TCE: 42

SV-17-080520
PCE: 30,000
TCE: 46

SV-17-022421
PCE: 20,000
TCE: 18

(Soil Vapor)
SV-18-080520
PCE: 15,000
TCE: ND

SV-18-022421
PCE: 7,800
TCE: ND

(Soil Vapor)
SV-19-080520
PCE: 480
TCE: ND

SV-19-022421
PCE: 420
TCE: ND

(Soil Vapor)
SV-20-080520
PCE: 33
TCE: ND

SV-20-022421
PCE: 45
TCE: ND

SV-13 5’ N
SV-14 5’ S
SV-21 23.6' S
SS-1 9.8' N
SV-2 10.7' N
SV-18 15.7' S
UB2 26.6’ S
S20 15.9' S
S18 2.7' S
S19 10' S
SV-19 6.2' N
SV-20 0.5' S
UB1 5.6’ S

FOOTING LINE

FILL

FILL

FILL

28’ BGS

35’ BGS

GLACIAL TILL (Qvt)

GLACIAL TILL (Qvt)

GLACIAL OUTWASH (Qva)

(Soil)
UB1-3
PCE: ND
TCE: ND

UB1-12
PCE: ND
TCE: ND

(Soil)
SS-01
PCE: ND
TCE: ND

(Soil)
SV-2
PCE: 0.041
TCE: ND

(Soil)
S17-1
PCE: 3.29
TCE: ND

S17-2
PCE: 1.38
TCE: ND

S17-3
PCE: 0.267
TCE: ND

(Soil)
SV-3
PCE: 0.035
TCE: ND

(Soil)
S20-1
PCE: ND
TCE: ND

S20-2
PCE: 0.103
TCE: ND

(Soil)
S18-1
PCE: 0.713
TCE: ND

S18-2
PCE: 0.09041
TCE: ND

S18-3
PCE: 0.207
TCE: ND

(Soil)
S19-1
PCE: 0.110
TCE: ND

S19-2
PCE: 0.259
TCE: ND

(Soil)
UB2-28(16)
PCE: ND
TCE: ND

UB2-35(20)
PCE: ND
TCE: ND

ELEVATION IN FEET

436
432
428
424
420
416
412
408
320
316
312

0 10 20

APPROXIMATE SCALE IN FEET

LEGEND

SV-19 SAMPLE LOCATION

6.2' N OFFSET DISTANCE IN FEET AND DIRECTION

● SOIL SAMPLE (S18-1)

SUB-SLAB VAPOR SAMPLE (SV-20)

GORE-SORBER SUB-SLAB VAPOR SAMPLE (SV-13)

■ INDOOR AIR SAMPLE (IA-03)

PCE: TETRACHLOROETHYLENE
TCE: TRICHLOROETHYLENE
ND: NON-DETECT (ALL LABORATORY NON-DETECT REPORTING LIMITS ARE LESS THAN APPLICABLE SCREENING OR CLEANUP LEVELS.)
RED DENOTES COMPOUND EXCEEDS APPLICABLE CLEANUP LEVELS FOR UNRESTRICTED LAND USE.
INDOOR AIR AND SOIL VAPOR SAMPLE CONCENTRATIONS PRESENTED IN MICROGRAMS PER CUBIC METER (UG/M^3).
SOIL SAMPLE CONCENTRATIONS PRESENTED IN MICROGRAMS PER KILOGRAM (MG/KG).

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Pine Lake Cleaners
2830 228th Avenue Southeast
Sammamish, Washington

Figure 10
Conceptual Site Model
Cross Section A-A’

TABLES

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Table 1
Soil Vapor Sample Analytical Results for Chlorinated VOCs
Pine Lake Cleaners

Sample Location	Sample ID	Sampled By	Date Sampled	Analytical Results - micrograms per cubic meter (µg/m^3)									
				PCE	TCE	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1-DCA	1,1,1-TCA	Vinyl Chloride	Chloroform	Naphthalene
SS-01	SS01-20180216[2]	SoundEarth	10/5/2018	**7,000**	**18**	<9.9	<9.9	<9.9	<10	<14	<6.4	--	--
SV - 1	SV - 1[1]	UEP	10/12/2018	**6,020**[ve]	<13.7	--	<125	<382	<132	<40.3	--	<67.5	<3.12
SV - 2	SV - 2[1]	UEP	10/12/2018	**8,140**[ve]	<13.8	--	<125	<383	<132	<40.4	--	<67.7	<3.14
SV - 3	SV - 3[1]	UEP	10/12/2018	**9,670**[ve]	<13.8	--	<125	<383	<132	<40.5	--	<67.7	<3.14
SV - 4	SV - 4[1]	UEP	10/12/2018	**11,700**[ve]	<13.8	--	<125	<383	<132	<40.6	--	**136**	<3.15
SV - 5	SV - 5[1]	UEP	10/12/2018	**7,010**[ve]	<13.7	--	<125	<382	<132	<40.2	--	<67.4	<3.10
SV - 6	SV - 6[1]	UEP	10/12/2018	**13,700**[ve]	**70.0**	--	<125	<383	<132	<40.6	--	<67.9	<3.16
SV - 7	SV - 7[1]	UEP	10/12/2018	**20,200**[ve]	**192**	--	<125	<382	<132	<40.3	--	<67.5	<3.12
	SG-SV-07-0-1-080520[2]	PTC	8/5/2020	**27,000**[ve]	**42**	<18.0	<18.0	<18.0	<18.0	<25.0	<12.0	**14**	<12.0
SV - 8	SV - 8[1]	UEP	10/12/2018	**17,900**[ve]	<13.8	--	<125	<383	<132	<40.6	--	<67.8	<3.15
SV - 9	SV - 9[1]	UEP	10/12/2018	**5,670**[ve]	<13.7	--	<125	<382	<132	<40.2	--	<67.5	<3.11
SV - 10	SV - 10[1]	UEP	10/12/2018	**6,310**[ve]	<13.8	--	<125	<383	<132	<40.6	--	<67.9	<3.16
SV - 11	SV - 11[1]	UEP	10/12/2018	**12,700**[ve]	<13.7	--	<125	<382	<132	<40.3	--	<67.5	**20.4**
SV - 12	SV - 12[1]	UEP	10/12/2018	**15,300**[ve]	<13.8	--	<125	<383	<132	<40.6	--	<67.8	<3.16
SV - 13	SV - 13[1]	UEP	10/12/2018	**54.9**	<13.8	--	<125	<383	<132	<40.6	--	<67.9	<3.17
SV - 14	SV - 14[1]	UEP	10/12/2018	**129**	<13.8	--	<125	<383	<132	<40.7	--	<67.9	<3.17
SV - 15	SV - 15[1]	UEP	10/12/2018	**300**	<13.9	--	<125	<383	<132	<40.7	--	<68.0	<3.17
SV - 16	SV - 16[1]	UEP	10/12/2018	**108**	<13.9	--	<126	<384	<132	<40.7	--	<68.0	<3.18
SV-17	SG-SV-17-0-1-080520[2]	PTC	8/5/2020	**30,000**[ve]	**46**	<17.0	<17.0	<17.0	<17.0	<23.0	<11.0	**15**	<11.0
	SG-SV-17-0-1-022421[2]	PTC	2/24/2021	**20,000**[ve]	**18**	<6.7	<6.7	<6.7	<6.5	<8.7	<4.3	**6.1**	<0.98
SV-18	SG-SV-18-0-1-080520[2]	PTC	8/5/2020	**15,000**[ve]	<13	<19.0	<19.0	<19.0	<19.0	<26.0	<12.0	<2.3	<12.0
	SG-SV-18-0-1-022421[2]	PTC	2/24/2021	**7,800**[ve]	<0.88	<3.3	<3.3	<3.3	<3.3	<4.5	<0.21	<0.40	<2.1
SV-19 (jewelers)	SG-SV-19-01-080520[2]	PTC	8/5/2020	**480**	<1.5	<2.1	<2.1	<2.1	<2.2	<2.9	<1.4	**0.32**	<1.4
	SG-SV-19-0-1-022421[2]	PTC	2/24/2021	**420**	<0.60	<2.2	<2.2	<2.2	<2.3	<3.1	<1.40	<0.27	<1.5
SV-20	SG-SV-20-0-1-080520[2]	PTC	8/5/2020	**33**	<0.94	<1.4	<1.4	<1.4	<1.4	<1.9	<0.89	**0.46**	<0.92
	SG-SV-20-0-1-022421[2]	PTC	2/24/2021	**45**	<0.64	<2.4	<2.4	<2.4	<2.4	<3.3	<1.50	<0.29	<1.6
SV-21	SG-SV-21-0-1-022421[2]	PTC	2/24/2021	<37	<0.59	<2.2	<2.2	<2.2	<2.3	<3.1	<1.40	<0.27	<1.40
MTCA Method B[3] Screening Levels for Sub Slab Soil Gas				**320**[4]	**11**[4]	**3,000**[4]	**NE**	**NE**	**52**[4]	**7,600**[5]	**9.5**[4]	**3.6**[4]	**2.5**[4]
MTCA Method C[6] Noncancer Screening Levels for Sub Slab Soil Gas				**1,300**	**67.0**								

NOTES:

Bold denotes concetration detected greater than the laboratory reporting limit.
Red denotes concentration exceeds MTCA Method B Screening Level.
(1) Sample analyses conducted by Amplified Geochemical, of Newark DE
(2) Sample analyses conducted by Friedman & Bruya, of Seattle, WA by Method TO-15.
(3) Unrestricted Land Use
(4) MTCA Method B Cancer Screening Levels for Sub Slab Soil Gas, Ecology CLARC Tables, revised August 2020.
(5) MTCA Method B NonCancer Cleanup Levels for Sub Slab Soil Gas, Ecology CLARC Tables, revised August 2020.
(6) Commercial/Industrial Land Use

-- = not analyzed/not applicable
NE = not established
bgs = below grade surface
< = not detected at a concentration exceeding the laboratory reporting limit (shown)
ve = the analyte response exceeded the valid instrument calibration range. The value reoprted is an estimate.

PCE = Perchloroethylene
TCE = Trichloroethylene
DCE = Dichloroethylene
VC = Vinyl Chloride
VOCs = Volatile Organic Compounds
UEP = Urban Environmental Partners

EPA = U.S. Environmental Protection Agency
MTCA = Washington Model Toxics Control Act
WAC = Washington Administrative Code

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Table 2
Indoor Air Sample Analytical Results for Chlorinated VOCs
Pine Lake Cleaners

Sample Location	Sample ID	Sampled By	Date Sampled	Analytical Results[1] - micrograms per cubic meter (µg/m3)								
				PCE	TCE	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1-DCA	1,1,1-TCA	Vinyl Chloride	Chloroform
AA-01	AA-AA-01-080520	PTC	8/5/2020	**7.3**	<0.27	<0.4	<0.4	<0.4	<0.4	<0.55	<0.26	**0.10**
	AA-AA-01-012021	PTC	1/12/2021	<6.8	<0.11	<0.4	<0.4	<0.4	<0.4	<0.55	<0.26	**0.10**
	AA-AA-01-022421	PTC	2/24/2021	<6.8	<0.11	<0.4	<0.4	<0.4	<0.4	<0.55	<0.26	**0.078**
IA-01	IA-IA-01-080520	PTC	8/5/2020	<6.8	**0.41**	<0.4	<0.4	<0.4	<0.4	<0.55	<0.26	**0.16**
	IA-IA-01-012021	PTC	1/12/2021	**7.4**	<0.11	<0.4	<0.4	<0.4	<0.4	<0.55	<0.26	**0.13**
	IA-IA-01-022421	PTC	2/24/2021	**7.9**	<0.11	<0.4	<0.4	<0.4	<0.4	<0.55	<0.26	**0.14**
IA-02	IA-IA-02-080520	PTC	8/5/2020	<6.8	<0.27	<0.4	<0.4	<0.4	<0.4	<0.55	<0.26	**0.15**
	IA-IA-02-012021	PTC	1/12/2021	<6.8	<0.11	<0.4	<0.4	<0.4	<0.4	<0.55	<0.26	**0.14**
	IA-IA-02-022421	PTC	2/24/2021	**7.5**	<0.11	<0.4	<0.4	<0.4	<0.4	<0.55	<0.26	**0.15**
IA-03	IA-IA-03-080520	PTC	8/5/2020	<6.8	<0.27	<0.4	<0.4	<0.4	<0.4	<0.55	<0.26	**0.50**
	IA-IA-03-012021	PTC	1/12/2021	<6.8	<0.11	<0.4	<0.4	<0.4	<0.4	<0.55	<0.26	**0.32**
	IA-IA-03-022421	PTC	2/24/2021	<6.8	<0.11	<0.4	<0.4	<0.4	<0.4	<0.55	<0.26	**0.28**
IA-04	IA-IA-04-080520	PTC	8/5/2020	<6.8	<0.27	<0.4	<0.4	<0.4	<0.4	<0.55	<0.26	**0.47**
	IA-IA-04-012021	PTC	1/12/2021	<6.8	<0.11	<0.4	<0.4	<0.4	<0.4	<0.55	<0.26	**0.26**
	IA-IA-04-022421	PTC	2/24/2021	<6.8	<0.11	<0.4	<0.4	<0.4	<0.4	<0.55	<0.26	**0.27**
MTCA Method B[2] Cleanup Levels for Indoor Air				**9.6[3]**	**0.33[3]**	**91[4]**	**NE**	**NE**	**1.6[3]**	**2,300[4]**	**0.28[3]**	**0.11[3]**
MTCA Method C[5] Noncancer Cleanup Levels for Indoor Air				**40**	**2.0**							

NOTES:

Red denotes concentration exceeds MTCA cleanup level for soil.
Bold denotes concetration detected greater than the laboratory reporting limit.
Sample analyses conducted by Friedman & Bruya, of Seattle, WA.
(1) Samples analyzed by EPA Method TO-15
(2) Unrestricted Land Use
(3) MTCA Method B Cancer Cleanup Levels for Indoor Air, Ecology CLARC Tables, revised August 2020
(4) MTCA Method B NonCancer Cleanup Levels for Indoor Air, Ecology CLARC Tables, revised August 2020
(5) Commercial/Industrial Use
fb = the analyte was detected in the method blank.

-- = not analyzed/not applicable
NE = not established
bgs = below grade surface
< = not detected at a concentration exceeding the laboratory reporting limit (shown)
PCE = Perchloroethylene
TCE = Trichloroethylene
DCE = Dichloroethylene

VC = Vinyl Chloride
VOCs = Volatile Organic Compounds
UEP = Urban Environmental Partners
WAC = Washington Administrative Code
EPA = U.S. Environmental Protection Agency
MTCA = Washington Model Toxics Control Act

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Table 3
Soil Sample Analytical Results for Chlorinated VOCs
Pine Lake Cleaners

Boring ID	Sample ID	Sampled By	Date Sampled	Analytical Results[1] - milligrams per kilogram (mg/kg)								
				PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	1,1-DCA	1,1,1-TCA	Vinyl Chloride	Chloroform	Naphthalene
SS-01	SS01-01[2]	SoundEarth	10/5/2018	<0.025	<0.020	<0.050	<0.050	<0.050	<0.050	<0.050	--	--
SV-2	SV-2[3]	UEP	10/15/2018	**0.041**	<0.0224	<0.0224	<0.0224	<0.0224	<0.0224	<0.0224	--	--
SV-3	SV-3[3]	UEP	10/15/2018	**0.035**	<0.020	<0.050	<0.050	<0.050	<0.050	<0.050	--	--
S17	S17-1[3]	UEP	11/8/2018	**3.29**	<0.0224	<0.0224	<0.0224	<0.0224	<0.0224	<0.0224	<0.0448	<0.0896
	S17-2[3]	UEP	11/8/2018	**1.38**	<0.0347	<0.0347	<0.0347	<0.0347	<0.0347	<0.0347	<0.0695	<0.139
	S17-3[3]	UEP	11/8/2018	**0.267**	<0.0263	<0.0263	<0.0263	<0.0263	<0.0263	<0.0263	<0.0525	<0.105
S18	S18-1[3]	UEP	11/8/2018	**0.713**	<0.0547	<0.0547	<0.0547	<0.0547	<0.0547	<0.0547	<0.109	<0.219
	S18-2[3]	UEP	11/8/2018	**0.0941**	<0.0441	<0.0441	<0.0441	<0.0441	<0.0441	<0.0441	<0.0882	<0.176
	S18-3[3]	UEP	11/8/2018	**0.207**	<0.0504	<0.0504	<0.0504	<0.0504	<0.0504	<0.0504	<0.101	<0.202
S19	S19-1[3]	UEP	11/8/2018	**0.110**	<0.0221	<0.0221	<0.0221	<0.0221	<0.0221	<0.0221	<0.0442	<0.0883
	S19-2[3]	UEP	11/8/2018	**0.259**	<0.0312	<0.0312	<0.0312	<0.0312	<0.0312	<0.0312	<0.0623	<0.125
S20	S20-1[3]	UEP	11/8/2018	<0.0658	<0.0658	<0.0658	<0.0658	<0.0658	<0.0658	<0.0658	<0.132	<0.263
	S20-2[3]	UEP	11/8/2018	**0.103**	<0.0431	<0.0431	<0.0431	<0.0431	<0.0431	<0.0431	<0.0862	<0.172
UB1	UB1-3	UEP	10/14/2021	<0.025	<0.020	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
	UB1-12	UEP	10/14/2021	<0.025	<0.020	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
UB2	UB2-28(16)	UEP	10/14/2021	<0.025	<0.020	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
	UB2-35(20)	UEP	10/14/2021	<0.025	<0.020	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
MTCA[4] Cleanup Level for Soil				**0.05**	**0.03**	**NE**	**NE**	**NE**	**2.00**	**0.67**	**3.20**	**5.0**

NOTES:

Red denotes concentration exceeds MTCA cleanup level for soil.
Bold denotes concetration detected greater than the laboratory reporting limit.
(1)Analyzed by EPA Method 8260C/D
(2) Sample analyses conducted by Friedman & Bruya, of Seattle, WA.
(3)Sample analyses conducted by Apex Labs of Tigard, Oregon.
(4)MTCA Method A or B Cleanup Levels for Soil Unrestricted, Ecology CLARC, revised Aug 2020.

-- = not analyzed/not applicable
bgs = below grade surface
ND = not detected at a concentration exceeding the laboratory reporting limit
PCE = Perchloroethylene
TCE = Trichloroethylene
DCE = Dichloroethylene

VC = Vinyl Chloride
VOCs = Volatile Organic Compounds
UEP = Urban Environmental Partners
WAC = Washington Administrative Code
EPA = U.S. Environmental Protection Agency

APPENDIX A: Regional Well and Boring Log Information

Groundwater Well Data - Details

Enter a Well ID: Go *Example: GrpA_01001_01*

The search returns detailed info about the well, including all the water level and water quality sampling data for the searched well.

Download data: Download to Excel

View Well location in:-- Groundwater Well Viewer

Well Detail

Well ID	**E_473501122022501**
Location Name	PETERSON
Well Type	Well
Well Depth (ft)	101
Surface Elevation (ft)	403.53
X Coord (WAN-SPF)	1343454.875
Y Coord (WAN-SPF)	215307.1875
Has Water Level Data?	Yes
Has Water Quality Data?	No
Local Number	24N/06E-09H02
Ecology Well Tag	Unknown
Parcel Number	
GWMA Code	Issaquah Creek Valley
Basin	East Lake Sammamish
CARA Area	None
City	Sammamish

Water Level Sampling Data

Count of Results: 3

Well ID	Measurement Date	Measurement Time	Water Level Depth (ft)	Well Depth (ft)	Measure Method
E_473501122022501	07/11/1990	23:59	87.54	101	Steel tape
E_473501122022501	10/16/1979	23:59	88.58	101	Steel tape
E_473501122022501	10/01/1979	23:59	88.39	101	Steel tape

Water Quality Sampling Data

No water quality sampling data exists for the searched well.

Updated: November 6, 2018

Groundwater Well Data - Details

Enter a Well ID: Go *Example: GrpA_01001_01*

The search returns detailed info about the well, including all the water level and water quality sampling data for the searched well.

Download data: Download to Excel

View Well location in:-- Groundwater Well Viewer

Well Detail

Well ID	**E_473451122020501**
Location Name	LUTHERAN BIBLE INSTITUTE # 1
Well Type	Well
Well Depth (ft)	130
Surface Elevation (ft)	430
X Coord (WAN-SPF)	1343915.5
Y Coord (WAN-SPF)	213983.03125
Has Water Level Data?	Yes
Has Water Quality Data?	No
Local Number	24N/06E-09J01
Ecology Well Tag	Unknown
Parcel Number	
GWMA Code	Issaquah Creek Valley
Basin	East Lake Sammamish
CARA Area	None
City	Sammamish

Water Level Sampling Data

Count of Results: 2

Well ID	Measurement Date	Measurement Time	Water Level Depth (ft)	Well Depth (ft)	Measure Method
E_473451122020501	07/12/1990	23:59	115.72	130	Steel tape
E_473451122020501	07/07/1958	23:59	115.3	130	Reported

Water Quality Sampling Data

No water quality sampling data exists for the searched well.

Updated: November 6, 2018

Groundwater Well Data - Details

Enter a Well ID: Go *Example: GrpA_01001_01*

The search returns detailed info about the well, including all the water level and water quality sampling data for the searched well.

Download data: Download to Excel

View Well location in:-- Groundwater Well Viewer

Well Detail

Well ID	**E_473449122020701**
Location Name	LUTHERAN BIBLE INSTITUTE # 2
Well Type	Well
Well Depth (ft)	133
Surface Elevation (ft)	430
X Coord (WAN-SPF)	1343777.25
Y Coord (WAN-SPF)	213985.1875
Has Water Level Data?	Yes
Has Water Quality Data?	No
Local Number	24N/06E-09J02
Ecology Well Tag	Unknown
Parcel Number	
GWMA Code	Issaquah Creek Valley
Basin	East Lake Sammamish
CARA Area	None
City	Sammamish

Water Level Sampling Data

Count of Results: 2

Well ID	Measurement Date	Measurement Time	Water Level Depth (ft)	Well Depth (ft)	Measure Method
E_473449122020701	07/12/1990	23:59	119.2	133	Steel tape
E_473449122020701	09/15/1958	23:59	119.05	133	Reported

Water Quality Sampling Data

No water quality sampling data exists for the searched well.

Updated: November 6, 2018

Groundwater Well Data - Details

Enter a Well ID: Go *Example: GrpA_01001_01*

The search returns detailed info about the well, including all the water level and water quality sampling data for the searched well.

Download data: Download to Excel

View Well location in:-- Groundwater Well Viewer

Well Detail

Well ID	**E_473511122020801**
Location Name	MINDER, JOSEPH F. SR.
Well Type	Well
Well Depth (ft)	110
Surface Elevation (ft)	402.26999
X Coord (WAN-SPF)	1343743
Y Coord (WAN-SPF)	216214.703125
Has Water Level Data?	Yes
Has Water Quality Data?	No
Local Number	24N/06E-09A07
Ecology Well Tag	Unknown
Parcel Number	
GWMA Code	Issaquah Creek Valley
Basin	East Lake Sammamish
CARA Area	None
City	Sammamish

Water Level Sampling Data

Count of Results: 3

Well ID	Measurement Date	Measurement Time	Water Level Depth (ft)	Well Depth (ft)	Measure Method
E_473511122020801	07/11/1990	23:59	85.07	110	Steel tape
E_473511122020801	10/17/1979	23:59	86.13	110	Steel tape
E_473511122020801	09/19/1978	23:59	85.63	110	Steel tape

Water Quality Sampling Data

No water quality sampling data exists for the searched well.

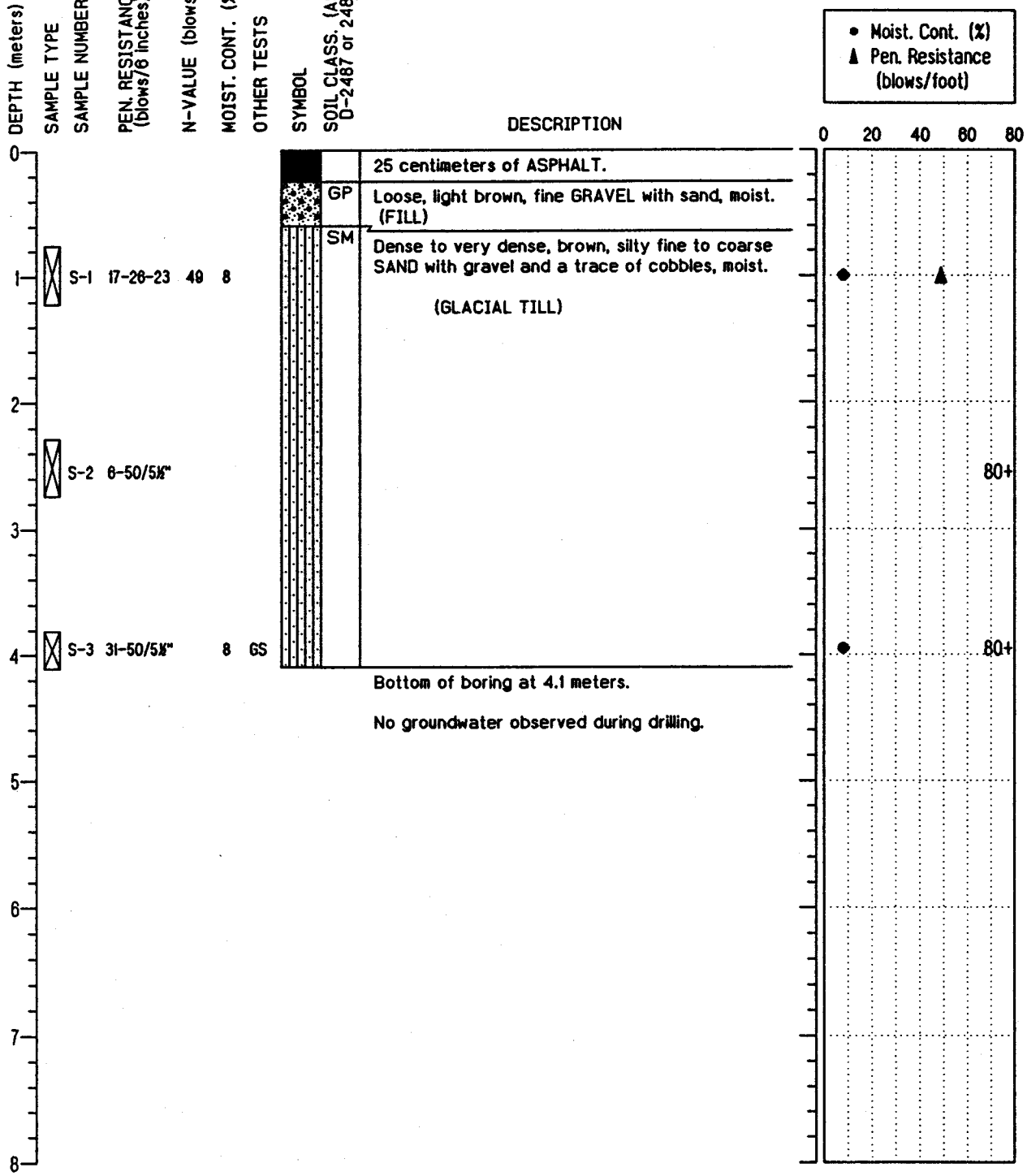
Updated: November 6, 2018

HONG WEST & ASSOCIATES, INC.

BORING LOG

DRILLING COMPANY: Gregory Drilling, Inc.
DRILLING METHOD: CME CFHS Auger, 11 cm ID.
SAMPLING METHOD: SPT with hammer rated at 80% efficiency

TOTAL DEPTH: 4.1 Meters
SURFACE ELEVATION: ±125 Meters
MEASURING POINT EL.: Meters



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated, and therefore, may not necessarily be indicative of other times and/or locations.

PROJECT: 228th AVE. SE./NE.

BORING: BH-2

LOCATION: STA 4+040; 18 meters right
DATE COMPLETED: 6-5-95
LOGGED BY: R. F. Faubion

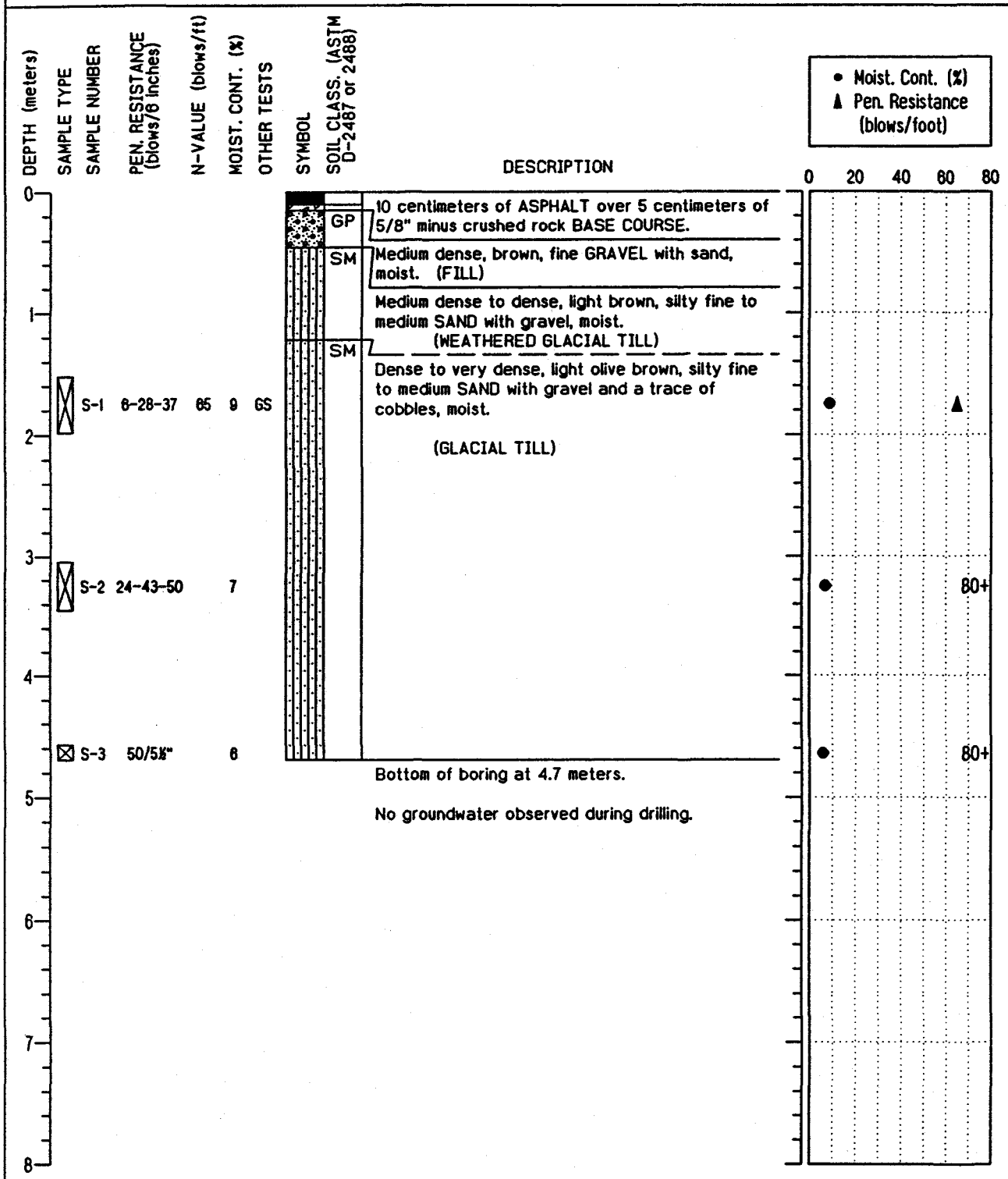
PROJECT NUMBER: 92047-200

PAGE: 1 OF 1

Figure A-3

HONG WEST & ASSOCIATES, INC. BORING LOG

DRILLING COMPANY: Gregory Drilling, Inc. TOTAL DEPTH: 4.7 Meters
DRILLING METHOD: CME 75, CFHS Auger, 11 cm ID. SURFACE ELEVATION: ±131 Meters
SAMPLING METHOD: SPT with hammer rated at 80% efficiency MEASURING POINT EL.: Meters



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated, and therefore, may not necessarily be indicative of other times and/or locations.

PROJECT: 228th AVE. SE./NE.

BORING: BH-11

LOCATION: STA 3+522; 2 meters left
DATE COMPLETED: 3-7-96
LOGGED BY: R. F. Faubion

PROJECT NUMBER: 92047-200

PAGE: 1 OF 1

Figure A-12

EXPLORATION BORING LOG

EB-3
Page 1 of 3

GRAPH	USCS	SEDIMENT DESCRIPTION	DEPTH	SAMPLE	GROUND WATER	STANDARD PENERATION RESISTANCE Blows/Foot (10 / 20 / 30 / 40)
		Damp, brown-gray, medium sand, some gravel.	5			25 ▲
		Damp, brown-gray, gravelly sand.	10			29 ▲
		Damp to moist, brown-gray, fine sand, yellow-brown mottling, trace gravel.	15			19 ▲
		Moist, brown-gray, weakly mottled, gravelly sand.	20			56 ▲
		Moist to wet, brown-gray, gravelly sand with silty zones.	25			57 ▲
		Moist to wet, gray, gravelly sand with some silt.	30			50/5" ▲
			35			

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretation, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

W92201C	10/92	

Quiet Water
King County, Washington

ASSOCIATED EARTH SCIENCES, INC

EXPLORATION BORING LOG

GRAPH	USCS	SEDIMENT DESCRIPTION	DEPTH	SAMPLE	GROUND WATER	STANDARD PENERATION RESISTANCE Blows/Foot (10 / 20 / 30 / 40)
		Moist, brown-gray, fine to medium sand, trace gravel.				24
		Moist to wet, brown-gray, mottled, gravelly sand, some silty zones.	40			50/3"
		Moist to wet, brown-gray, mottled, silty, gravelly sand. (Cobbly drilling)	45			60
		Wet, same. (Cobbly drilling)	50			50/5"
		Wet, gray-brown, mottled, silty, sandy gravel. (Cobbly drilling)	55			50/5"
		Moist, brown-gray, mottled, gravelly sand. (Cobbly drilling)	60			50/4"
		Moist to wet, brown-gray, gravelly sand, some silt.	65			72
			70			

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretation, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

W92201C | 10/92

Quiet Water
King County, Washington

ASSOCIATED EARTH SCIENCES, INC

EXPLORATION BORING LOG

EB-3
Page 3 of 3

GRAPH	USCS	SEDIMENT DESCRIPTION	DEPTH	SAMPLE	GROUND WATER	STANDARD PENERATION RESISTANCE Blows/Foot 10 20 30 40
		Quartz cobble.				50/2"
		Saturated, dark brown-gray, gravelly sand.	75			50
		No sample, cobbly drilling.	80			
		No sample, cobbly drilling.				
		BOH @ 85' Piezometer installed. Screened 75'-85', 20-slot.	85			

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretation, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Quiet Water King County, Washington	W92201C	10/92

ASSOCIATED EARTH SCIENCES, INC

Project: Shell Western Washington Divestment
Project Location: 121711 - 2936 228th Ave. SE, Sammamish, WA
Project Number: 46194210.00001

Log of Boring B2

Sheet 1 of 1

Date(s) Drilled	6/19/2008	Logged By	Andrew Shriver	Checked By	Brian Pletcher
Drilling Method	HSA	Drilling Contractor	Cascade Drilling	Total Depth of Borehole (feet bgs)	41.0
Drill Rig Type	CME 75	Borehole Diameter (inches)	8	Approx. Surface Elevation (feet msl)	N/A
Approx. Depth Groundwater Encountered (feet bgs)	Not Encountered	Sampler Type	Dames & Moore	Borehole Backfill	Bentonite Chips
Comments					

Feet MSL / Depth, feet	SAMPLES Type	Number	Blows/6 in.	Inches Recovered	Graphic Log	MATERIAL DESCRIPTION	PID Headspace (ppm)	Sample Time	REMARKS
0						Concrete.		0850	
						Air knifed to 5.0 feet bgs.			
5		121711-B2-5	20	18		**SILTY SAND WITH GRAVEL [SM]**, brown, non-plastic, moist/wet, loose, fine to medium sand, less than 15% gravel, no odor, no stain.	1.3	0900	
						POORLY GRADED SAND WITH SILT AND GRAVEL [SP-SM], brown, non-platic, moist, very dense, no odor, no stain.			
10		121711-B2-10	60/6"	6			2.2	0905	
15		121711-B2-15	50/4"	6			2.7	0910	
20		121711-B2-20	50/4"	6			1.3	0915	
25		121711-B2-25	50/4"	3			0.2	0920	
30		121711-B2-30	50/5"	6			1.8	0925	
35		121711-B2-35	55/6"	6			1.8	0930	
40		121711-B2-40	50/5"	6			4.9	0935	
						Boring terminated at 40.5 feet bgs and backfilled with bentonite chips on 6/19/2008.			
45									

Report: PORT_ENV_SHELL_02; File: SHELL_121711_SAMMAMISH.GPJ; 8/12/2008 B2

URS

LEGEND

B1 — SOIL BORING DESIGNATION
GROUND SURFACE

BOTTOM OF BORING

APPROXIMATE SOIL SAMPLE LOCATION
HYDROCARBON CONCENTRATIONS IN SOIL (mg/kg)
TPHg
TPHd
TPHo
BENZENE

CO - CONCRETE

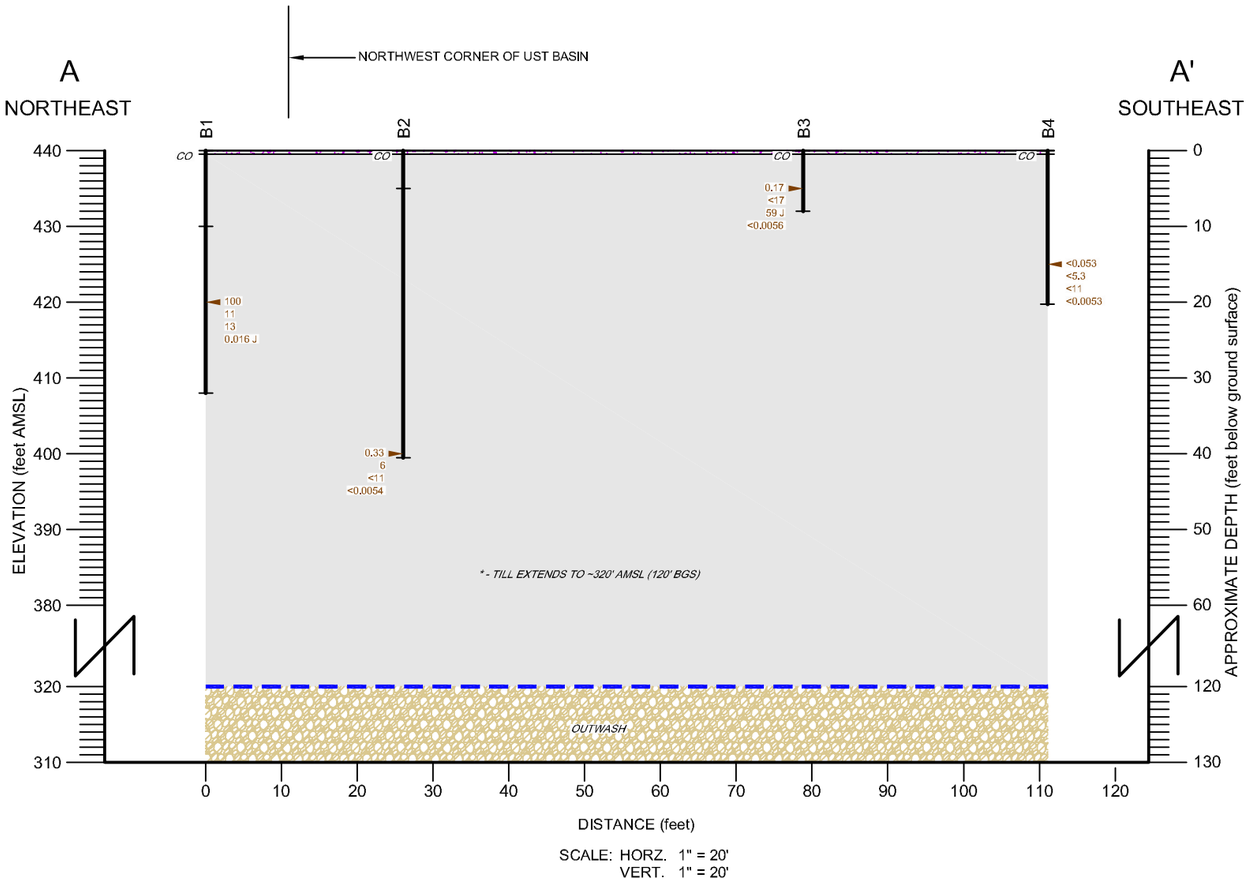
TILL - VERY DENSE SAND WITH SILT AND GRAVEL

OUTWASH - COURSE GRAVEL AND SAND

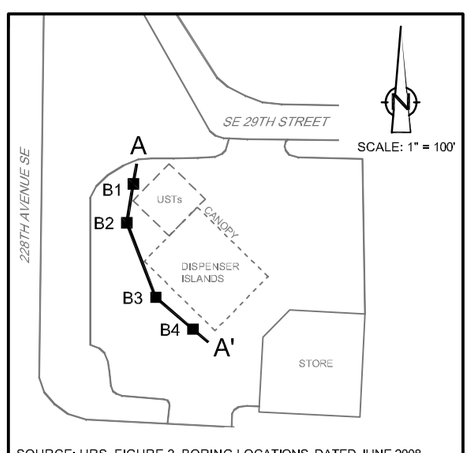
-- NOT ANALYZED

J ESTIMATED CONCENTRATION. ANALYTE DETECTED AT CONCENTRATION LESS THAN THE REPORTING LIMIT, AND GREATER THAN OR EQUAL TO THE METHOD DETECTION LIMIT

GROUNDWATER ELEVATION - ESTIMATED FROM REGIONAL GROUNDWATER ELEVATION DATA



SCALE: HORZ. 1" = 20'
VERT. 1" = 20'



SOURCE: URS, FIGURE 2, BORING LOCATIONS, DATED JUNE 2008.

figure 5

GEOLOGIC CROSS SECTION A-A'
SHELL-BRANDED WHOLESALE FACILITY
2936 228TH AVENUE SE
Sammamish, Washington

(6456)

68/68

LEGEND

- 35 ● Approximate location of water well (with stratigraphic log)
- 38 ○ Approximate location of water well (no stratigraphic log)
- ----- Approximate 1-mile radius from the site
- A—A' Cross section location

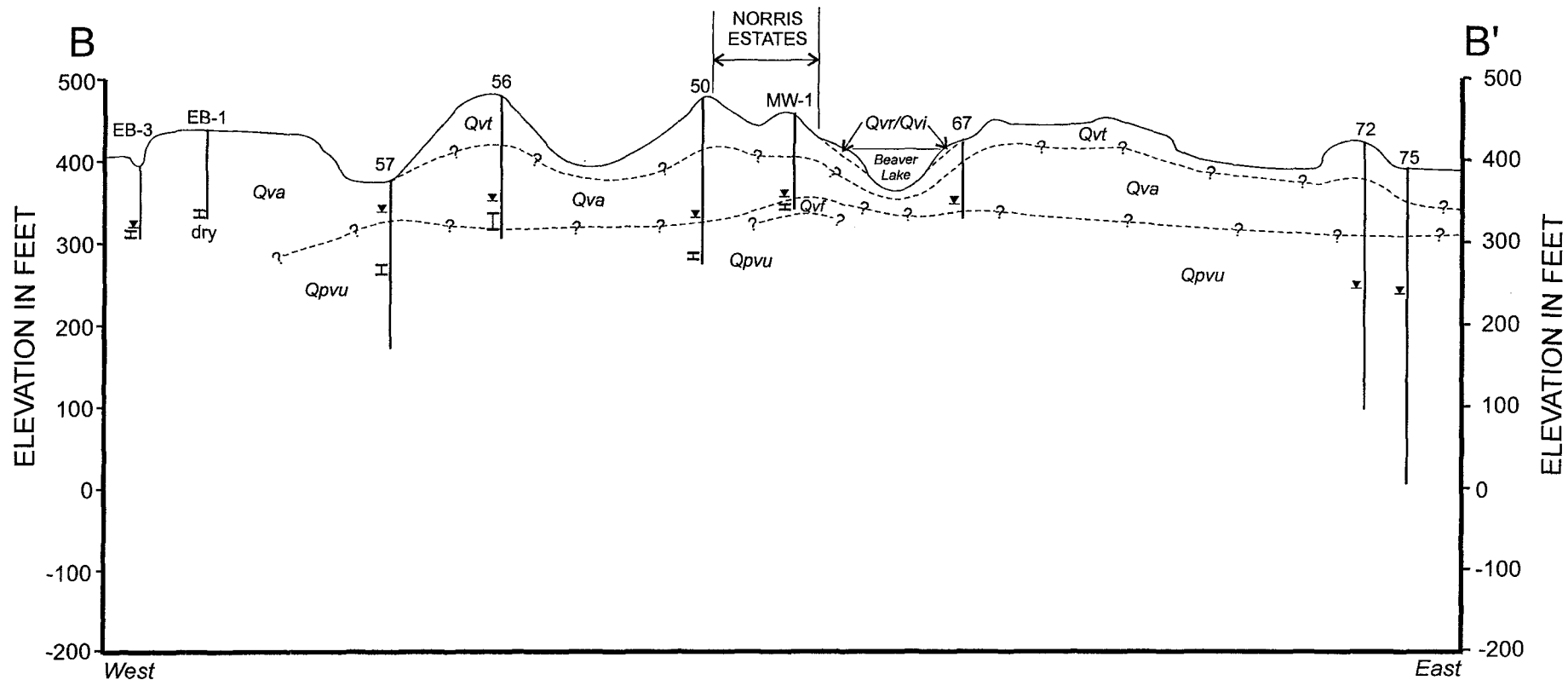
122°03'34" W
47°34'14" N
WGS84 121°58'10" W
47°33'03" N
TN 19° /MN
0 1/2 MILE
0 1000 FEET 0 500 m 1000 m
Printed from TOPO! ©1998 Wildflower Productions (www.topo.com)
0 2000
SCALE IN FEET

projects\95225 norris estates\95225-wellsite.cdr

Associated Earth Sciences, Inc.

WATER WELL AND CROSS-SECTION LOCATION MAP
NORRIS ESTATES
SAMMAMISH, WASHINGTON

FIGURE 4
DATE 01/01
PROJ. NO. KG95225A



LEGEND

Qvr	Vashon recessional outwash
Qvi	Vashon ice contact deposits
Qvt	Vashon till
Qva	Vashon advance outwash
Qvf	Vashon fine-grained deposits
Qpvu	Pre-Vashon sediments, undifferentiated
▼	Water level
I	Screened interval

HORIZONTAL SCALE IN FEET
0 2000
0 200
VERTICAL SCALE IN FEET

95225 norris estates\95225-sectionb.cdr

Associated Earth Sciences, Inc.

GEOLOGIC CROSS SECTION B - B'
NORRIS ESTATES
SAMMAMISH, WASHINGTON

FIGURE 6
DATE 12/00
PROJ. NO. KG95225A

Urban Environmental Partners llc

Project: PINE LAKE CLEANERS
Project Number:
Logged by: KMC
Date Started: 10.14.21
Surface Conditions: CONC.
Well Location N/S:
Well Location E/W:
Reviewed by:
Date Completed: 10-14-21

BORING LOG | UB1

Site Address:

Water Depth At Time of Drilling: feet bgs
Water Depth After Completion: feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppm)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
			80	1.5	UB1-3	GW		BROWN WELL GRADED GRAVEL AND SAND MOIST NO ODOR NO STAINING NO INDICATION OF FREE WATER	
5			80	1.7				INCREASED SILT CONTENT NO INDICATION OF FREE WATER	
10			80	1.6 1.5	UB1-12 0940	SM SW		NO ODOR NO STAINING @-INCHES MOIST TO WET NO RECOVERABLE WATER BROWN SILTY SAND MOIST FINE BROWN MED SAND W/ GRAVEL MOIST	
15									

Drilling Co./Driller: HORIZON
Drilling Equipment: SONIC
Sampler Type: LINED CORE
Hammer Type/Weight: lbs
Total Boring Depth: feet bgs
Total Well Depth: N/A feet bgs
State Well ID No.: NA

Well/Auger Diameter: 8- inches
Well Screened Interval: feet bgs
Screen Slot Size: inches
Filter Pack Used: NA
Surface Seal:
Annular Seal:
Monument Type:

Notes/Comments:

Urban Environmental Partners llc

Project: PINE LAKE CLEANERS
Project Number:
Logged by: KMC
Date Started: 10.14.21
Surface Conditions: CONCRETE
Well Location N/S:
Well Location E/W:
Reviewed by:
Date Completed: 10.14.21

BORING LOG | UB1

Site Address:

Water Depth At Time of Drilling: feet bgs
Water Depth After Completion: feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppm)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
15			80	1.7		SW		1.5 LENS FINER SAND MOIST TO WET NO OBSERVED INDICATION OF SATURATION/ FREE WATER	
20			90	1.9		GW		BROWN GRAVEL AND SAND MOIST	
						SW		BROWN FINE TO COARSE SAND & GRAVEL MOIST	
25			80	1.9		SW		BRN MED SAND & SOME GRAVEL	
								1' LENS OF GRAVEL OR FRACTURED ROCK	
30									

Drilling Co./Driller: HAZCLEAN
Drilling Equipment: SONIC
Sampler Type: LINED CORE
Hammer Type/Weight: N/A lbs
Total Boring Depth: feet bgs
Total Well Depth: N/A feet bgs
State Well ID No.: N/A

Well/Auger Diameter: inches
Well Screened Interval: feet bgs
Screen Slot Size: inches
Filter Pack Used: N/A
Surface Seal:
Annular Seal:
Monument Type:

Notes/Comments:

Urban Environmental Partners llc

Project: PINE LAKE CLEANERS
Project Number:
Logged by: KMC
Date Started: 10-14-21
Surface Conditions: CONCRETE
Well Location N/S:
Well Location E/W:
Reviewed by:
Date Completed: 10-14-21

BORING LOG | UB1

Site Address:

Water Depth At Time of Drilling: feet bgs
Water Depth After Completion: feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppm)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
30			80	1.8		SP		BRN MED SAND MOIST NO INDICATION/OBSERVATION OF SATURATION OR FREE WATER	
						SP		BRN MED SAND W/ GRAVEL MOIST	
35			80	1.4				MED + COARSE 1' LENSES OF LT SAND + GRAVEL MEDIUM SAND	
40			80	1.5				BRN MEDIUM SAND W/ GRAVEL MOIST	
45									

Drilling Co./Driller: HOLOCENE
Drilling Equipment: SONIC
Sampler Type: LINED CORE
Hammer Type/Weight: N/A lbs
Total Boring Depth: feet bgs
Total Well Depth: N/A feet bgs
State Well ID No.: N/A

Well/Auger Diameter: inches
Well Screened Interval: feet bgs
Screen Slot Size: inches
Filter Pack Used: N/A
Surface Seal:
Annular Seal:
Monument Type:

Notes/Comments:

Urban Environmental Partners llc

Project: PINE LAKE CLEANERS
Project Number:
Logged by: LMC
Date Started: 10.14.21
Surface Conditions: CONC.
Well Location N/S:
Well Location E/W:
Reviewed by:
Date Completed: 10.14.21

BORING LOG | UB1

Site Address:

Water Depth At Time of Drilling: feet bgs
Water Depth After Completion: feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppm)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
45			90	1.9		SP		BROWN MED SAND W/ GRAVEL, MOIST NO INDICATION/OBSERVATION OF SATURATION OR FREE WATER	
50								BOTTOM OF BORING 5' SCREEN W/ RISER SET 45-50 ECOLOGY WANTS SCREEN @ SATURATED ZONE ~ 12' DRILLERS WILL CLEAN & MOVE RIG TITEN BACKFILL BORING & SET SCREEN 10-15	

Drilling Co./Driller: HOLOCENE
Drilling Equipment: SONIC
Sampler Type: LINED CORE
Hammer Type/Weight: NA lbs
Total Boring Depth: feet bgs
Total Well Depth: NA feet bgs
State Well ID No.: NA

Well/Auger Diameter: 8 inches
Well Screened Interval: feet bgs
Screen Slot Size: inches
Filter Pack Used: NA
Surface Seal:
Annular Seal:
Monument Type:

Notes/Comments:

Urban Environmental Partners llc

Project: PINE LAKE CLEANERS
Project Number:
Logged by: KMC
Date Started: 10.14.21
Surface Conditions: ~~GRASS~~ ASPHALT
Well Location N/S:
Well Location E/W:
Reviewed by:
Date Completed:

BORING LOG | UB2

Site Address:

Water Depth At Time of Drilling: feet bgs
Water Depth After Completion: feet bgs

LENGTH

~~Depth~~ (feet bgs)	Interval	Blow Count	% Recovery	PID (ppm)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
5			90	0.3		SM		BRN DENSE SILTY FINE SAND W/ GRAVEL MOIST	
			70	0.3				UNCONSOLIDATED	
10			80	0.6				DENSE UNCONSOLIDATED	
15									

Drilling Co./Driller: HOLOCENE
Drilling Equipment: SONIC
Sampler Type: 4" MACRO CORE
Hammer Type/Weight: lbs
Total Boring Depth: feet bgs
Total Well Depth: N/A feet bgs
State Well ID No.: N/A

Well/Auger Diameter: 6" inches
Well Screened Interval: N/A feet bgs
Screen Slot Size: inches
Filter Pack Used:
Surface Seal:
Annular Seal:
Monument Type:

Notes/Comments:
35° off VERT
DEPTHS BASED ON LINEAR FEET OF TOOLING

Page: 1

GOOD

Urban Environmental Partners llc

Project: PINE LAKE CLEANERS
Project Number: -
Logged by: KMC
Date Started: 10.11.21
Surface Conditions: ASPHALT
Well Location N/S:
Well Location E/W:
Reviewed by:
Date Completed:

BORING LOG | UB2

Site Address:

Water Depth At Time of Drilling: feet bgs
Water Depth After Completion: feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppm)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
15			70	0.5		GW		~~0.5 LENSES OF MED TO COARSE SAND~~ BRN MF COARSE GRAVEL AND SAND MOIST TRACE COBBLE	
20			70	0.9		SM		BRN SILTY FINE SAND MOIST	
25			70	0.7	UB2-28 (16) 1325			MOIST TO WET BRN SILTY MED SAND W/ GRAVEL MOIST	
30				0.9					

LENGTH

Drilling Co./Driller: HOLOCENE
Drilling Equipment: SONIC
Sampler Type: LINED CORE
Hammer Type/Weight: N/A lbs
Total Boring Depth: N/A feet bgs
Total Well Depth: N/A feet bgs
State Well ID No.: NA

Well/Auger Diameter: 6 inches
Well Screened Interval: N/A feet bgs
Screen Slot Size: inches
Filter Pack Used:
Surface Seal:
Annular Seal:
Monument Type:

Notes/Comments:

Urban Environmental Partners llc

Project: PINE LAKE CLEANERS
Project Number:
Logged by: KMC
Date Started: 10.14.21
Surface Conditions: ASPHALT
Well Location N/S:
Well Location E/W:
Reviewed by:
Date Completed:

BORING LOG | UB2

Site Address:

Water Depth At Time of Drilling: feet bgs
Water Depth After Completion: feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppm)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
			70	0.8	UB2-35 (20) 1330	SP		BRN MED SAND W/ GRAVEL MOIST	
35								BOTTOM BORING	

Drilling Co./Driller: HAZLETT
Drilling Equipment: SONIC
Sampler Type: LINER CORE
Hammer Type/Weight: lbs
Total Boring Depth: feet bgs
Total Well Depth: N/A feet bgs
State Well ID No.:

Well/Auger Diameter: 6 inches
Well Screened Interval: N/A feet bgs
Screen Slot Size: inches
Filter Pack Used:
Surface Seal:
Annular Seal:
Monument Type:

Notes/Comments:

Page:

APPENDIX B: Laboratory Reports for SES and UEP Investigations (2018)

AMPLIFIED GEOCHEMICAL IMAGING ANALYTICAL RESULTS
210 EXECUTIVE DRIVE, SUITE 1, NEWARK, DE
URBAN ENVIRONMENTAL PARTNERS, LLC, SEATTLE, WA
AGI TARGET COMPOUNDS
ESTIMATED SOIL-GAS CONCENTRATIONS
GREEN/SYRDAL - PINE LAKE
ORDER #02064

DATAFILE	FIELD	DATE/ TIME		DATE/ TIME		DATE/ TIME		DATE/ TIME			estimated			
NAME	ID	INSTALLED		RETRIEVED		RECEIVED		ANALYZED		DF	TPH, ug/m^3	MTBE, ug/m^3	t12DCE, ug/m^3	11DCA, ug/m^3
00800841	SV - 1	10/12/18 8:01 PM	PDT	10/17/18 1:39 PM	PDT	10/18/18 11:00 AM	EDT	10/22/18 9:39 AM	EDT	1	133	<183	<382	<132
00800834	SV - 2	10/12/18 9:02 PM	PDT	10/17/18 1:44 PM	PDT	10/18/18 11:00 AM	EDT	10/22/18 2:01 PM	EDT	1	<28.8	<184	<383	<132
00800835	SV - 3	10/12/18 9:09 PM	PDT	10/17/18 1:47 PM	PDT	10/18/18 11:00 AM	EDT	10/22/18 3:28 PM	EDT	1	36.1	<184	<383	<132
00800827	SV - 4	10/12/18 9:42 PM	PDT	10/17/18 1:48 PM	PDT	10/18/18 11:00 AM	EDT	10/19/18 5:16 PM	EDT	1	37.2	<184	<383	<132
00800842	SV - 5	10/12/18 7:44 PM	PDT	10/17/18 1:50 PM	PDT	10/18/18 11:00 AM	EDT	10/22/18 2:59 PM	EDT	1	506	<183	<382	<132
00800828	SV - 6	10/12/18 10:09 PM	PDT	10/17/18 1:52 PM	PDT	10/18/18 11:00 AM	EDT	10/22/18 4:25 PM	EDT	1	33.5	<184	<383	<132
00800840	SV - 7	10/12/18 8:17 PM	PDT	10/17/18 1:54 PM	PDT	10/18/18 11:00 AM	EDT	10/19/18 5:45 PM	EDT	1	42.6	<183	<382	<132
00800843	SV - 8	10/12/18 9:49 PM	PDT	10/17/18 1:56 PM	PDT	10/18/18 11:00 AM	EDT	10/22/18 1:32 PM	EDT	1	70.6	<184	<383	<132
00800839	SV - 9	10/12/18 8:08 PM	PDT	10/17/18 1:59 PM	PDT	10/18/18 11:00 AM	EDT	10/19/18 6:13 PM	EDT	1	113	<183	<382	<132
00800836	SV - 10	10/12/18 10:03 PM	PDT	10/17/18 2:01 PM	PDT	10/18/18 11:00 AM	EDT	10/22/18 1:03 PM	EDT	1	68.5	<184	<383	<132
00800833	SV - 11	10/12/18 8:26 PM	PDT	10/17/18 2:01 PM	PDT	10/18/18 11:00 AM	EDT	10/22/18 3:57 PM	EDT	1	1010 E	<183	<382	<132
00800837	SV - 12	10/12/18 9:58 PM	PDT	10/17/18 2:02 PM	PDT	10/18/18 11:00 AM	EDT	10/22/18 10:08 AM	EDT	1	1830 E	<184	<383	<132
00800830	SV - 13	10/12/18 10:28 PM	PDT	10/17/18 2:05 PM	PDT	10/18/18 11:00 AM	EDT	10/22/18 9:08 AM	EDT	1	<29.0	<184	<383	<132
00800829	SV - 14	10/12/18 10:32 PM	PDT	10/17/18 2:04 PM	PDT	10/18/18 11:00 AM	EDT	10/22/18 12:34 PM	EDT	1	<29.0	<184	<383	<132
00800831	SV - 15	10/12/18 10:45 PM	PDT	10/17/18 2:07 PM	PDT	10/18/18 11:00 AM	EDT	10/22/18 10:38 AM	EDT	1	241	<184	<383	<132
00800832	SV - 16	10/12/18 10:56 PM	PDT	10/17/18 2:09 PM	PDT	10/18/18 11:00 AM	EDT	10/19/18 6:42 PM	EDT	1	512	<184	<384	<132
00800838	Trip Blank	10/12/18 9:26 PM	PDT	10/17/18 1:56 PM	PDT	10/18/18 11:00 AM	EDT	10/22/18 2:30 PM	EDT	1	<28.8	<184	<383	<132
00800844	Trip Blank	10/12/18 9:26 PM	PDT	10/17/18 1:56 PM	PDT	10/18/18 11:00 AM	EDT	10/22/18 12:05 PM	EDT	1	<28.8	<184	<383	<132
BLK-1	Method Blank	10/12/18 9:26 PM	PDT	10/17/18 1:56 PM	PDT	10/18/18 11:00 AM	EDT	10/18/18 3:54 PM	EDT	1	<28.8	<184	<383	<132

AMPLIFIED GEOCHEMICAL IMAGING ANALYTICAL RESULTS
210 EXECUTIVE DRIVE, SUITE 1, NEWARK, DE
URBAN ENVIRONMENTAL PARTNERS, LLC, SEATTLE, WA
AGI TARGET COMPOUNDS
ESTIMATED SOIL-GAS CONCENTRATIONS
GREEN/SYRDAL - PINE LAKE
ORDER #02064

DATAFILE										estimated	
NAME	c12DCE, ug/m^3	CHCl3, ug/m^3	111TCA, ug/m^3	12DCA, ug/m^3	BENZ, ug/m^3	CCl4, ug/m^3	**TCE, ug/m^3**	112TCA, ug/m^3	TOL, ug/m^3	OCT, ug/m^3	**PCE, ug/m^3**
00800841	<125	<67.5	<40.3	<32.6	<32.2	<36.1	<13.7	<2.36	<3.45	<3.55	6020 E
00800834	<125	<67.7	<40.4	<32.7	<32.3	<36.3	<13.8	<2.38	<3.47	<3.57	8140 E
00800835	<125	<67.7	<40.5	<32.7	<32.3	<36.3	<13.8	<2.38	<3.47	<3.57	9670 E
00800827	<125	136	<40.6	<32.8	<32.4	<36.4	<13.8	<2.39	<3.48	<3.59	11700 E
00800842	<125	<67.4	<40.2	<32.5	<32.1	<36.0	<13.7	<2.35	<3.43	4.04	7010 E
00800828	<125	<67.9	<40.6	<32.8	<32.4	<36.4	70.0	<2.40	<3.49	<3.60	13700 E
00800840	<125	<67.5	<40.3	<32.6	<32.2	<36.1	192	<2.36	<3.45	<3.55	20200 E
00800843	<125	<67.8	<40.6	<32.8	<32.4	<36.4	<13.8	<2.39	<3.48	<3.59	17900 E
00800839	<125	<67.5	<40.2	<32.5	<32.2	<36.1	<13.7	<2.36	<3.44	<3.54	5670 E
00800836	<125	<67.9	<40.6	<32.8	<32.4	<36.4	<13.8	<2.39	3.98	<3.59	6310 E
00800833	<125	<67.5	<40.3	<32.6	<32.2	<36.1	<13.7	<2.36	11.9	5.55	12700 E
00800837	<125	<67.8	<40.6	<32.8	<32.4	<36.4	<13.8	<2.39	<3.48	<3.59	15300 E
00800830	<125	<67.9	<40.6	<32.8	<32.5	<36.5	<13.8	<2.40	<3.49	<3.60	54.9
00800829	<125	<67.9	<40.7	<32.8	<32.5	<36.5	<13.8	<2.40	<3.50	<3.60	129
00800831	<125	<68.0	<40.7	<32.9	<32.5	<36.5	<13.9	<2.40	14.5	<3.61	300
00800832	<126	<68.0	<40.7	<32.9	<32.5	<36.5	<13.9	<2.40	62.2	<3.61	108
00800838	<125	<67.7	<40.5	<32.7	<32.3	<36.3	<13.8	<2.38	15.4	<3.58	<2.65
00800844	<125	<67.7	<40.5	<32.7	<32.3	<36.3	<13.8	<2.38	<3.47	<3.58	<2.65
BLK-1	<125	<67.7	<40.5	<32.7	<32.3	<36.3	<13.8	<2.38	<3.47	<3.58	<2.65

AMPLIFIED GEOCHEMICAL IMAGING ANALYTICAL RESULTS
210 EXECUTIVE DRIVE, SUITE 1, NEWARK, DE
URBAN ENVIRONMENTAL PARTNERS, LLC, SEATTLE, WA
AGI TARGET COMPOUNDS
ESTIMATED SOIL-GAS CONCENTRATIONS
GREEN/SYRDAL - PINE LAKE
ORDER #02064

DATAFILE		estimated								
NAME	ClBENZ, ug/m^3	1112TetCA, ug/m^3	ETBENZ, ug/m^3	mpXYL, ug/m^3	oXYL, ug/m^3	1122TetCA, ug/m^3	135TMB, ug/m^3	124TMB, ug/m^3	13DCB, ug/m^3	14DCB, ug/m^3
00800841	<1.70	<1.27	<1.63	1.70	<2.06	<1.27	<2.22	<1.67	<1.35	3.08
00800834	<1.71	<1.28	<1.64	<1.50	<2.08	<1.28	<2.24	<1.69	<1.36	<1.37
00800835	<1.71	<1.28	<1.64	<1.50	<2.08	<1.28	<2.24	<1.69	<1.36	<1.37
00800827	<1.72	1.35	<1.65	<1.50	<2.08	<1.29	<2.25	<1.69	<1.37	<1.38
00800842	<1.69	<1.27	<1.62	3.51	<2.05	<1.27	<2.21	<1.67	<1.34	3.26
00800828	<1.73	<1.29	<1.66	<1.51	<2.09	<1.29	<2.25	<1.70	<1.37	<1.38
00800840	<1.70	2.94	<1.63	<1.48	<2.06	<1.27	<2.22	<1.67	<1.35	<1.36
00800843	<1.72	<1.29	<1.65	2.39	<2.08	<1.29	<2.25	<1.69	<1.37	<1.38
00800839	<1.70	<1.27	<1.63	2.21	<2.06	<1.27	<2.22	<1.67	<1.35	<1.36
00800836	<1.72	<1.29	<1.65	1.58	<2.09	<1.29	<2.25	<1.70	<1.37	<1.38
00800833	<1.70	<1.27	<1.63	3.89	2.35	<1.27	<2.22	2.94	<1.35	3.15
00800837	<1.72	<1.29	<1.65	2.10	<2.09	<1.29	<2.25	1.78	<1.37	<1.38
00800830	<1.73	<1.30	<1.66	3.36	<2.09	<1.30	<2.25	<1.70	<1.37	<1.38
00800829	<1.73	<1.30	<1.66	<1.51	<2.09	<1.30	<2.26	<1.70	<1.37	<1.39
00800831	<1.73	<1.30	<1.66	<1.51	<2.10	<1.30	<2.26	<1.70	<1.37	<1.39
00800832	<1.73	<1.30	<1.66	<1.51	<2.10	<1.30	<2.26	<1.71	<1.38	<1.39
00800838	<1.72	<1.29	2.52	9.75	3.54	<1.29	<2.24	<1.69	<1.36	3.24
00800844	<1.72	<1.29	<1.65	<1.50	<2.08	<1.29	<2.24	<1.69	<1.36	<1.38
BLK-1	<1.72	<1.29	<1.65	<1.50	<2.08	<1.29	<2.24	<1.69	<1.36	<1.38

AMPLIFIED GEOCHEMICAL IMAGING ANALYTICAL RESULTS
210 EXECUTIVE DRIVE, SUITE 1, NEWARK, DE
URBAN ENVIRONMENTAL PARTNERS, LLC, SEATTLE, WA
AGI TARGET COMPOUNDS
ESTIMATED SOIL-GAS CONCENTRATIONS
GREEN/SYRDAL - PINE LAKE
ORDER #02064

DATAFILE		estimated	estimated	estimated	estimated	estimated	estimated	estimated	estimated
NAME	12DCB, ug/m^3	UNDEC, ug/m^3	NAPH, ug/m^3	TRIDEC, ug/m^3	2MeNAPH, ug/m^3	Acenaphthylene, ug/m^3	PENTADEC, ug/m^3	Acenaphthene, ug/m^3	Fluorene, ug/m^3
00800841	<1.29	<3.12	<3.12	<3.12	<3.12	<3.12	<3.12	<3.12	<3.12
00800834	<1.30	<3.14	<3.14	<3.14	<3.14	<3.14	<3.14	<3.14	<3.14
00800835	<1.30	<3.14	<3.14	<3.14	<3.14	<3.14	<3.14	<3.14	<3.14
00800827	<1.31	<3.15	<3.15	<3.15	<3.15	<3.15	<3.15	<3.15	<3.15
00800842	<1.29	<3.10	<3.10	3.28	<3.10	<3.10	<3.10	<3.10	<3.10
00800828	<1.31	<3.16	<3.16	<3.16	<3.16	<3.16	<3.16	<3.16	<3.16
00800840	<1.29	<3.12	<3.12	<3.12	<3.12	<3.12	<3.12	<3.12	<3.12
00800843	<1.31	<3.15	<3.15	<3.15	<3.15	<3.15	<3.15	<3.15	<3.15
00800839	<1.29	<3.11	<3.11	<3.11	<3.11	<3.11	<3.11	<3.11	<3.11
00800836	<1.31	<3.16	<3.16	<3.16	<3.16	<3.16	<3.16	<3.16	<3.16
00800833	<1.29	4.25	20.4	<3.12	<3.12	<3.12	<3.12	<3.12	<3.12
00800837	<1.31	<3.16	<3.16	<3.16	<3.16	<3.16	7.21	<3.16	<3.16
00800830	<1.31	<3.17	<3.17	<3.17	<3.17	<3.17	<3.17	<3.17	<3.17
00800829	<1.31	<3.17	<3.17	<3.17	<3.17	<3.17	<3.17	<3.17	<3.17
00800831	<1.31	<3.17	<3.17	<3.17	<3.17	<3.17	<3.17	<3.17	<3.17
00800832	<1.32	<3.18	<3.18	<3.18	<3.18	<3.18	<3.18	<3.18	<3.18
00800838	<1.30	<3.14	<3.14	<3.14	<3.14	<3.14	<3.14	<3.14	<3.14
00800844	<1.30	<3.14	<3.14	<3.14	<3.14	<3.14	<3.14	<3.14	<3.14
BLK-1	<1.30	<3.14	<3.14	<3.14	<3.14	<3.14	<3.14	<3.14	<3.14

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

October 11, 2018

Logan Schumacher, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr Schumacher:

Included are the results from the testing of material submitted on October 5, 2018 from the SOU_ 1393-001-01_ 20181005, F&BI 810139 project. There are 7 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
SOU1011R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 5, 2018 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_ 1393-001-01_ 20181005, F&BI 810139 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
810139 -01	SS01-20181005

All quality control requirements were acceptable.

Date of Report: 10/11/18
Date Received: 10/05/18
Project: SOU_ 1393-001-01_ 20181005, F&BI 810139
Date Extracted: 10/11/18
Date Analyzed: 10/11/18

RESULTS FROM THE ANALYSIS OF AIR SAMPLES FOR HELIUM USING METHOD ASTM D1946

Results Reported as % Helium

Sample ID Laboratory ID	Helium
SS01-20181005 810139-01	<0.6
Method Blank	<0.6

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SS01-20181005	Client:	SoundEarth Strategies
Date Received:	10/05/18	Project:	SOU_ 1393-001-01_ 20181005, F&BI 810139
Date Collected:	10/05/18	Lab ID:	810139-01 1/25
Date Analyzed:	10/09/18	Data File:	100909.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	88	70	130

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<6.4	<2.5
Chloroethane	<6.6	<2.5
1,1-Dichloroethene	<9.9	<2.5
trans-1,2-Dichloroethene	<9.9	<2.5
1,1-Dichloroethane	<10	<2.5
cis-1,2-Dichloroethene	<9.9	<2.5
1,2-Dichloroethane (EDC)	<1	<0.25
1,1,1-Trichloroethane	<14	<2.5
Trichloroethene	18	3.3
1,1,2-Trichloroethane	<1.4	<0.25
Tetrachloroethene	7,000	1,000

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_ 1393-001-01_ 20181005, F&BI 810139
Date Collected:	Not Applicable	Lab ID:	08-2228 mb
Date Analyzed:	10/09/18	Data File:	100907.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	98	70	130

	Concentration	
Compounds:	ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
Chloroethane	<0.26	<0.1
1,1-Dichloroethene	<0.4	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
1,1-Dichloroethane	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01
1,1,1-Trichloroethane	<0.55	<0.1
Trichloroethene	<0.27	<0.05
1,1,2-Trichloroethane	<0.055	<0.01
Tetrachloroethene	<0.68	<0.1

Date of Report: 10/11/18
Date Received: 10/05/18
Project: SOU_ 1393-001-01_ 20181005, F&BI 810139

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR HELIUM USING METHOD ASTM D1946

Laboratory Code: 803087-03 (Duplicate)

Analyte	Sample Result (%)	Duplicate Result (%)	Relative Percent Difference	Acceptance Criteria
Helium	<0.6	0.62	nm	0-50

Date of Report: 10/11/18
Date Received: 10/05/18
Project: SOU_ 1393-001-01_ 20181005, F&BI 810139

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Vinyl chloride	ppbv	5	109	70-130
Chloroethane	ppbv	5	105	70-130
1,1-Dichloroethene	ppbv	5	104	70-130
trans-1,2-Dichloroethene	ppbv	5	104	70-130
1,1-Dichloroethane	ppbv	5	108	70-130
cis-1,2-Dichloroethene	ppbv	5	101	70-130
1,2-Dichloroethane (EDC)	ppbv	5	108	70-130
1,1,1-Trichloroethane	ppbv	5	109	70-130
Trichloroethene	ppbv	5	102	70-130
1,1,2-Trichloroethane	ppbv	5	106	70-130
Tetrachloroethene	ppbv	5	101	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

SAMPLE CHAIN OF CUSTODY

810139

ME 10-05-18

Page # 1 of 1

Report To Logan S.

Company SoundEarth Strategies

Address 2811 Fairview Ave E, Suite 2000

City, State, ZIP Seattle, WA

Phone _____ Email _____

SAMPLERS (signature)

PROJECT NAME: 1393-001-01

PO #

REPORTING LEVEL

☐ Indoor Air ☐ Deep Soil Gas

☑ Sub Slab/Soil Gas ☐ SVE/Grab

INVOICE TO

TURNAROUND TIME

☐ Standard

☐ RUSH Results by 10/9 EOB.

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Dispose after 30 days

☐ Archive Samples

☐ Other

ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Contr. ID	Date Sampled	Field Initial Press. (Hg)	Field Initial Time	Field Final Press. (Hg)	Field Final Time	TO-15 Full Scan	TO-15 BTEXN	TO-15 cVOCs	Helium	Notes
SSOI-20181005	01	2305	FB35	10/5/18	28.5	1217	5.0	1223			X	X	Results by 5pm 10/9 if possible
			LDR 10/9/18										
													Samples received at 19 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Logan Schumacher	SoundEarth	10/5/18	1445
Received by:	Liz Webber-Bruya	FBI	10/5/18	1445
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

October 12, 2018

Logan Schumacher, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr Schumacher:

Included are the results from the testing of material submitted on October 5, 2018 from the SOU_ 1393-001-01_ 20181005, F&BI 810140 project. There are 5 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
SOU1012R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 5, 2018 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_ 1393-001-01_ 20181005, F&BI 810140 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
810140 -01	SS01-01

All quality control requirements were acceptable.

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	SS01-01	Client:	SoundEarth Strategies
Date Received:	10/05/18	Project:	SOU_ 1393-001-01_ 20181005, F&BI 810140
Date Extracted:	10/09/18	Lab ID:	810140-01
Date Analyzed:	10/09/18	Data File:	100914.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	99	55	145
4-Bromofluorobenzene	96	65	139

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.05
Chloroethane	<0.5
1,1-Dichloroethene	<0.05
Methylene chloride	<0.5
trans-1,2-Dichloroethene	<0.05
1,1-Dichloroethane	<0.05
cis-1,2-Dichloroethene	<0.05
1,2-Dichloroethane (EDC)	<0.05
1,1,1-Trichloroethane	<0.05
Trichloroethene	<0.02
Tetrachloroethene	<0.025

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_ 1393-001-01_ 20181005, F&BI 810140
Date Extracted:	10/09/18	Lab ID:	08-2229 mb
Date Analyzed:	10/09/18	Data File:	100910.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	142
Toluene-d8	97	55	145
4-Bromofluorobenzene	95	65	139

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.05
Chloroethane	<0.5
1,1-Dichloroethene	<0.05
Methylene chloride	<0.5
trans-1,2-Dichloroethene	<0.05
1,1-Dichloroethane	<0.05
cis-1,2-Dichloroethene	<0.05
1,2-Dichloroethane (EDC)	<0.05
1,1,1-Trichloroethane	<0.05
Trichloroethene	<0.02
Tetrachloroethene	<0.025

Date of Report: 10/12/18
Date Received: 10/05/18
Project: SOU_ 1393-001-01_ 20181005, F&BI 810140

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 810104-08 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	61	62	10-138	2
Chloroethane	mg/kg (ppm)	2.5	<0.5	76	76	10-176	0
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	80	84	10-160	5
Methylene chloride	mg/kg (ppm)	2.5	<0.5	90	94	10-156	4
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	83	85	14-137	2
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	87	89	19-140	2
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	89	91	25-135	2
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	89	91	12-160	2
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	90	91	10-156	1
Trichloroethene	mg/kg (ppm)	2.5	<0.02	86	87	21-139	1
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	87	89	20-133	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Vinyl chloride	mg/kg (ppm)	2.5	76	22-139
Chloroethane	mg/kg (ppm)	2.5	87	10-163
1,1-Dichloroethene	mg/kg (ppm)	2.5	92	47-128
Methylene chloride	mg/kg (ppm)	2.5	102	42-132
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	92	67-127
1,1-Dichloroethane	mg/kg (ppm)	2.5	93	68-115
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	95	72-113
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	91	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	94	62-131
Trichloroethene	mg/kg (ppm)	2.5	89	64-117
Tetrachloroethene	mg/kg (ppm)	2.5	91	72-114

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

SAMPLE CHAIN OF CUSTODY

810140

MC 10-05-18 VSI

Page # 1 of 1

Send Report To Logan S

Company SoundEarth Strategies

Address 2811 Fairview Ave E, Suite 2000

City, State, ZIP Seattle, WA

Phone # _____ Fax # _____

SAMPLERS (signature)

PROJECT NAME/NO. 1393-021-01

PO #

REMARKS 3-day TAT

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☐ RUSH 3-Day

Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOC's by 8260	SVOC's by 8270	RCRA-8 Metals			Notes
SS01-01	SS01	01	01A-D	10/5/18	1300	S, A	4				X					PID = 0.8
					CDE 10/5/18											

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Logan Schumacher	SES	10/5/18	1445
Received by:	Liz Webber-Bye	FSBI	10/5/18	1495
Relinquished by:				
Received by:		Samples received at 2 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Wednesday, November 14, 2018

John Funderburk
Urban Environmental Partners
2341 1st Avenue Suite 203
Seattle, WA 98121

RE: A8K0361 - Pine Lake Cleaner - Pine Lake Cleaner/18-07 Syvdal

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A8K0361, which was received by the laboratory on 11/10/2018 at 10:02:00AM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: ldomenighini@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of final reporting, unless prior arrangements have been made.

Cooler Receipt Info (See Cooler Receipt Form for Details)

Cooler #1 5.9 degC

Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S17-1'	A8K0361-01	Soil	11/08/18 07:25	11/10/18 10:02
S17-2'	A8K0361-02	Soil	11/08/18 07:46	11/10/18 10:02
S17-3'	A8K0361-03	Soil	11/08/18 07:57	11/10/18 10:02
S18-1'	A8K0361-04	Soil	11/08/18 08:15	11/10/18 10:02
S18-2'	A8K0361-05	Soil	11/08/18 08:34	11/10/18 10:02
S20-1'	A8K0361-06	Soil	11/08/18 09:35	11/10/18 10:02
S20-2'	A8K0361-07	Soil	11/08/18 09:54	11/10/18 10:02
S18-3	A8K0361-08	Soil	11/08/18 10:50	11/10/18 10:02
S19-1'	A8K0361-09	Soil	11/09/18 03:01	11/10/18 10:02
S19-2'	A8K0361-10	Soil	11/09/18 03:06	11/10/18 10:02

DRAFT REPORT

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Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

S17-1' (A8K0361-01) — **Matrix: Soil** — **Batch: 8110770**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
Acetone	ND	---	0.896	mg/kg wet	50	11/13/18	5035A/8260C	
Acrylonitrile	ND	---	0.0896	mg/kg wet	50	11/13/18	5035A/8260C	
Benzene	ND	---	0.00896	mg/kg wet	50	11/13/18	5035A/8260C	
Bromobenzene	ND	---	0.0224	mg/kg wet	50	11/13/18	5035A/8260C	
Bromochloromethane	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
Bromodichloromethane	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
Bromoform	ND	---	0.0896	mg/kg wet	50	11/13/18	5035A/8260C	
Bromomethane	ND	---	0.448	mg/kg wet	50	11/13/18	5035A/8260C	
2-Butanone (MEK)	ND	---	0.448	mg/kg wet	50	11/13/18	5035A/8260C	
n-Butylbenzene	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
sec-Butylbenzene	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
tert-Butylbenzene	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
Carbon disulfide	ND	---	0.448	mg/kg wet	50	11/13/18	5035A/8260C	
Carbon tetrachloride	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
Chlorobenzene	ND	---	0.0224	mg/kg wet	50	11/13/18	5035A/8260C	
Chloroethane	ND	---	0.448	mg/kg wet	50	11/13/18	5035A/8260C	
Chloroform	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
Chloromethane	ND	---	0.224	mg/kg wet	50	11/13/18	5035A/8260C	
2-Chlorotoluene	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
4-Chlorotoluene	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
Dibromochloromethane	ND	---	0.0896	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	---	0.224	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
Dibromomethane	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dichlorobenzene	ND	---	0.0224	mg/kg wet	50	11/13/18	5035A/8260C	
1,3-Dichlorobenzene	ND	---	0.0224	mg/kg wet	50	11/13/18	5035A/8260C	
1,4-Dichlorobenzene	ND	---	0.0224	mg/kg wet	50	11/13/18	5035A/8260C	
Dichlorodifluoromethane	ND	---	0.0896	mg/kg wet	50	11/13/18	5035A/8260C	
1,1-Dichloroethane	ND	---	0.0224	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.0224	mg/kg wet	50	11/13/18	5035A/8260C	
1,1-Dichloroethene	ND	---	0.0224	mg/kg wet	50	11/13/18	5035A/8260C	
cis-1,2-Dichloroethene	ND	---	0.0224	mg/kg wet	50	11/13/18	5035A/8260C	
trans-1,2-Dichloroethene	ND	---	0.0224	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dichloropropane	ND	---	0.0224	mg/kg wet	50	11/13/18	5035A/8260C	
1,3-Dichloropropane	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
2,2-Dichloropropane	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
1,1-Dichloropropene	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
cis-1,3-Dichloropropene	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
trans-1,3-Dichloropropene	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	

DRAFT REPORT

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Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
S17-1' (A8K0361-01)				**Matrix: Soil**			**Batch: 8110770**	
Ethylbenzene	ND	---	0.0224	mg/kg wet	50	11/13/18	5035A/8260C	
Hexachlorobutadiene	ND	---	0.0896	mg/kg wet	50	11/13/18	5035A/8260C	
2-Hexanone	ND	---	0.448	mg/kg wet	50	11/13/18	5035A/8260C	
Isopropylbenzene	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
4-Isopropyltoluene	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
Methylene chloride	ND	---	0.224	mg/kg wet	50	11/13/18	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	---	0.448	mg/kg wet	50	11/13/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
Naphthalene	ND	---	0.0896	mg/kg wet	50	11/13/18	5035A/8260C	
n-Propylbenzene	ND	---	0.0224	mg/kg wet	50	11/13/18	5035A/8260C	
Styrene	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
Tetrachloroethene (PCE)	**3.29**	---	0.0224	mg/kg wet	50	11/13/18	5035A/8260C	
Toluene	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
1,2,3-Trichlorobenzene	ND	---	0.224	mg/kg wet	50	11/13/18	5035A/8260C	
1,2,4-Trichlorobenzene	ND	---	0.224	mg/kg wet	50	11/13/18	5035A/8260C	
1,1,1-Trichloroethane	ND	---	0.0224	mg/kg wet	50	11/13/18	5035A/8260C	
1,1,2-Trichloroethane	ND	---	0.0224	mg/kg wet	50	11/13/18	5035A/8260C	
Trichloroethene (TCE)	ND	---	0.0224	mg/kg wet	50	11/13/18	5035A/8260C	
Trichlorofluoromethane	ND	---	0.0896	mg/kg wet	50	11/13/18	5035A/8260C	EST
1,2,3-Trichloropropane	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
1,2,4-Trimethylbenzene	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
1,3,5-Trimethylbenzene	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
Vinyl chloride	ND	---	0.0224	mg/kg wet	50	11/13/18	5035A/8260C	
m,p-Xylene	ND	---	0.0448	mg/kg wet	50	11/13/18	5035A/8260C	
o-Xylene	ND	---	0.0224	mg/kg wet	50	11/13/18	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery: 104 %*		*Limits: 80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
Toluene-d8 (Surr)			*107 %*	*80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*102 %*	*80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
S17-2' (A8K0361-02)				**Matrix: Soil**			**Batch: 8110770**	
Acetone	ND	---	1.39	mg/kg dry	50	11/13/18	5035A/8260C	
Acrylonitrile	ND	---	0.139	mg/kg dry	50	11/13/18	5035A/8260C	
Benzene	ND	---	0.0139	mg/kg dry	50	11/13/18	5035A/8260C	
Bromobenzene	ND	---	0.0347	mg/kg dry	50	11/13/18	5035A/8260C	
Bromochloromethane	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
Bromodichloromethane	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	

DRAFT REPORT

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Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

S17-2' (A8K0361-02) — **Matrix: Soil** — **Batch: 8110770**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
Bromoform	ND	---	0.139	mg/kg dry	50	11/13/18	5035A/8260C	
Bromomethane	ND	---	0.695	mg/kg dry	50	11/13/18	5035A/8260C	
2-Butanone (MEK)	ND	---	0.695	mg/kg dry	50	11/13/18	5035A/8260C	
n-Butylbenzene	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
sec-Butylbenzene	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
tert-Butylbenzene	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
Carbon disulfide	ND	---	0.695	mg/kg dry	50	11/13/18	5035A/8260C	
Carbon tetrachloride	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
Chlorobenzene	ND	---	0.0347	mg/kg dry	50	11/13/18	5035A/8260C	
Chloroethane	ND	---	0.695	mg/kg dry	50	11/13/18	5035A/8260C	
Chloroform	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
Chloromethane	ND	---	0.347	mg/kg dry	50	11/13/18	5035A/8260C	
2-Chlorotoluene	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
4-Chlorotoluene	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
Dibromochloromethane	ND	---	0.139	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	---	0.347	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
Dibromomethane	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dichlorobenzene	ND	---	0.0347	mg/kg dry	50	11/13/18	5035A/8260C	
1,3-Dichlorobenzene	ND	---	0.0347	mg/kg dry	50	11/13/18	5035A/8260C	
1,4-Dichlorobenzene	ND	---	0.0347	mg/kg dry	50	11/13/18	5035A/8260C	
Dichlorodifluoromethane	ND	---	0.139	mg/kg dry	50	11/13/18	5035A/8260C	
1,1-Dichloroethane	ND	---	0.0347	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.0347	mg/kg dry	50	11/13/18	5035A/8260C	
1,1-Dichloroethene	ND	---	0.0347	mg/kg dry	50	11/13/18	5035A/8260C	
cis-1,2-Dichloroethene	ND	---	0.0347	mg/kg dry	50	11/13/18	5035A/8260C	
trans-1,2-Dichloroethene	ND	---	0.0347	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dichloropropane	ND	---	0.0347	mg/kg dry	50	11/13/18	5035A/8260C	
1,3-Dichloropropane	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
2,2-Dichloropropane	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
1,1-Dichloropropene	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
cis-1,3-Dichloropropene	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
trans-1,3-Dichloropropene	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
Ethylbenzene	ND	---	0.0347	mg/kg dry	50	11/13/18	5035A/8260C	
Hexachlorobutadiene	ND	---	0.139	mg/kg dry	50	11/13/18	5035A/8260C	
2-Hexanone	ND	---	0.695	mg/kg dry	50	11/13/18	5035A/8260C	
Isopropylbenzene	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
4-Isopropyltoluene	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
Methylene chloride	ND	---	0.347	mg/kg dry	50	11/13/18	5035A/8260C	

DRAFT REPORT

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Apex Laboratories, LLC

12232 S.W. Garden Place
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503-718-2323
EPA ID: OR01039

Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
S17-2' (A8K0361-02)				**Matrix: Soil**			**Batch: 8110770**	
4-Methyl-2-pentanone (MiBK)	ND	---	0.695	mg/kg dry	50	11/13/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
Naphthalene	ND	---	0.139	mg/kg dry	50	11/13/18	5035A/8260C	
n-Propylbenzene	ND	---	0.0347	mg/kg dry	50	11/13/18	5035A/8260C	
Styrene	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
Tetrachloroethene (PCE)	**1.38**	---	0.0347	mg/kg dry	50	11/13/18	5035A/8260C	
Toluene	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
1,2,3-Trichlorobenzene	ND	---	0.347	mg/kg dry	50	11/13/18	5035A/8260C	
1,2,4-Trichlorobenzene	ND	---	0.347	mg/kg dry	50	11/13/18	5035A/8260C	
1,1,1-Trichloroethane	ND	---	0.0347	mg/kg dry	50	11/13/18	5035A/8260C	
1,1,2-Trichloroethane	ND	---	0.0347	mg/kg dry	50	11/13/18	5035A/8260C	
Trichloroethene (TCE)	ND	---	0.0347	mg/kg dry	50	11/13/18	5035A/8260C	
Trichlorofluoromethane	ND	---	0.139	mg/kg dry	50	11/13/18	5035A/8260C	EST
1,2,3-Trichloropropane	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
1,2,4-Trimethylbenzene	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
1,3,5-Trimethylbenzene	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
Vinyl chloride	ND	---	0.0347	mg/kg dry	50	11/13/18	5035A/8260C	
m,p-Xylene	ND	---	0.0695	mg/kg dry	50	11/13/18	5035A/8260C	
o-Xylene	ND	---	0.0347	mg/kg dry	50	11/13/18	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery: 102 %*		*Limits: 80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
Toluene-d8 (Surr)			*108 %*	*80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*102 %*	*80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
S17-3' (A8K0361-03)				**Matrix: Soil**			**Batch: 8110770**	
Acetone	ND	---	1.05	mg/kg wet	50	11/13/18	5035A/8260C	
Acrylonitrile	ND	---	0.105	mg/kg wet	50	11/13/18	5035A/8260C	
Benzene	ND	---	0.0105	mg/kg wet	50	11/13/18	5035A/8260C	
Bromobenzene	ND	---	0.0263	mg/kg wet	50	11/13/18	5035A/8260C	
Bromochloromethane	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
Bromodichloromethane	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
Bromoform	ND	---	0.105	mg/kg wet	50	11/13/18	5035A/8260C	
Bromomethane	ND	---	0.525	mg/kg wet	50	11/13/18	5035A/8260C	
2-Butanone (MEK)	ND	---	0.525	mg/kg wet	50	11/13/18	5035A/8260C	
n-Butylbenzene	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
sec-Butylbenzene	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
tert-Butylbenzene	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	

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EPA ID: OR01039

Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

S17-3' (A8K0361-03) — **Matrix: Soil** — **Batch: 8110770**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
Carbon disulfide	ND	---	0.525	mg/kg wet	50	11/13/18	5035A/8260C	
Carbon tetrachloride	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
Chlorobenzene	ND	---	0.0263	mg/kg wet	50	11/13/18	5035A/8260C	
Chloroethane	ND	---	0.525	mg/kg wet	50	11/13/18	5035A/8260C	
Chloroform	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
Chloromethane	ND	---	0.263	mg/kg wet	50	11/13/18	5035A/8260C	
2-Chlorotoluene	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
4-Chlorotoluene	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
Dibromochloromethane	ND	---	0.105	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	---	0.263	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
Dibromomethane	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dichlorobenzene	ND	---	0.0263	mg/kg wet	50	11/13/18	5035A/8260C	
1,3-Dichlorobenzene	ND	---	0.0263	mg/kg wet	50	11/13/18	5035A/8260C	
1,4-Dichlorobenzene	ND	---	0.0263	mg/kg wet	50	11/13/18	5035A/8260C	
Dichlorodifluoromethane	ND	---	0.105	mg/kg wet	50	11/13/18	5035A/8260C	
1,1-Dichloroethane	ND	---	0.0263	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.0263	mg/kg wet	50	11/13/18	5035A/8260C	
1,1-Dichloroethene	ND	---	0.0263	mg/kg wet	50	11/13/18	5035A/8260C	
cis-1,2-Dichloroethene	ND	---	0.0263	mg/kg wet	50	11/13/18	5035A/8260C	
trans-1,2-Dichloroethene	ND	---	0.0263	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dichloropropane	ND	---	0.0263	mg/kg wet	50	11/13/18	5035A/8260C	
1,3-Dichloropropane	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
2,2-Dichloropropane	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
1,1-Dichloropropene	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
cis-1,3-Dichloropropene	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
trans-1,3-Dichloropropene	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
Ethylbenzene	ND	---	0.0263	mg/kg wet	50	11/13/18	5035A/8260C	
Hexachlorobutadiene	ND	---	0.105	mg/kg wet	50	11/13/18	5035A/8260C	
2-Hexanone	ND	---	0.525	mg/kg wet	50	11/13/18	5035A/8260C	
Isopropylbenzene	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
4-Isopropyltoluene	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
Methylene chloride	ND	---	0.263	mg/kg wet	50	11/13/18	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	---	0.525	mg/kg wet	50	11/13/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
Naphthalene	ND	---	0.105	mg/kg wet	50	11/13/18	5035A/8260C	
n-Propylbenzene	ND	---	0.0263	mg/kg wet	50	11/13/18	5035A/8260C	
Styrene	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	

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Apex Laboratories, LLC

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EPA ID: OR01039

Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
S17-3' (A8K0361-03)				**Matrix: Soil**			**Batch: 8110770**	
1,1,2,2-Tetrachloroethane	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
Tetrachloroethene (PCE)	**0.267**	---	0.0263	mg/kg wet	50	11/13/18	5035A/8260C	
Toluene	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
1,2,3-Trichlorobenzene	ND	---	0.263	mg/kg wet	50	11/13/18	5035A/8260C	
1,2,4-Trichlorobenzene	ND	---	0.263	mg/kg wet	50	11/13/18	5035A/8260C	
1,1,1-Trichloroethane	ND	---	0.0263	mg/kg wet	50	11/13/18	5035A/8260C	
1,1,2-Trichloroethane	ND	---	0.0263	mg/kg wet	50	11/13/18	5035A/8260C	
Trichloroethene (TCE)	ND	---	0.0263	mg/kg wet	50	11/13/18	5035A/8260C	
Trichlorofluoromethane	ND	---	0.105	mg/kg wet	50	11/13/18	5035A/8260C	EST
1,2,3-Trichloropropane	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
1,2,4-Trimethylbenzene	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
1,3,5-Trimethylbenzene	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
Vinyl chloride	ND	---	0.0263	mg/kg wet	50	11/13/18	5035A/8260C	
m,p-Xylene	ND	---	0.0525	mg/kg wet	50	11/13/18	5035A/8260C	
o-Xylene	ND	---	0.0263	mg/kg wet	50	11/13/18	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery: 105 %*		*Limits: 80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
Toluene-d8 (Surr)			*99 %*	*80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*103 %*	*80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
S18-1' (A8K0361-04)				**Matrix: Soil**			**Batch: 8110770**	
Acetone	ND	---	2.19	mg/kg dry	50	11/13/18	5035A/8260C	
Acrylonitrile	ND	---	0.219	mg/kg dry	50	11/13/18	5035A/8260C	
Benzene	ND	---	0.0219	mg/kg dry	50	11/13/18	5035A/8260C	
Bromobenzene	ND	---	0.0547	mg/kg dry	50	11/13/18	5035A/8260C	
Bromochloromethane	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
Bromodichloromethane	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
Bromoform	ND	---	0.219	mg/kg dry	50	11/13/18	5035A/8260C	
Bromomethane	ND	---	1.09	mg/kg dry	50	11/13/18	5035A/8260C	
2-Butanone (MEK)	ND	---	1.09	mg/kg dry	50	11/13/18	5035A/8260C	
n-Butylbenzene	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
sec-Butylbenzene	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
tert-Butylbenzene	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
Carbon disulfide	ND	---	1.09	mg/kg dry	50	11/13/18	5035A/8260C	
Carbon tetrachloride	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
Chlorobenzene	ND	---	0.0547	mg/kg dry	50	11/13/18	5035A/8260C	
Chloroethane	ND	---	1.09	mg/kg dry	50	11/13/18	5035A/8260C	
Chloroform	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
Chloromethane	ND	---	0.547	mg/kg dry	50	11/13/18	5035A/8260C	

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EPA ID: OR01039

Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

S18-1' (A8K0361-04) — **Matrix: Soil** — **Batch: 8110770**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
2-Chlorotoluene	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
4-Chlorotoluene	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
Dibromochloromethane	ND	---	0.219	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	---	0.547	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
Dibromomethane	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dichlorobenzene	ND	---	0.0547	mg/kg dry	50	11/13/18	5035A/8260C	
1,3-Dichlorobenzene	ND	---	0.0547	mg/kg dry	50	11/13/18	5035A/8260C	
1,4-Dichlorobenzene	ND	---	0.0547	mg/kg dry	50	11/13/18	5035A/8260C	
Dichlorodifluoromethane	ND	---	0.219	mg/kg dry	50	11/13/18	5035A/8260C	
1,1-Dichloroethane	ND	---	0.0547	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.0547	mg/kg dry	50	11/13/18	5035A/8260C	
1,1-Dichloroethene	ND	---	0.0547	mg/kg dry	50	11/13/18	5035A/8260C	
cis-1,2-Dichloroethene	ND	---	0.0547	mg/kg dry	50	11/13/18	5035A/8260C	
trans-1,2-Dichloroethene	ND	---	0.0547	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dichloropropane	ND	---	0.0547	mg/kg dry	50	11/13/18	5035A/8260C	
1,3-Dichloropropane	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
2,2-Dichloropropane	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
1,1-Dichloropropene	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
cis-1,3-Dichloropropene	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
trans-1,3-Dichloropropene	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
Ethylbenzene	ND	---	0.0547	mg/kg dry	50	11/13/18	5035A/8260C	
Hexachlorobutadiene	ND	---	0.219	mg/kg dry	50	11/13/18	5035A/8260C	
2-Hexanone	ND	---	1.09	mg/kg dry	50	11/13/18	5035A/8260C	
Isopropylbenzene	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
4-Isopropyltoluene	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
Methylene chloride	ND	---	0.547	mg/kg dry	50	11/13/18	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	---	1.09	mg/kg dry	50	11/13/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
Naphthalene	ND	---	0.219	mg/kg dry	50	11/13/18	5035A/8260C	
n-Propylbenzene	ND	---	0.0547	mg/kg dry	50	11/13/18	5035A/8260C	
Styrene	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
Tetrachloroethene (PCE)	**0.713**	---	0.0547	mg/kg dry	50	11/13/18	5035A/8260C	
Toluene	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
1,2,3-Trichlorobenzene	ND	---	0.547	mg/kg dry	50	11/13/18	5035A/8260C	
1,2,4-Trichlorobenzene	ND	---	0.547	mg/kg dry	50	11/13/18	5035A/8260C	
1,1,1-Trichloroethane	ND	---	0.0547	mg/kg dry	50	11/13/18	5035A/8260C	

DRAFT REPORT

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EPA ID: OR01039

Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
S18-1' (A8K0361-04)				**Matrix: Soil**			**Batch: 8110770**	
1,1,2-Trichloroethane	ND	---	0.0547	mg/kg dry	50	11/13/18	5035A/8260C	
Trichloroethene (TCE)	ND	---	0.0547	mg/kg dry	50	11/13/18	5035A/8260C	
Trichlorofluoromethane	ND	---	0.219	mg/kg dry	50	11/13/18	5035A/8260C	EST
1,2,3-Trichloropropane	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
1,2,4-Trimethylbenzene	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
1,3,5-Trimethylbenzene	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
Vinyl chloride	ND	---	0.0547	mg/kg dry	50	11/13/18	5035A/8260C	
m,p-Xylene	ND	---	0.109	mg/kg dry	50	11/13/18	5035A/8260C	
o-Xylene	ND	---	0.0547	mg/kg dry	50	11/13/18	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery: 105 %*		*Limits: 80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
Toluene-d8 (Surr)		*98 %*		*80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)		*103 %*		*80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
S18-2' (A8K0361-05)				**Matrix: Soil**			**Batch: 8110770**	
Acetone	ND	---	1.76	mg/kg dry	50	11/13/18	5035A/8260C	
Acrylonitrile	ND	---	0.176	mg/kg dry	50	11/13/18	5035A/8260C	
Benzene	ND	---	0.0176	mg/kg dry	50	11/13/18	5035A/8260C	
Bromobenzene	ND	---	0.0441	mg/kg dry	50	11/13/18	5035A/8260C	
Bromochloromethane	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
Bromodichloromethane	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
Bromoform	ND	---	0.176	mg/kg dry	50	11/13/18	5035A/8260C	
Bromomethane	ND	---	0.882	mg/kg dry	50	11/13/18	5035A/8260C	
2-Butanone (MEK)	ND	---	0.882	mg/kg dry	50	11/13/18	5035A/8260C	
n-Butylbenzene	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
sec-Butylbenzene	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
tert-Butylbenzene	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
Carbon disulfide	ND	---	0.882	mg/kg dry	50	11/13/18	5035A/8260C	
Carbon tetrachloride	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
Chlorobenzene	ND	---	0.0441	mg/kg dry	50	11/13/18	5035A/8260C	
Chloroethane	ND	---	0.882	mg/kg dry	50	11/13/18	5035A/8260C	
Chloroform	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
Chloromethane	ND	---	0.441	mg/kg dry	50	11/13/18	5035A/8260C	
2-Chlorotoluene	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
4-Chlorotoluene	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
Dibromochloromethane	ND	---	0.176	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	---	0.441	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
Dibromomethane	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	

DRAFT REPORT

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Apex Laboratories, LLC

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EPA ID: OR01039

Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

S18-2' (A8K0361-05) — **Matrix: Soil** — **Batch: 8110770**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
1,2-Dichlorobenzene	ND	---	0.0441	mg/kg dry	50	11/13/18	5035A/8260C	
1,3-Dichlorobenzene	ND	---	0.0441	mg/kg dry	50	11/13/18	5035A/8260C	
1,4-Dichlorobenzene	ND	---	0.0441	mg/kg dry	50	11/13/18	5035A/8260C	
Dichlorodifluoromethane	ND	---	0.176	mg/kg dry	50	11/13/18	5035A/8260C	
1,1-Dichloroethane	ND	---	0.0441	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.0441	mg/kg dry	50	11/13/18	5035A/8260C	
1,1-Dichloroethene	ND	---	0.0441	mg/kg dry	50	11/13/18	5035A/8260C	
cis-1,2-Dichloroethene	ND	---	0.0441	mg/kg dry	50	11/13/18	5035A/8260C	
trans-1,2-Dichloroethene	ND	---	0.0441	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dichloropropane	ND	---	0.0441	mg/kg dry	50	11/13/18	5035A/8260C	
1,3-Dichloropropane	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
2,2-Dichloropropane	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
1,1-Dichloropropene	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
cis-1,3-Dichloropropene	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
trans-1,3-Dichloropropene	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
Ethylbenzene	ND	---	0.0441	mg/kg dry	50	11/13/18	5035A/8260C	
Hexachlorobutadiene	ND	---	0.176	mg/kg dry	50	11/13/18	5035A/8260C	
2-Hexanone	ND	---	0.882	mg/kg dry	50	11/13/18	5035A/8260C	
Isopropylbenzene	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
4-Isopropyltoluene	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
Methylene chloride	ND	---	0.441	mg/kg dry	50	11/13/18	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	---	0.882	mg/kg dry	50	11/13/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
Naphthalene	ND	---	0.176	mg/kg dry	50	11/13/18	5035A/8260C	
n-Propylbenzene	ND	---	0.0441	mg/kg dry	50	11/13/18	5035A/8260C	
Styrene	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
Tetrachloroethene (PCE)	**0.0941**	---	0.0441	mg/kg dry	50	11/13/18	5035A/8260C	
Toluene	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
1,2,3-Trichlorobenzene	ND	---	0.441	mg/kg dry	50	11/13/18	5035A/8260C	
1,2,4-Trichlorobenzene	ND	---	0.441	mg/kg dry	50	11/13/18	5035A/8260C	
1,1,1-Trichloroethane	ND	---	0.0441	mg/kg dry	50	11/13/18	5035A/8260C	
1,1,2-Trichloroethane	ND	---	0.0441	mg/kg dry	50	11/13/18	5035A/8260C	
Trichloroethene (TCE)	ND	---	0.0441	mg/kg dry	50	11/13/18	5035A/8260C	
Trichlorofluoromethane	ND	---	0.176	mg/kg dry	50	11/13/18	5035A/8260C	EST
1,2,3-Trichloropropane	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
1,2,4-Trimethylbenzene	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
1,3,5-Trimethylbenzene	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	

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EPA ID: OR01039

Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
S18-2' (A8K0361-05)				**Matrix: Soil**			**Batch: 8110770**	
Vinyl chloride	ND	---	0.0441	mg/kg dry	50	11/13/18	5035A/8260C	
m,p-Xylene	ND	---	0.0882	mg/kg dry	50	11/13/18	5035A/8260C	
o-Xylene	ND	---	0.0441	mg/kg dry	50	11/13/18	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery: 104 %*	*Limits: 80-120 %*		*1*	*11/13/18*	*5035A/8260C*	
Toluene-d8 (Surr)		*108 %*	*80-120 %*		*1*	*11/13/18*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)		*100 %*	*80-120 %*		*1*	*11/13/18*	*5035A/8260C*	
S20-1' (A8K0361-06)				**Matrix: Soil**			**Batch: 8110770**	
Acetone	ND	---	2.63	mg/kg dry	50	11/13/18	5035A/8260C	
Acrylonitrile	ND	---	0.263	mg/kg dry	50	11/13/18	5035A/8260C	
Benzene	ND	---	0.0263	mg/kg dry	50	11/13/18	5035A/8260C	
Bromobenzene	ND	---	0.0658	mg/kg dry	50	11/13/18	5035A/8260C	
Bromochloromethane	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
Bromodichloromethane	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
Bromoform	ND	---	0.263	mg/kg dry	50	11/13/18	5035A/8260C	
Bromomethane	ND	---	1.32	mg/kg dry	50	11/13/18	5035A/8260C	
2-Butanone (MEK)	ND	---	1.32	mg/kg dry	50	11/13/18	5035A/8260C	
n-Butylbenzene	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
sec-Butylbenzene	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
tert-Butylbenzene	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
Carbon disulfide	ND	---	1.32	mg/kg dry	50	11/13/18	5035A/8260C	
Carbon tetrachloride	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
Chlorobenzene	ND	---	0.0658	mg/kg dry	50	11/13/18	5035A/8260C	
Chloroethane	ND	---	1.32	mg/kg dry	50	11/13/18	5035A/8260C	
Chloroform	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
Chloromethane	ND	---	0.658	mg/kg dry	50	11/13/18	5035A/8260C	
2-Chlorotoluene	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
4-Chlorotoluene	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
Dibromochloromethane	ND	---	0.263	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	---	0.658	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
Dibromomethane	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dichlorobenzene	ND	---	0.0658	mg/kg dry	50	11/13/18	5035A/8260C	
1,3-Dichlorobenzene	ND	---	0.0658	mg/kg dry	50	11/13/18	5035A/8260C	
1,4-Dichlorobenzene	ND	---	0.0658	mg/kg dry	50	11/13/18	5035A/8260C	
Dichlorodifluoromethane	ND	---	0.263	mg/kg dry	50	11/13/18	5035A/8260C	
1,1-Dichloroethane	ND	---	0.0658	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.0658	mg/kg dry	50	11/13/18	5035A/8260C	

DRAFT REPORT

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EPA ID: OR01039

Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

S20-1' (A8K0361-06) — **Matrix: Soil** — **Batch: 8110770**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
1,1-Dichloroethene	ND	---	0.0658	mg/kg dry	50	11/13/18	5035A/8260C	
cis-1,2-Dichloroethene	ND	---	0.0658	mg/kg dry	50	11/13/18	5035A/8260C	
trans-1,2-Dichloroethene	ND	---	0.0658	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dichloropropane	ND	---	0.0658	mg/kg dry	50	11/13/18	5035A/8260C	
1,3-Dichloropropane	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
2,2-Dichloropropane	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
1,1-Dichloropropene	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
cis-1,3-Dichloropropene	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
trans-1,3-Dichloropropene	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
Ethylbenzene	ND	---	0.0658	mg/kg dry	50	11/13/18	5035A/8260C	
Hexachlorobutadiene	ND	---	0.263	mg/kg dry	50	11/13/18	5035A/8260C	
2-Hexanone	ND	---	1.32	mg/kg dry	50	11/13/18	5035A/8260C	
Isopropylbenzene	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
4-Isopropyltoluene	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
Methylene chloride	ND	---	0.658	mg/kg dry	50	11/13/18	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	---	1.32	mg/kg dry	50	11/13/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
Naphthalene	ND	---	0.263	mg/kg dry	50	11/13/18	5035A/8260C	
n-Propylbenzene	ND	---	0.0658	mg/kg dry	50	11/13/18	5035A/8260C	
Styrene	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
Tetrachloroethene (PCE)	ND	---	0.0658	mg/kg dry	50	11/13/18	5035A/8260C	
Toluene	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
1,2,3-Trichlorobenzene	ND	---	0.658	mg/kg dry	50	11/13/18	5035A/8260C	
1,2,4-Trichlorobenzene	ND	---	0.658	mg/kg dry	50	11/13/18	5035A/8260C	
1,1,1-Trichloroethane	ND	---	0.0658	mg/kg dry	50	11/13/18	5035A/8260C	
1,1,2-Trichloroethane	ND	---	0.0658	mg/kg dry	50	11/13/18	5035A/8260C	
Trichloroethene (TCE)	ND	---	0.0658	mg/kg dry	50	11/13/18	5035A/8260C	
Trichlorofluoromethane	ND	---	0.263	mg/kg dry	50	11/13/18	5035A/8260C	EST
1,2,3-Trichloropropane	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
1,2,4-Trimethylbenzene	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
1,3,5-Trimethylbenzene	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
Vinyl chloride	ND	---	0.0658	mg/kg dry	50	11/13/18	5035A/8260C	
m,p-Xylene	ND	---	0.132	mg/kg dry	50	11/13/18	5035A/8260C	
o-Xylene	ND	---	0.0658	mg/kg dry	50	11/13/18	5035A/8260C	

Surrogate: 1,4-Difluorobenzene (Surr)	*Recovery: 105 %*	*Limits: 80-120 %*	*1*	*11/13/18*	*5035A/8260C*
Toluene-d8 (Surr)	*101 %*	*80-120 %*	*1*	*11/13/18*	*5035A/8260C*

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503-718-2323
EPA ID: OR01039

Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
S20-1' (A8K0361-06)				**Matrix: Soil**			**Batch: 8110770**	
Surrogate: 4-Bromofluorobenzene (Surr)		*Recovery: 102 %*	*Limits: 80-120 %*		*1*	*11/13/18*	*5035A/8260C*	
S20-2' (A8K0361-07)				**Matrix: Soil**			**Batch: 8110770**	
Acetone	ND	---	1.72	mg/kg dry	50	11/13/18	5035A/8260C	
Acrylonitrile	ND	---	0.172	mg/kg dry	50	11/13/18	5035A/8260C	
Benzene	ND	---	0.0172	mg/kg dry	50	11/13/18	5035A/8260C	
Bromobenzene	ND	---	0.0431	mg/kg dry	50	11/13/18	5035A/8260C	
Bromochloromethane	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
Bromodichloromethane	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
Bromoform	ND	---	0.172	mg/kg dry	50	11/13/18	5035A/8260C	
Bromomethane	ND	---	0.862	mg/kg dry	50	11/13/18	5035A/8260C	
2-Butanone (MEK)	ND	---	0.862	mg/kg dry	50	11/13/18	5035A/8260C	
n-Butylbenzene	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
sec-Butylbenzene	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
tert-Butylbenzene	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
Carbon disulfide	ND	---	0.862	mg/kg dry	50	11/13/18	5035A/8260C	
Carbon tetrachloride	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
Chlorobenzene	ND	---	0.0431	mg/kg dry	50	11/13/18	5035A/8260C	
Chloroethane	ND	---	0.862	mg/kg dry	50	11/13/18	5035A/8260C	
Chloroform	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
Chloromethane	ND	---	0.431	mg/kg dry	50	11/13/18	5035A/8260C	
2-Chlorotoluene	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
4-Chlorotoluene	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
Dibromochloromethane	ND	---	0.172	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	---	0.431	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
Dibromomethane	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dichlorobenzene	ND	---	0.0431	mg/kg dry	50	11/13/18	5035A/8260C	
1,3-Dichlorobenzene	ND	---	0.0431	mg/kg dry	50	11/13/18	5035A/8260C	
1,4-Dichlorobenzene	ND	---	0.0431	mg/kg dry	50	11/13/18	5035A/8260C	
Dichlorodifluoromethane	ND	---	0.172	mg/kg dry	50	11/13/18	5035A/8260C	
1,1-Dichloroethane	ND	---	0.0431	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.0431	mg/kg dry	50	11/13/18	5035A/8260C	
1,1-Dichloroethene	ND	---	0.0431	mg/kg dry	50	11/13/18	5035A/8260C	
cis-1,2-Dichloroethene	ND	---	0.0431	mg/kg dry	50	11/13/18	5035A/8260C	
trans-1,2-Dichloroethene	ND	---	0.0431	mg/kg dry	50	11/13/18	5035A/8260C	
1,2-Dichloropropane	ND	---	0.0431	mg/kg dry	50	11/13/18	5035A/8260C	
1,3-Dichloropropane	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	

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Apex Laboratories, LLC

12232 S.W. Garden Place
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503-718-2323
EPA ID: OR01039

Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
S20-2' (A8K0361-07)				**Matrix: Soil**			**Batch: 8110770**	
2,2-Dichloropropane	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
1,1-Dichloropropene	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
cis-1,3-Dichloropropene	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
trans-1,3-Dichloropropene	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
Ethylbenzene	ND	---	0.0431	mg/kg dry	50	11/13/18	5035A/8260C	
Hexachlorobutadiene	ND	---	0.172	mg/kg dry	50	11/13/18	5035A/8260C	
2-Hexanone	ND	---	0.862	mg/kg dry	50	11/13/18	5035A/8260C	
Isopropylbenzene	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
4-Isopropyltoluene	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
Methylene chloride	ND	---	0.431	mg/kg dry	50	11/13/18	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	---	0.862	mg/kg dry	50	11/13/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
Naphthalene	ND	---	0.172	mg/kg dry	50	11/13/18	5035A/8260C	
n-Propylbenzene	ND	---	0.0431	mg/kg dry	50	11/13/18	5035A/8260C	
Styrene	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
Tetrachloroethene (PCE)	**0.103**	---	0.0431	mg/kg dry	50	11/13/18	5035A/8260C	
Toluene	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
1,2,3-Trichlorobenzene	ND	---	0.431	mg/kg dry	50	11/13/18	5035A/8260C	
1,2,4-Trichlorobenzene	ND	---	0.431	mg/kg dry	50	11/13/18	5035A/8260C	
1,1,1-Trichloroethane	ND	---	0.0431	mg/kg dry	50	11/13/18	5035A/8260C	
1,1,2-Trichloroethane	ND	---	0.0431	mg/kg dry	50	11/13/18	5035A/8260C	
Trichloroethene (TCE)	ND	---	0.0431	mg/kg dry	50	11/13/18	5035A/8260C	
Trichlorofluoromethane	ND	---	0.172	mg/kg dry	50	11/13/18	5035A/8260C	EST
1,2,3-Trichloropropane	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
1,2,4-Trimethylbenzene	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
1,3,5-Trimethylbenzene	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
Vinyl chloride	ND	---	0.0431	mg/kg dry	50	11/13/18	5035A/8260C	
m,p-Xylene	ND	---	0.0862	mg/kg dry	50	11/13/18	5035A/8260C	
o-Xylene	ND	---	0.0431	mg/kg dry	50	11/13/18	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery: 106 %*		*Limits: 80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
Toluene-d8 (Surr)			*100 %*	*80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*102 %*	*80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
S18-3 (A8K0361-08)				**Matrix: Soil**			**Batch: 8110770**	
Acetone	ND	---	2.02	mg/kg wet	50	11/13/18	5035A/8260C	
Acrylonitrile	ND	---	0.202	mg/kg wet	50	11/13/18	5035A/8260C	

DRAFT REPORT

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EPA ID: OR01039

Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

S18-3 (A8K0361-08) — **Matrix: Soil** — **Batch: 8110770**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
Benzene	ND	---	0.0202	mg/kg wet	50	11/13/18	5035A/8260C	
Bromobenzene	ND	---	0.0504	mg/kg wet	50	11/13/18	5035A/8260C	
Bromochloromethane	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
Bromodichloromethane	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
Bromoform	ND	---	0.202	mg/kg wet	50	11/13/18	5035A/8260C	
Bromomethane	ND	---	1.01	mg/kg wet	50	11/13/18	5035A/8260C	
2-Butanone (MEK)	ND	---	1.01	mg/kg wet	50	11/13/18	5035A/8260C	
n-Butylbenzene	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
sec-Butylbenzene	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
tert-Butylbenzene	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
Carbon disulfide	ND	---	1.01	mg/kg wet	50	11/13/18	5035A/8260C	
Carbon tetrachloride	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
Chlorobenzene	ND	---	0.0504	mg/kg wet	50	11/13/18	5035A/8260C	
Chloroethane	ND	---	1.01	mg/kg wet	50	11/13/18	5035A/8260C	
Chloroform	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
Chloromethane	ND	---	0.504	mg/kg wet	50	11/13/18	5035A/8260C	
2-Chlorotoluene	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
4-Chlorotoluene	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
Dibromochloromethane	ND	---	0.202	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	---	0.504	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
Dibromomethane	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dichlorobenzene	ND	---	0.0504	mg/kg wet	50	11/13/18	5035A/8260C	
1,3-Dichlorobenzene	ND	---	0.0504	mg/kg wet	50	11/13/18	5035A/8260C	
1,4-Dichlorobenzene	ND	---	0.0504	mg/kg wet	50	11/13/18	5035A/8260C	
Dichlorodifluoromethane	ND	---	0.202	mg/kg wet	50	11/13/18	5035A/8260C	
1,1-Dichloroethane	ND	---	0.0504	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.0504	mg/kg wet	50	11/13/18	5035A/8260C	
1,1-Dichloroethene	ND	---	0.0504	mg/kg wet	50	11/13/18	5035A/8260C	
cis-1,2-Dichloroethene	ND	---	0.0504	mg/kg wet	50	11/13/18	5035A/8260C	
trans-1,2-Dichloroethene	ND	---	0.0504	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dichloropropane	ND	---	0.0504	mg/kg wet	50	11/13/18	5035A/8260C	
1,3-Dichloropropane	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
2,2-Dichloropropane	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
1,1-Dichloropropene	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
cis-1,3-Dichloropropene	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
trans-1,3-Dichloropropene	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
Ethylbenzene	ND	---	0.0504	mg/kg wet	50	11/13/18	5035A/8260C	
Hexachlorobutadiene	ND	---	0.202	mg/kg wet	50	11/13/18	5035A/8260C	

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EPA ID: OR01039

Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
S18-3 (A8K0361-08)				**Matrix: Soil**			**Batch: 8110770**	
2-Hexanone	ND	---	1.01	mg/kg wet	50	11/13/18	5035A/8260C	
Isopropylbenzene	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
4-Isopropyltoluene	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
Methylene chloride	ND	---	0.504	mg/kg wet	50	11/13/18	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	---	1.01	mg/kg wet	50	11/13/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
Naphthalene	ND	---	0.202	mg/kg wet	50	11/13/18	5035A/8260C	
n-Propylbenzene	ND	---	0.0504	mg/kg wet	50	11/13/18	5035A/8260C	
Styrene	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
Tetrachloroethene (PCE)	**0.207**	---	0.0504	mg/kg wet	50	11/13/18	5035A/8260C	
Toluene	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
1,2,3-Trichlorobenzene	ND	---	0.504	mg/kg wet	50	11/13/18	5035A/8260C	
1,2,4-Trichlorobenzene	ND	---	0.504	mg/kg wet	50	11/13/18	5035A/8260C	
1,1,1-Trichloroethane	ND	---	0.0504	mg/kg wet	50	11/13/18	5035A/8260C	
1,1,2-Trichloroethane	ND	---	0.0504	mg/kg wet	50	11/13/18	5035A/8260C	
Trichloroethene (TCE)	ND	---	0.0504	mg/kg wet	50	11/13/18	5035A/8260C	
Trichlorofluoromethane	ND	---	0.202	mg/kg wet	50	11/13/18	5035A/8260C	EST
1,2,3-Trichloropropane	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
1,2,4-Trimethylbenzene	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
1,3,5-Trimethylbenzene	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
Vinyl chloride	ND	---	0.0504	mg/kg wet	50	11/13/18	5035A/8260C	
m,p-Xylene	ND	---	0.101	mg/kg wet	50	11/13/18	5035A/8260C	
o-Xylene	ND	---	0.0504	mg/kg wet	50	11/13/18	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery: 106 %*		*Limits: 80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
Toluene-d8 (Surr)			*99 %*	*80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*103 %*	*80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
S19-1' (A8K0361-09)				**Matrix: Soil**			**Batch: 8110770**	
Acetone	ND	---	0.883	mg/kg wet	50	11/13/18	5035A/8260C	
Acrylonitrile	ND	---	0.0883	mg/kg wet	50	11/13/18	5035A/8260C	
Benzene	ND	---	0.00883	mg/kg wet	50	11/13/18	5035A/8260C	
Bromobenzene	ND	---	0.0221	mg/kg wet	50	11/13/18	5035A/8260C	
Bromochloromethane	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
Bromodichloromethane	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
Bromoform	ND	---	0.0883	mg/kg wet	50	11/13/18	5035A/8260C	
Bromomethane	ND	---	0.442	mg/kg wet	50	11/13/18	5035A/8260C	

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EPA ID: OR01039

Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

S19-1' (A8K0361-09) — **Matrix: Soil** — **Batch: 8110770**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
2-Butanone (MEK)	ND	---	0.442	mg/kg wet	50	11/13/18	5035A/8260C	
n-Butylbenzene	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
sec-Butylbenzene	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
tert-Butylbenzene	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
Carbon disulfide	ND	---	0.442	mg/kg wet	50	11/13/18	5035A/8260C	
Carbon tetrachloride	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
Chlorobenzene	ND	---	0.0221	mg/kg wet	50	11/13/18	5035A/8260C	
Chloroethane	ND	---	0.442	mg/kg wet	50	11/13/18	5035A/8260C	
Chloroform	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
Chloromethane	ND	---	0.221	mg/kg wet	50	11/13/18	5035A/8260C	
2-Chlorotoluene	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
4-Chlorotoluene	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
Dibromochloromethane	ND	---	0.0883	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	---	0.221	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
Dibromomethane	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dichlorobenzene	ND	---	0.0221	mg/kg wet	50	11/13/18	5035A/8260C	
1,3-Dichlorobenzene	ND	---	0.0221	mg/kg wet	50	11/13/18	5035A/8260C	
1,4-Dichlorobenzene	ND	---	0.0221	mg/kg wet	50	11/13/18	5035A/8260C	
Dichlorodifluoromethane	ND	---	0.0883	mg/kg wet	50	11/13/18	5035A/8260C	
1,1-Dichloroethane	ND	---	0.0221	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.0221	mg/kg wet	50	11/13/18	5035A/8260C	
1,1-Dichloroethene	ND	---	0.0221	mg/kg wet	50	11/13/18	5035A/8260C	
cis-1,2-Dichloroethene	ND	---	0.0221	mg/kg wet	50	11/13/18	5035A/8260C	
trans-1,2-Dichloroethene	ND	---	0.0221	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dichloropropane	ND	---	0.0221	mg/kg wet	50	11/13/18	5035A/8260C	
1,3-Dichloropropane	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
2,2-Dichloropropane	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
1,1-Dichloropropene	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
cis-1,3-Dichloropropene	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
trans-1,3-Dichloropropene	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
Ethylbenzene	ND	---	0.0221	mg/kg wet	50	11/13/18	5035A/8260C	
Hexachlorobutadiene	ND	---	0.0883	mg/kg wet	50	11/13/18	5035A/8260C	
2-Hexanone	ND	---	0.442	mg/kg wet	50	11/13/18	5035A/8260C	
Isopropylbenzene	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
4-Isopropyltoluene	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
Methylene chloride	ND	---	0.221	mg/kg wet	50	11/13/18	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	---	0.442	mg/kg wet	50	11/13/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	

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EPA ID: OR01039

Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
S19-1' (A8K0361-09)				**Matrix: Soil**			**Batch: 8110770**	
Naphthalene	ND	---	0.0883	mg/kg wet	50	11/13/18	5035A/8260C	
n-Propylbenzene	ND	---	0.0221	mg/kg wet	50	11/13/18	5035A/8260C	
Styrene	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
Tetrachloroethene (PCE)	**0.110**	---	0.0221	mg/kg wet	50	11/13/18	5035A/8260C	
Toluene	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
1,2,3-Trichlorobenzene	ND	---	0.221	mg/kg wet	50	11/13/18	5035A/8260C	
1,2,4-Trichlorobenzene	ND	---	0.221	mg/kg wet	50	11/13/18	5035A/8260C	
1,1,1-Trichloroethane	ND	---	0.0221	mg/kg wet	50	11/13/18	5035A/8260C	
1,1,2-Trichloroethane	ND	---	0.0221	mg/kg wet	50	11/13/18	5035A/8260C	
Trichloroethene (TCE)	ND	---	0.0221	mg/kg wet	50	11/13/18	5035A/8260C	
Trichlorofluoromethane	ND	---	0.0883	mg/kg wet	50	11/13/18	5035A/8260C	EST
1,2,3-Trichloropropane	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
1,2,4-Trimethylbenzene	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
1,3,5-Trimethylbenzene	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
Vinyl chloride	ND	---	0.0221	mg/kg wet	50	11/13/18	5035A/8260C	
m,p-Xylene	ND	---	0.0442	mg/kg wet	50	11/13/18	5035A/8260C	
o-Xylene	ND	---	0.0221	mg/kg wet	50	11/13/18	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery: 107 %*		*Limits: 80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
Toluene-d8 (Surr)				*80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)				*80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
S19-2' (A8K0361-10)				**Matrix: Soil**			**Batch: 8110770**	
Acetone	ND	---	1.25	mg/kg wet	50	11/13/18	5035A/8260C	
Acrylonitrile	ND	---	0.125	mg/kg wet	50	11/13/18	5035A/8260C	
Benzene	ND	---	0.0125	mg/kg wet	50	11/13/18	5035A/8260C	
Bromobenzene	ND	---	0.0312	mg/kg wet	50	11/13/18	5035A/8260C	
Bromochloromethane	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
Bromodichloromethane	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
Bromoform	ND	---	0.125	mg/kg wet	50	11/13/18	5035A/8260C	
Bromomethane	ND	---	0.623	mg/kg wet	50	11/13/18	5035A/8260C	
2-Butanone (MEK)	ND	---	0.623	mg/kg wet	50	11/13/18	5035A/8260C	
n-Butylbenzene	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
sec-Butylbenzene	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
tert-Butylbenzene	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
Carbon disulfide	ND	---	0.623	mg/kg wet	50	11/13/18	5035A/8260C	
Carbon tetrachloride	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	

DRAFT REPORT

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Apex Laboratories, LLC

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503-718-2323
EPA ID: OR01039

Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

S19-2' (A8K0361-10) — **Matrix: Soil** — **Batch: 8110770**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
Chlorobenzene	ND	---	0.0312	mg/kg wet	50	11/13/18	5035A/8260C	
Chloroethane	ND	---	0.623	mg/kg wet	50	11/13/18	5035A/8260C	
Chloroform	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
Chloromethane	ND	---	0.312	mg/kg wet	50	11/13/18	5035A/8260C	
2-Chlorotoluene	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
4-Chlorotoluene	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
Dibromochloromethane	ND	---	0.125	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	---	0.312	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
Dibromomethane	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dichlorobenzene	ND	---	0.0312	mg/kg wet	50	11/13/18	5035A/8260C	
1,3-Dichlorobenzene	ND	---	0.0312	mg/kg wet	50	11/13/18	5035A/8260C	
1,4-Dichlorobenzene	ND	---	0.0312	mg/kg wet	50	11/13/18	5035A/8260C	
Dichlorodifluoromethane	ND	---	0.125	mg/kg wet	50	11/13/18	5035A/8260C	
1,1-Dichloroethane	ND	---	0.0312	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.0312	mg/kg wet	50	11/13/18	5035A/8260C	
1,1-Dichloroethene	ND	---	0.0312	mg/kg wet	50	11/13/18	5035A/8260C	
cis-1,2-Dichloroethene	ND	---	0.0312	mg/kg wet	50	11/13/18	5035A/8260C	
trans-1,2-Dichloroethene	ND	---	0.0312	mg/kg wet	50	11/13/18	5035A/8260C	
1,2-Dichloropropane	ND	---	0.0312	mg/kg wet	50	11/13/18	5035A/8260C	
1,3-Dichloropropane	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
2,2-Dichloropropane	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
1,1-Dichloropropene	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
cis-1,3-Dichloropropene	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
trans-1,3-Dichloropropene	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
Ethylbenzene	ND	---	0.0312	mg/kg wet	50	11/13/18	5035A/8260C	
Hexachlorobutadiene	ND	---	0.125	mg/kg wet	50	11/13/18	5035A/8260C	
2-Hexanone	ND	---	0.623	mg/kg wet	50	11/13/18	5035A/8260C	
Isopropylbenzene	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
4-Isopropyltoluene	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
Methylene chloride	ND	---	0.312	mg/kg wet	50	11/13/18	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	---	0.623	mg/kg wet	50	11/13/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
Naphthalene	ND	---	0.125	mg/kg wet	50	11/13/18	5035A/8260C	
n-Propylbenzene	ND	---	0.0312	mg/kg wet	50	11/13/18	5035A/8260C	
Styrene	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
Tetrachloroethene (PCE)	**0.259**	---	0.0312	mg/kg wet	50	11/13/18	5035A/8260C	

DRAFT REPORT

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Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
S19-2' (A8K0361-10)				**Matrix: Soil**			**Batch: 8110770**	
Toluene	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
1,2,3-Trichlorobenzene	ND	---	0.312	mg/kg wet	50	11/13/18	5035A/8260C	
1,2,4-Trichlorobenzene	ND	---	0.312	mg/kg wet	50	11/13/18	5035A/8260C	
1,1,1-Trichloroethane	ND	---	0.0312	mg/kg wet	50	11/13/18	5035A/8260C	
1,1,2-Trichloroethane	ND	---	0.0312	mg/kg wet	50	11/13/18	5035A/8260C	
Trichloroethene (TCE)	ND	---	0.0312	mg/kg wet	50	11/13/18	5035A/8260C	
Trichlorofluoromethane	ND	---	0.125	mg/kg wet	50	11/13/18	5035A/8260C	EST
1,2,3-Trichloropropane	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
1,2,4-Trimethylbenzene	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
1,3,5-Trimethylbenzene	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
Vinyl chloride	ND	---	0.0312	mg/kg wet	50	11/13/18	5035A/8260C	
m,p-Xylene	ND	---	0.0623	mg/kg wet	50	11/13/18	5035A/8260C	
o-Xylene	ND	---	0.0312	mg/kg wet	50	11/13/18	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery: 108 %*		*Limits: 80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
Toluene-d8 (Surr)			*99 %*	*80-120 %*	*1*	*11/13/18*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*102 %*	*80-120 %*	*1*	*11/13/18*	*5035A/8260C*	

Highlighted results have not undergone full secondary data review at the time of reporting.
Results are subject to change upon final review and reporting.

DRAFT REPORT

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Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
S17-2' (A8K0361-02)				**Matrix: Soil**			**Batch: 8110783**	
% Solids	**87.5**	---	1.00	% by Weight	1	11/14/18	EPA 8000C	
S18-1' (A8K0361-04)				**Matrix: Soil**			**Batch: 8110783**	
% Solids	**88.2**	---	1.00	% by Weight	1	11/14/18	EPA 8000C	
S18-2' (A8K0361-05)				**Matrix: Soil**			**Batch: 8110783**	
% Solids	**91.2**	---	1.00	% by Weight	1	11/14/18	EPA 8000C	
S20-1' (A8K0361-06)				**Matrix: Soil**			**Batch: 8110783**	
% Solids	**94.4**	---	1.00	% by Weight	1	11/14/18	EPA 8000C	
S20-2' (A8K0361-07)				**Matrix: Soil**			**Batch: 8110783**	
% Solids	**93.7**	---	1.00	% by Weight	1	11/14/18	EPA 8000C	

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Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8110770 - EPA 5035A							**Soil**					
Blank (8110770-BLK1)		Prepared: 11/13/18 08:00 Analyzed: 11/13/18 09:26										
5035A/8260C												
Acetone	ND	---	0.667	mg/kg wet	50	---	---	---	---	---	---	
Acrylonitrile	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
Benzene	ND	---	0.00667	mg/kg wet	50	---	---	---	---	---	---	
Bromobenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Bromochloromethane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Bromodichloromethane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Bromoform	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
Bromomethane	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
2-Butanone (MEK)	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
n-Butylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
sec-Butylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
tert-Butylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Carbon disulfide	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
Carbon tetrachloride	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Chlorobenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Chloroethane	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
Chloroform	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Chloromethane	ND	---	0.167	mg/kg wet	50	---	---	---	---	---	---	
2-Chlorotoluene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
4-Chlorotoluene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Dibromochloromethane	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	---	0.167	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Dibromomethane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethane	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	

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Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8110770 - EPA 5035A							**Soil**					
Blank (8110770-BLK1)		Prepared: 11/13/18 08:00		Analyzed: 11/13/18 09:26								
1,2-Dichloropropane	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,3-Dichloropropane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
2,2-Dichloropropane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,1-Dichloropropene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Hexachlorobutadiene	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
2-Hexanone	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
Isopropylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
4-Isopropyltoluene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Methylene chloride	ND	---	0.167	mg/kg wet	50	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Naphthalene	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
n-Propylbenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Styrene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Toluene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	---	0.167	mg/kg wet	50	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	---	0.167	mg/kg wet	50	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Trichlorofluoromethane	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	EST
1,2,3-Trichloropropane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Vinyl chloride	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
m,p-Xylene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
o-Xylene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	

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Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8110770 - EPA 5035A									Soil			
Blank (8110770-BLK1)			Prepared: 11/13/18 08:00 Analyzed: 11/13/18 09:26									
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 102 %*	*Limits: 80-120 %*					*Dilution: 1x*			
Toluene-d8 (Surr)			*100 %*	*80-120 %*					*"*			
4-Bromofluorobenzene (Surr)			*103 %*	*80-120 %*					*"*			
LCS (8110770-BS1)			Prepared: 11/13/18 08:00 Analyzed: 11/13/18 08:33									
5035A/8260C												
Acetone	2.13	---	1.00	mg/kg wet	50	2.00	---	106	80-120%	---	---	
Acrylonitrile	0.934	---	0.100	mg/kg wet	50	1.00	---	93	80-120%	---	---	
Benzene	0.928	---	0.0100	mg/kg wet	50	1.00	---	93	80-120%	---	---	
Bromobenzene	0.928	---	0.0250	mg/kg wet	50	1.00	---	93	80-120%	---	---	
Bromochloromethane	0.933	---	0.0500	mg/kg wet	50	1.00	---	93	80-120%	---	---	
Bromodichloromethane	1.08	---	0.0500	mg/kg wet	50	1.00	---	108	80-120%	---	---	
Bromoform	0.856	---	0.100	mg/kg wet	50	1.00	---	86	80-120%	---	---	
Bromomethane	1.16	---	0.500	mg/kg wet	50	1.00	---	116	80-120%	---	---	
2-Butanone (MEK)	1.81	---	0.500	mg/kg wet	50	2.00	---	91	80-120%	---	---	
n-Butylbenzene	0.956	---	0.0500	mg/kg wet	50	1.00	---	96	80-120%	---	---	
sec-Butylbenzene	0.970	---	0.0500	mg/kg wet	50	1.00	---	97	80-120%	---	---	
tert-Butylbenzene	0.946	---	0.0500	mg/kg wet	50	1.00	---	95	80-120%	---	---	
Carbon disulfide	0.826	---	0.500	mg/kg wet	50	1.00	---	83	80-120%	---	---	
Carbon tetrachloride	1.11	---	0.0500	mg/kg wet	50	1.00	---	111	80-120%	---	---	
Chlorobenzene	0.927	---	0.0250	mg/kg wet	50	1.00	---	93	80-120%	---	---	
Chloroethane	1.01	---	0.500	mg/kg wet	50	1.00	---	101	80-120%	---	---	
Chloroform	0.963	---	0.0500	mg/kg wet	50	1.00	---	96	80-120%	---	---	
Chloromethane	0.952	---	0.250	mg/kg wet	50	1.00	---	95	80-120%	---	---	
2-Chlorotoluene	0.955	---	0.0500	mg/kg wet	50	1.00	---	96	80-120%	---	---	
4-Chlorotoluene	0.944	---	0.0500	mg/kg wet	50	1.00	---	94	80-120%	---	---	
Dibromochloromethane	0.860	---	0.100	mg/kg wet	50	1.00	---	86	80-120%	---	---	
1,2-Dibromo-3-chloropropane	0.841	---	0.250	mg/kg wet	50	1.00	---	84	80-120%	---	---	
1,2-Dibromoethane (EDB)	0.957	---	0.0500	mg/kg wet	50	1.00	---	96	80-120%	---	---	
Dibromomethane	0.982	---	0.0500	mg/kg wet	50	1.00	---	98	80-120%	---	---	
1,2-Dichlorobenzene	0.922	---	0.0250	mg/kg wet	50	1.00	---	92	80-120%	---	---	
1,3-Dichlorobenzene	0.931	---	0.0250	mg/kg wet	50	1.00	---	93	80-120%	---	---	
1,4-Dichlorobenzene	0.905	---	0.0250	mg/kg wet	50	1.00	---	90	80-120%	---	---	
Dichlorodifluoromethane	1.05	---	0.100	mg/kg wet	50	1.00	---	105	80-120%	---	---	

DRAFT REPORT

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Apex Laboratories, LLC

12232 S.W. Garden Place
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503-718-2323
EPA ID: OR01039

Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8110770 - EPA 5035A							**Soil**					
LCS (8110770-BS1)		Prepared: 11/13/18 08:00		Analyzed: 11/13/18 08:33								
1,1-Dichloroethane	0.970	---	0.0250	mg/kg wet	50	1.00	---	97	80-120%	---	---	
1,2-Dichloroethane (EDC)	0.976	---	0.0250	mg/kg wet	50	1.00	---	98	80-120%	---	---	
1,1-Dichloroethene	0.902	---	0.0250	mg/kg wet	50	1.00	---	90	80-120%	---	---	
cis-1,2-Dichloroethene	0.955	---	0.0250	mg/kg wet	50	1.00	---	96	80-120%	---	---	
trans-1,2-Dichloroethene	0.927	---	0.0250	mg/kg wet	50	1.00	---	93	80-120%	---	---	
1,2-Dichloropropane	0.959	---	0.0250	mg/kg wet	50	1.00	---	96	80-120%	---	---	
1,3-Dichloropropane	0.925	---	0.0500	mg/kg wet	50	1.00	---	92	80-120%	---	---	
2,2-Dichloropropane	1.01	---	0.0500	mg/kg wet	50	1.00	---	101	80-120%	---	---	
1,1-Dichloropropene	0.936	---	0.0500	mg/kg wet	50	1.00	---	94	80-120%	---	---	
cis-1,3-Dichloropropene	0.949	---	0.0500	mg/kg wet	50	1.00	---	95	80-120%	---	---	
trans-1,3-Dichloropropene	0.871	---	0.0500	mg/kg wet	50	1.00	---	87	80-120%	---	---	
Ethylbenzene	0.879	---	0.0250	mg/kg wet	50	1.00	---	88	80-120%	---	---	
Hexachlorobutadiene	1.01	---	0.100	mg/kg wet	50	1.00	---	101	80-120%	---	---	
2-Hexanone	1.81	---	0.500	mg/kg wet	50	2.00	---	91	80-120%	---	---	
Isopropylbenzene	0.948	---	0.0500	mg/kg wet	50	1.00	---	95	80-120%	---	---	
4-Isopropyltoluene	0.984	---	0.0500	mg/kg wet	50	1.00	---	98	80-120%	---	---	
Methylene chloride	0.915	---	0.250	mg/kg wet	50	1.00	---	92	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	1.82	---	0.500	mg/kg wet	50	2.00	---	91	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	0.951	---	0.0500	mg/kg wet	50	1.00	---	95	80-120%	---	---	
Naphthalene	0.923	---	0.100	mg/kg wet	50	1.00	---	92	80-120%	---	---	
n-Propylbenzene	0.953	---	0.0250	mg/kg wet	50	1.00	---	95	80-120%	---	---	
Styrene	0.972	---	0.0500	mg/kg wet	50	1.00	---	97	80-120%	---	---	
1,1,1,2-Tetrachloroethane	0.884	---	0.0500	mg/kg wet	50	1.00	---	88	80-120%	---	---	
1,1,2,2-Tetrachloroethane	0.903	---	0.0500	mg/kg wet	50	1.00	---	90	80-120%	---	---	
Tetrachloroethene (PCE)	0.914	---	0.0250	mg/kg wet	50	1.00	---	91	80-120%	---	---	
Toluene	0.869	---	0.0500	mg/kg wet	50	1.00	---	87	80-120%	---	---	
1,2,3-Trichlorobenzene	0.880	---	0.250	mg/kg wet	50	1.00	---	88	80-120%	---	---	
1,2,4-Trichlorobenzene	0.908	---	0.250	mg/kg wet	50	1.00	---	91	80-120%	---	---	
1,1,1-Trichloroethane	1.00	---	0.0250	mg/kg wet	50	1.00	---	100	80-120%	---	---	
1,1,2-Trichloroethane	0.966	---	0.0250	mg/kg wet	50	1.00	---	97	80-120%	---	---	
Trichloroethene (TCE)	0.974	---	0.0250	mg/kg wet	50	1.00	---	97	80-120%	---	---	
Trichlorofluoromethane	0.752	---	0.100	mg/kg wet	50	1.00	---	**75**	**80-120%**	---	---	EST, Q-55
1,2,3-Trichloropropane	0.930	---	0.0500	mg/kg wet	50	1.00	---	93	80-120%	---	---	

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Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8110770 - EPA 5035A							**Soil**					
LCS (8110770-BS1)		Prepared: 11/13/18 08:00 Analyzed: 11/13/18 08:33										
1,2,4-Trimethylbenzene	0.964	---	0.0500	mg/kg wet	50	1.00	---	96	80-120%	---	---	
1,3,5-Trimethylbenzene	0.974	---	0.0500	mg/kg wet	50	1.00	---	97	80-120%	---	---	
Vinyl chloride	1.06	---	0.0250	mg/kg wet	50	1.00	---	106	80-120%	---	---	
m,p-Xylene	1.84	---	0.0500	mg/kg wet	50	2.00	---	92	80-120%	---	---	
o-Xylene	0.888	---	0.0250	mg/kg wet	50	1.00	---	89	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		*Recovery: 104 %*		*Limits: 80-120 %*			*Dilution: 1x*					
Toluene-d8 (Surr)		*99 %*		*80-120 %*			*"*					
4-Bromofluorobenzene (Surr)		*102 %*		*80-120 %*			*"*					

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Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8110783 - Total Solids (Dry Weight)							**Soil**					

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

DRAFT REPORT

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SAMPLE PREPARATION INFORMATION

Volatile Organic Compounds by EPA 5035A/8260C

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8110770							
A8K0361-01	Soil	5035A/8260C	11/08/18 07:25	11/08/18 07:25	5.58g/5mL	5g/5mL	0.90
A8K0361-02	Soil	5035A/8260C	11/08/18 07:46	11/08/18 07:46	4.58g/5mL	5g/5mL	1.09
A8K0361-03	Soil	5035A/8260C	11/08/18 07:57	11/08/18 07:57	4.76g/5mL	5g/5mL	1.05
A8K0361-04	Soil	5035A/8260C	11/08/18 08:15	11/08/18 08:15	2.76g/5mL	5g/5mL	1.81
A8K0361-05	Soil	5035A/8260C	11/08/18 08:34	11/08/18 08:34	3.29g/5mL	5g/5mL	1.52
A8K0361-06	Soil	5035A/8260C	11/08/18 09:35	11/08/18 09:35	2.06g/5mL	5g/5mL	2.43
A8K0361-07	Soil	5035A/8260C	11/08/18 09:54	11/08/18 09:54	3.22g/5mL	5g/5mL	1.55
A8K0361-08	Soil	5035A/8260C	11/08/18 10:50	11/08/18 10:50	2.48g/5mL	5g/5mL	2.02
A8K0361-09	Soil	5035A/8260C	11/09/18 03:01	11/09/18 03:01	5.66g/5mL	5g/5mL	0.88
A8K0361-10	Soil	5035A/8260C	11/09/18 03:06	11/09/18 03:06	4.01g/5mL	5g/5mL	1.25

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8110783							
A8K0361-02	Soil	EPA 8000C	11/08/18 07:46	11/13/18 09:42			NA
A8K0361-04	Soil	EPA 8000C	11/08/18 08:15	11/13/18 09:42			NA
A8K0361-05	Soil	EPA 8000C	11/08/18 08:34	11/13/18 09:42			NA
A8K0361-06	Soil	EPA 8000C	11/08/18 09:35	11/13/18 09:42			NA
A8K0361-07	Soil	EPA 8000C	11/08/18 09:54	11/13/18 09:42			NA

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2341 1st Avenue Suite 203	Project Number:	**Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager:	**John Funderburk**	**A8K0361 - 11 14 18 1405**

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

EST	Result reported as an Estimated Value. Compound fails initial calibration criteria.
Q-55	Daily CCV/LCS recovery for this analyte was below the +/-20% criteria listed in EPA 8260C, however there is adequate sensitivity to ensure detection at the reporting level.

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REPORTING NOTES AND CONVENTIONS:

Abbreviations:

DET	Analyte DETECTED at or above the detection or reporting limit.
ND	Analyte NOT DETECTED at or above the detection or reporting limit.
NR	Result Not Reported
RPD	Relative Percent Difference

Detection Limits: Limit of Detection (LOD)

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as " dry", " wet", or " " (blank) designation.

" dry"	Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry") See Percent Solids section for details of dry weight analysis.
" wet"	Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.
" "	Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) are not included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- "	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
" *** "	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to ½ the Reporting Limit (RL).
-For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.
For further details, please request a copy of this document.

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REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks (Cont.):

Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the blank results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

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LABORATORY ACCREDITATION INFORMATION

TNI Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation

All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.
Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

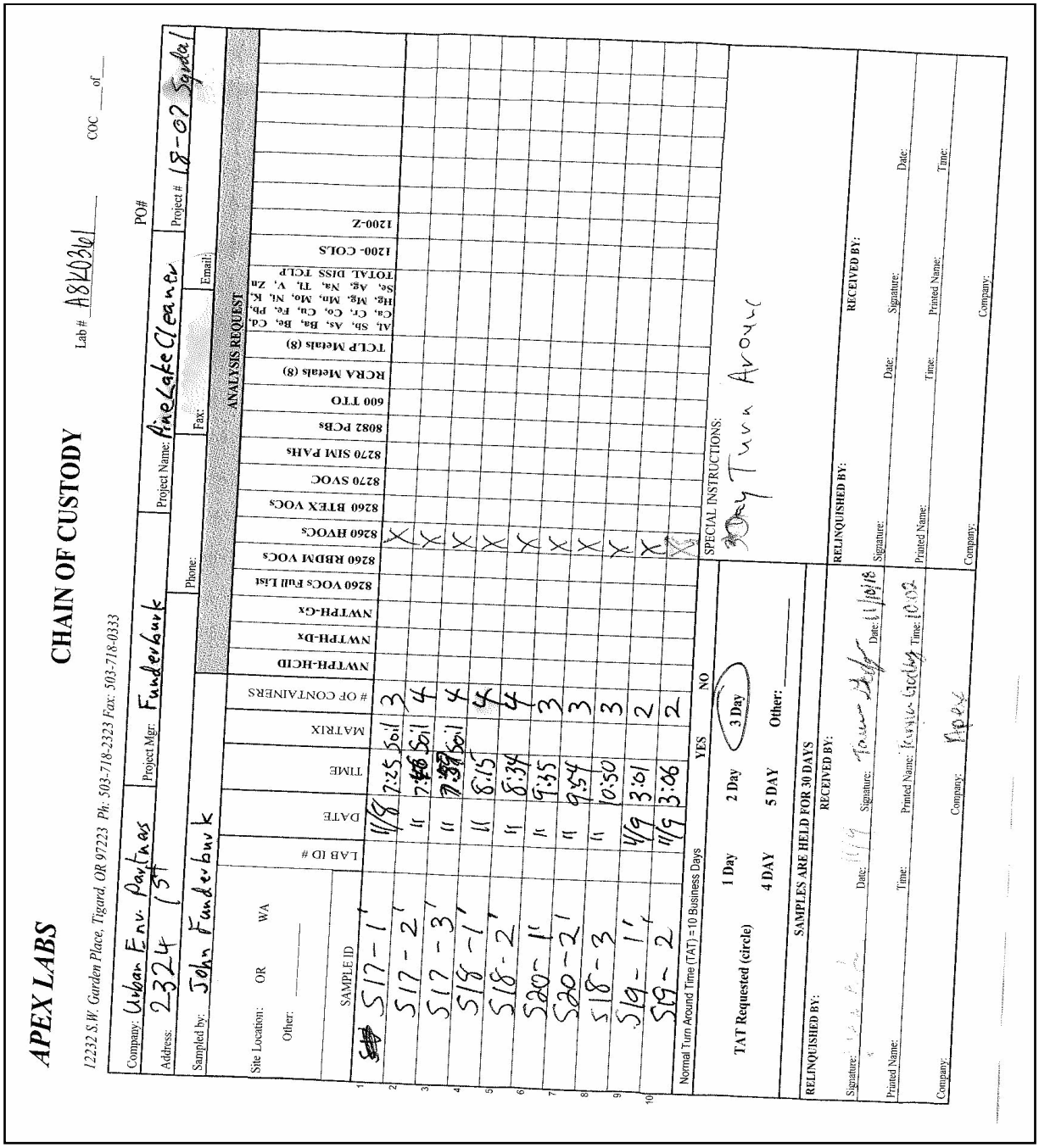
Field Testing Parameters

Results for Field Tested data are provded by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

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APEX LABS

CHAIN OF CUSTODY

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # A8K0361

COC ___ of ___

Company: Urban Env Partners | Project Mgr: Funderburk | Project Name: PineLake Cleaner | PO# | Project # 18-07 Sayda

Address: 2324 1st | Phone: | Fax: | Email:

Sampled by: John Funderburk

Site Location: OR WA

Other: _____

ANALYSIS REQUEST

#	SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 VOCs Full List	8260 RBDM VOCs	8260 HVOCs	8260 BTEX VOCs	8270 SVOC	8270 SIM PAHs	8082 PCBs	600 TTO	RCRA Metals (8)	TCLP Metals (8)	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Hg, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn TOTAL DISS TCLP	1200- COLS	1200-Z
1	~~SB~~ S17-1'		11/8	7:25	Soil	3						X	X									
2	S17-2'		"	7:~~46~~	Soil	4						X	X									
3	S17-3'		"	7:~~57~~	Soil	4						X	X									
4	S16-1'		"	8:15		4						X	X									
5	S18-2'		"	8:34		4						X	X									
6	S20-1'		"	9:35		3						X	X									
7	S20-2'		"	9:54		3						X	X									
8	S18-3		"	10:50		3						X	X									
9	S19-1'		11/9	3:01		2						X	X									
10	S19-2		"	3:06		2						X	X									

Normal Turn Around Time (TAT) = 10 Business Days — YES / NO

SPECIAL INSTRUCTIONS: 30 Day TAT Avoid

TAT Requested (circle): 1 Day | 2 Day | 3 Day | 4 DAY | 5 DAY | Other: _____

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: | RECEIVED BY: | RELINQUISHED BY: | RECEIVED BY:

Signature: | Date: | Time: | Printed Name: | Company:

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503-718-2323
EPA ID: OR01039

Urban Environmental Partners	Project: **Pine Lake Cleaner**	
2341 1st Avenue Suite 203	Project Number: **Pine Lake Cleaner/18-07 Sy**	**Report ID:**
Seattle, WA 98121	Project Manager: **John Funderburk**	**A8K0361 - 11 14 18 1405**

APEX LABS COOLER RECEIPT FORM

Client: Urban Env. Partners Element WO#: A8~~1600~~ K0361 @ 11/12/18

Project/Project #: Pine Lake Cleaner / 18-07 Syrdal

Delivery Info:

Date/time received: 11/10/18 @ 10:02 By: TAG

Delivered by: Apex____Client____ESS____FedEx__O__UPS____Swift___Senvoy ___SDS___Other_____

Cooler Inspection Date/time inspected: 11/10/18 @ 10:02 By: TAG

Chain of Custody included? Yes O No ___ Custody seals? Yes_____ No X

Signed/dated by client? Yes O No ___

Signed/dated by Apex? Yes O No ___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	5.9						
Received on ice? (Y/N)	Y						
Temp. blanks? (Y/N)	N						
Ice type: (Gel/Real/Other)	Real						
Condition:	melted						

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dots applied to out of temperature samples? Yes/No/NA

Out of temperature samples form initiated? Yes/No/NA

Samples Inspection: Date/time inspected: 11/12/18 @ 1140 By: (8)

All samples intact? Yes X No ___ Comments:

Bottle labels/COCs agree? Yes ___ No X Comments:

COC/container discrepancies form initiated? Yes X No ___ NA ___

Containers/volumes received appropriate for analysis? Yes ___ No X Comments: No jars for dry weight provided for S17-1', S18-3', S19-1' + S19-2'

Do VOA vials have visible headspace? Yes ___ No ___ NA X

Comments

Water samples: pH checked: Yes___No___NA X pH appropriate? Yes___No___NA X

Comments:

Additional information: Limited volume in all jars

Labeled by: (8) Witness: AM Cooler Inspected by: TAG See Project Contact Form: Y

DRAFT REPORT

The results provided in this report are PRELIMINARY and are subject to change based on subsequent analysis, QC validation or final data review. Please use these results with the understanding that they may have not been finalized by the laboratory.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

October 17, 2018

John Funderburk, Project Manager
Urban Environmental Partners
2324 1st Ave, Ste 203
Seattle, WA 98121

Dear Mr Funderburk:

Included are the results from the testing of material submitted on October 15, 2018 from the Green-Syrdal, F&BI 810285 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
NAA1017R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 15, 2018 by Friedman & Bruya, Inc. from the Urban Environmental Partners Green-Syrdal, F&BI 810285 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Urban Environmental Partners
810285 -01	SV-3
810285 -02	SV-2

All quality control requirements were acceptable.

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	SV-3	Client:	Urban Environmental Partners
Date Received:	10/15/18	Project:	Green-Syrdal, F&BI 810285
Date Extracted:	10/15/18	Lab ID:	810285-01
Date Analyzed:	10/15/18	Data File:	101541.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	62	142
Toluene-d8	99	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.05
Chloroethane	<0.5
1,1-Dichloroethene	<0.05
Methylene chloride	<0.5
trans-1,2-Dichloroethene	<0.05
1,1-Dichloroethane	<0.05
cis-1,2-Dichloroethene	<0.05
1,2-Dichloroethane (EDC)	<0.05
1,1,1-Trichloroethane	<0.05
Trichloroethene	<0.02
Tetrachloroethene	0.035

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	SV-2	Client:	Urban Environmental Partners
Date Received:	10/15/18	Project:	Green-Syrdal, F&BI 810285
Date Extracted:	10/15/18	Lab ID:	810285-02
Date Analyzed:	10/15/18	Data File:	101542.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	142
Toluene-d8	97	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.05
Chloroethane	<0.5
1,1-Dichloroethene	<0.05
Methylene chloride	<0.5
trans-1,2-Dichloroethene	<0.05
1,1-Dichloroethane	<0.05
cis-1,2-Dichloroethene	<0.05
1,2-Dichloroethane (EDC)	<0.05
1,1,1-Trichloroethane	<0.05
Trichloroethene	<0.02
Tetrachloroethene	0.041

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Urban Environmental Partners
Date Received:	Not Applicable	Project:	Green-Syrdal, F&BI 810285
Date Extracted:	10/15/18	Lab ID:	08-2291 mb
Date Analyzed:	10/15/18	Data File:	101531.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	142
Toluene-d8	98	55	145
4-Bromofluorobenzene	96	65	139

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.05
Chloroethane	<0.5
1,1-Dichloroethene	<0.05
Methylene chloride	<0.5
trans-1,2-Dichloroethene	<0.05
1,1-Dichloroethane	<0.05
cis-1,2-Dichloroethene	<0.05
1,2-Dichloroethane (EDC)	<0.05
1,1,1-Trichloroethane	<0.05
Trichloroethene	<0.02
Tetrachloroethene	<0.025

Date of Report: 10/17/18
Date Received: 10/15/18
Project: Green-Syrdal, F&BI 810285

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 810281-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	57	60	10-138	5
Chloroethane	mg/kg (ppm)	2.5	<0.5	71	74	10-176	4
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	80	83	10-160	4
Methylene chloride	mg/kg (ppm)	2.5	<0.5	85	90	10-156	6
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	81	83	14-137	2
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	85	87	19-140	2
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	87	89	25-135	2
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	86	88	12-160	2
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	87	87	10-156	0
Trichloroethene	mg/kg (ppm)	2.5	<0.02	84	85	21-139	1
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	85	87	20-133	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Vinyl chloride	mg/kg (ppm)	2.5	80	22-139
Chloroethane	mg/kg (ppm)	2.5	95	10-163
1,1-Dichloroethene	mg/kg (ppm)	2.5	99	47-128
Methylene chloride	mg/kg (ppm)	2.5	107	42-132
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	100	67-127
1,1-Dichloroethane	mg/kg (ppm)	2.5	101	68-115
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	105	72-113
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	99	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	104	62-131
Trichloroethene	mg/kg (ppm)	2.5	97	64-117
Tetrachloroethene	mg/kg (ppm)	2.5	100	72-114

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

810285

SAMPLE CHAIN OF CUSTODY

ME 10/15/18 VS1

Report To John Funderburk

Company Urban Environmental

Address 2324 1st Ste 203 Partners

City, State, ZIP Seattle, WA 98121

Phone 425-922-9922 Email jr funderburk3@gmail.com

SAMPLERS (signature) John R Funderburk

PROJECT NAME Green-Syrdal

PO #

REMARKS Chlorinated Solvents 3-Day TAT

INVOICE TO

Page # _____ of _____

TURNAROUND TIME
- ☐ Standard Turnaround
- ☒ RUSH 3 Day

Rush charges authorized by: JRF

SAMPLE DISPOSAL
- ☒ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
SV-3 ~~SV-3~~ @ 10/16	01 A-C	10/12/18	8:45	VOA	3					X							
SV-2	02 V	10/12/18	8:45	VOA	3					X							

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: John R Funderburk	John R. Funderburk	Urban EP	10/15/18	1035
Received by: Nham Phan	Nham Phan	FCBI	10/15/18	1035
Relinquished by:				
Received by:		Samples received at 4 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

APPENDIX C: Laboratory Reports for UEP Investigations (2020 and 2021)

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

October 22, 2021

John Funderburk, Project Manager
Urban Environmental Partners
2324 1st Ave, Suite 203
Seattle, WA 98121

Dear Mr Funderburk:

Included are the results from the testing of material submitted on October 18, 2021 from the Pine Lake Cleaners, F&BI 110338 project. There are 9 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
UEP1022R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 18, 2021 by Friedman & Bruya, Inc. from the Urban Environmental Partners Pine Lake Cleaners, F&BI 110338 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Urban Environmental Partners
110338 -01	UB1-3
110338 -02	UB1-12
110338 -03	UB2-28(16)
110338 -04	UB2-35(20)

The 8260D calibration standard failed the acceptance criteria for hexachlorobutadiene. The data were flagged accordingly.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	UB1-3	Client:	Urban Environmental Partners
Date Received:	10/18/21	Project:	Pine Lake Cleaners, F&BI 110338
Date Extracted:	10/19/21	Lab ID:	110338-01
Date Analyzed:	10/19/21	Data File:	101907.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	90	109
Toluene-d8	102	89	112
4-Bromofluorobenzene	99	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25 ca
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	UB1-12	Client:	Urban Environmental Partners
Date Received:	10/18/21	Project:	Pine Lake Cleaners, F&BI 110338
Date Extracted:	10/19/21	Lab ID:	110338-02
Date Analyzed:	10/19/21	Data File:	101908.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	90	109
Toluene-d8	101	89	112
4-Bromofluorobenzene	99	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25 ca
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	UB2-28(16)	Client:	Urban Environmental Partners
Date Received:	10/18/21	Project:	Pine Lake Cleaners, F&BI 110338
Date Extracted:	10/19/21	Lab ID:	110338-03
Date Analyzed:	10/19/21	Data File:	101909.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	90	109
Toluene-d8	98	89	112
4-Bromofluorobenzene	97	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25 ca
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	UB2-35(20)	Client:	Urban Environmental Partners
Date Received:	10/18/21	Project:	Pine Lake Cleaners, F&BI 110338
Date Extracted:	10/19/21	Lab ID:	110338-04
Date Analyzed:	10/19/21	Data File:	101910.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	90	109
Toluene-d8	102	89	112
4-Bromofluorobenzene	100	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25 ca
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Urban Environmental Partners
Date Received:	Not Applicable	Project:	Pine Lake Cleaners, F&BI 110338
Date Extracted:	10/19/21	Lab ID:	01-2376 mb
Date Analyzed:	10/19/21	Data File:	101905.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	90	109
Toluene-d8	100	89	112
4-Bromofluorobenzene	98	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25 ca
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Date of Report: 10/22/21
Date Received: 10/18/21
Project: Pine Lake Cleaners, F&BI 110338

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 110338-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	1	<0.5	23	30	10-142	26 vo
Chloromethane	mg/kg (ppm)	1	<0.5	55	61	10-126	10
Vinyl chloride	mg/kg (ppm)	1	<0.05	60	64	10-138	6
Bromomethane	mg/kg (ppm)	1	<0.5	71	77	10-163	8
Chloroethane	mg/kg (ppm)	1	<0.5	66	73	10-176	10
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	66	70	10-176	6
Acetone	mg/kg (ppm)	5	<5	90	88	10-163	2
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	83	87	10-160	5
Hexane	mg/kg (ppm)	1	<0.25	58	62	10-137	7
Methylene chloride	mg/kg (ppm)	1	<0.5	92	88	10-156	4
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	<0.05	100	98	21-145	2
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	89	91	14-137	2
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	93	92	19-140	1
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	101	100	10-158	1
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	92	90	25-135	2
Chloroform	mg/kg (ppm)	1	<0.05	93	93	21-145	0
2-Butanone (MEK)	mg/kg (ppm)	5	<1	91	92	19-147	1
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	<0.05	93	91	12-160	2
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	98	98	10-156	0
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	88	89	17-140	1
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	96	97	9-164	1
Benzene	mg/kg (ppm)	1	<0.03	89	90	29-129	1
Trichloroethene	mg/kg (ppm)	1	<0.02	91	90	21-139	1
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	91	92	30-135	1
Bromodichloromethane	mg/kg (ppm)	1	<0.05	102	101	23-155	1
Dibromomethane	mg/kg (ppm)	1	<0.05	93	93	23-145	0
4-Methyl-2-pentanone	mg/kg (ppm)	5	<1	97	97	24-155	0
cis-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	102	99	28-144	3
Toluene	mg/kg (ppm)	1	<0.05	88	88	35-130	0
trans-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	102	100	26-149	2
1,1,2-Trichloroethane	mg/kg (ppm)	1	<0.05	94	92	10-205	2
2-Hexanone	mg/kg (ppm)	5	<0.5	99	102	15-166	3
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	90	90	31-137	0
Tetrachloroethene	mg/kg (ppm)	1	<0.025	89	89	20-133	0
Dibromochloromethane	mg/kg (ppm)	1	<0.05	104	104	28-150	0
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	<0.05	94	94	28-142	0
Chlorobenzene	mg/kg (ppm)	1	<0.05	91	91	32-129	0
Ethylbenzene	mg/kg (ppm)	1	<0.05	88	88	32-137	0
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	92	92	31-143	0
m,p-Xylene	mg/kg (ppm)	2	<0.1	89	89	34-136	0
o-Xylene	mg/kg (ppm)	1	<0.05	90	89	33-134	1
Styrene	mg/kg (ppm)	1	<0.05	92	93	35-137	1
Isopropylbenzene	mg/kg (ppm)	1	<0.05	87	87	31-142	0
Bromoform	mg/kg (ppm)	1	<0.05	101	105	21-156	4
n-Propylbenzene	mg/kg (ppm)	1	<0.05	84	83	23-146	1
Bromobenzene	mg/kg (ppm)	1	<0.05	87	87	34-130	0
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	<0.05	84	82	18-149	2
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	95	90	28-140	5
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	89	87	25-144	2
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	84	83	31-134	1
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	87	83	31-136	5
tert-Butylbenzene	mg/kg (ppm)	1	<0.05	80	78	30-137	3
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	85	82	10-182	4
sec-Butylbenzene	mg/kg (ppm)	1	<0.05	79	76	23-145	4
p-Isopropyltoluene	mg/kg (ppm)	1	<0.05	80	77	21-149	4
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	89	87	30-131	2
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	89	86	29-129	3
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	90	87	31-132	3
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	99	95	11-161	4
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	<0.25	80	77	22-142	4
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	71	71	10-142	0
Naphthalene	mg/kg (ppm)	1	<0.05	87	83	14-157	5
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	82	78	20-144	5

Date of Report: 10/22/21
Date Received: 10/18/21
Project: Pine Lake Cleaners, F&BI 110338

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	1	45	10-146
Chloromethane	mg/kg (ppm)	1	66	27-133
Vinyl chloride	mg/kg (ppm)	1	74	22-139
Bromomethane	mg/kg (ppm)	1	73	38-114
Chloroethane	mg/kg (ppm)	1	72	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	79	10-196
Acetone	mg/kg (ppm)	5	90	52-141
1,1-Dichloroethene	mg/kg (ppm)	1	95	47-128
Hexane	mg/kg (ppm)	1	71	43-142
Methylene chloride	mg/kg (ppm)	1	102	10-184
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	102	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	1	98	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	100	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	109	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	99	72-127
Chloroform	mg/kg (ppm)	1	99	66-120
2-Butanone (MEK)	mg/kg (ppm)	5	91	30-197
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	98	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	1	105	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	95	69-128
Carbon tetrachloride	mg/kg (ppm)	1	105	60-139
Benzene	mg/kg (ppm)	1	97	71-118
Trichloroethene	mg/kg (ppm)	1	98	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	100	72-127
Bromodichloromethane	mg/kg (ppm)	1	110	57-126
Dibromomethane	mg/kg (ppm)	1	100	62-123
4-Methyl-2-pentanone	mg/kg (ppm)	5	106	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	1	109	67-122
Toluene	mg/kg (ppm)	1	95	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	1	110	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	1	103	64-115
2-Hexanone	mg/kg (ppm)	5	102	33-152
1,3-Dichloropropane	mg/kg (ppm)	1	100	72-130
Tetrachloroethene	mg/kg (ppm)	1	95	72-114
Dibromochloromethane	mg/kg (ppm)	1	115	55-121
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	100	74-132
Chlorobenzene	mg/kg (ppm)	1	97	76-111
Ethylbenzene	mg/kg (ppm)	1	95	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	100	64-121
m,p-Xylene	mg/kg (ppm)	2	95	78-122
o-Xylene	mg/kg (ppm)	1	96	77-124
Styrene	mg/kg (ppm)	1	99	74-126
Isopropylbenzene	mg/kg (ppm)	1	96	76-127
Bromoform	mg/kg (ppm)	1	117	56-132
n-Propylbenzene	mg/kg (ppm)	1	89	74-124
Bromobenzene	mg/kg (ppm)	1	94	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	89	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	101	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	96	61-137
2-Chlorotoluene	mg/kg (ppm)	1	91	74-121
4-Chlorotoluene	mg/kg (ppm)	1	91	75-122
tert-Butylbenzene	mg/kg (ppm)	1	87	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	89	76-125
sec-Butylbenzene	mg/kg (ppm)	1	81	71-130
p-Isopropyltoluene	mg/kg (ppm)	1	83	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	1	94	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	93	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	95	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	108	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	84	64-135
Hexachlorobutadiene	mg/kg (ppm)	1	75	50-153
Naphthalene	mg/kg (ppm)	1	93	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	85	63-138

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

110338

SAMPLE CHAIN OF CUSTODY

ME 10/18/21

US-D1/C01

Page # 1 of 1

Report To UEP

Company

Address

City, State, ZIP TBHNE@UEPCONSULTING.COM

Phone Email RKPEC@COMCAST.NET

SAMPLERS (*signature*)

PROJECT NAME: PINE LAKE CLEANERS

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO: UEP

TURNAROUND TIME
- ☑ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082					Notes
						ANALYSES REQUESTED											
UB1-3	01 A.E	10.14.21	0924	SOIL	5					X							
UB1-12	02		0940							X							
UB2-28 (16)	03		1325							X							
UB2-35 (20)	04		1330							X							

Samples received at 4 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	ROY KUROIWA	UEP	10/18/21	1406
Received by:	ERIC CHANG	FAB	10/18/21	1406
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
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Arina Podnozova, B.S.
Eric Young, B.S.

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fbi@isomedia.com
www.friedmanandbruya.com

August 24, 2020

John Funderburk, Project Manager
Urban Environmental Partners
2324 1st Ave, Suite 203
Seattle, WA 98121

Dear Mr Funderburk:

Included are the results from the testing of material submitted on August 6, 2020 from the Pine Lake Cleaners, F&BI 008092 project. There are 18 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Matthew Grunwald, Roy Kuriowa
UEP0824R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 6, 2020 by Friedman & Bruya, Inc. from the Urban Environmental Partners Pine Lake Cleaners, F&BI 008092 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Urban Environmental Partners
008092 -01	SG-SV-18-01-080520
008092 -02	AA-AA-01-080520
008092 -03	SG-SV-17-0-1-080520-(01)
008092 -04	IA-IA-01-080520-(01)
008092 -05	SG-SV-07-0-1-080520
008092 -06	IA-IA-01-080520
008092 -07	SG-SV-19-0-1-080520
008092 -08	IA-IA-04-080520
008092 -09	IA-IA-03-080520
008092 -10	SG-SV-20-0-1-080520
008092 -11	IA-IA-02-080520

The TO-15 tetrachloroethene concentration in several samples exceeded the calibration range of the instrument. The data were flagged accoridngly.

Naphthalene was detected in the TO-15 method blank at a level greater than one tenth the concentration detected in several of the samples. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-18-01-080520	Client:	Urban Environmental Partners
Date Received:	08/06/20	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	08/05/20	Lab ID:	008092-01 1/47
Date Analyzed:	08/20/20	Data File:	082020.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	106	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<57	<33	1,2-Dichloropropane	<11	<2.3
Dichlorodifluoromethane	3,500	710	1,4-Dioxane	<17	<4.7
Chloromethane	<170	<85	2,2,4-Trimethylpentane	<220	<47
F-114	<33	<4.7	Methyl methacrylate	<190	<47
Vinyl chloride	<12	<4.7	Heptane	<190	<47
1,3-Butadiene	<1	<0.47	Bromodichloromethane	<3.1	<0.47
Butane	<110	<47	Trichloroethene	<13	<2.3
Bromomethane	<73	<19	cis-1,3-Dichloropropene	<21	<4.7
Chloroethane	<120	<47	4-Methyl-2-pentanone	<190	<47
Vinyl bromide	<21	<4.7	trans-1,3-Dichloropropene	<21	<4.7
Ethanol	1,300	710	Toluene	<890	<230
Acrolein	<97	<42	1,1,2-Trichloroethane	<5.1	<0.94
Pentane	<140	<47	2-Hexanone	<190	<47
Trichlorofluoromethane	<110	<19	Tetrachloroethene	15,000 ve	2,300 ve
Acetone	<220	<94	Dibromochloromethane	<4	<0.47
2-Propanol	<400	<160	1,2-Dibromoethane (EDB)	<3.6	<0.47
1,1-Dichloroethene	<19	<4.7	Chlorobenzene	<22	<4.7
trans-1,2-Dichloroethene	<19	<4.7	Ethylbenzene	<20	<4.7
Methylene chloride	<4,100	<1,200	1,1,2,2-Tetrachloroethane	<6.5	<0.94
t-Butyl alcohol (TBA)	<570	<190	Nonane	<250	<47
3-Chloropropene	<74	<23	Isopropylbenzene	<120	<23
CFC-113	<36	<4.7	2-Chlorotoluene	<240	<47
Carbon disulfide	<290	<94	Propylbenzene	<120	<23
Methyl t-butyl ether (MTBE)	<85	<23	4-Ethyltoluene	<120	<23
Vinyl acetate	<330	<94	m,p-Xylene	<41	<9.4
1,1-Dichloroethane	<19	<4.7	o-Xylene	<20	<4.7
cis-1,2-Dichloroethene	<19	<4.7	Styrene	<40	<9.4
Hexane	<170	<47	Bromoform	<97	<9.4
Chloroform	<2.3	<0.47	Benzyl chloride	<2.4	<0.47
Ethyl acetate	<340	<94	1,3,5-Trimethylbenzene	<120	<23
Tetrahydrofuran	<14	<4.7	1,2,4-Trimethylbenzene	<120	<23
2-Butanone (MEK)	<140	<47	1,3-Dichlorobenzene	<28	<4.7
1,2-Dichloroethane (EDC)	<1.9	<0.47	1,4-Dichlorobenzene	<11	<1.9
1,1,1-Trichloroethane	<26	<4.7	1,2-Dichlorobenzene	<28	<4.7
Carbon tetrachloride	<30	<4.7	1,2,4-Trichlorobenzene	<35	<4.7
Benzene	<15	<4.7	Naphthalene	<12	<2.3
Cyclohexane	<320	<94	Hexachlorobutadiene	<10	<0.94

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	AA-AA-01-080520	Client:	Urban Environmental Partners
Date Received:	08/06/20	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	08/05/20	Lab ID:	008092-02
Date Analyzed:	08/21/20	Data File:	082025.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	111	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	3.0	0.60	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.022	<0.01	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.27	<0.05
Bromomethane	<1.6	<0.4	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.11	<0.02
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	7.3	1.1
Acetone	11	4.7	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<87	<25	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.10	0.021	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.053	0.013	1,4-Dichlorobenzene	<0.24	<0.04
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.63	<0.1	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	0.21 fb	0.04 fb
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-17-0-1-080520-(01)	Client:	Urban Environmental Partners
Date Received:	08/06/20	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	08/05/20	Lab ID:	008092-03 1/43
Date Analyzed:	08/21/20	Data File:	082022.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	104	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<52	<30	1,2-Dichloropropane	<9.9	<2.1
Dichlorodifluoromethane	1,800	360	1,4-Dioxane	<15	<4.3
Chloromethane	<160	<77	2,2,4-Trimethylpentane	<200	<43
F-114	<30	<4.3	Methyl methacrylate	<180	<43
Vinyl chloride	<11	<4.3	Heptane	<180	<43
1,3-Butadiene	<0.95	<0.43	Bromodichloromethane	<2.9	<0.43
Butane	<100	<43	Trichloroethene	46	8.6
Bromomethane	<67	<17	cis-1,3-Dichloropropene	<20	<4.3
Chloroethane	<110	<43	4-Methyl-2-pentanone	<180	<43
Vinyl bromide	<19	<4.3	trans-1,3-Dichloropropene	<20	<4.3
Ethanol	<320	<170	Toluene	<810	<210
Acrolein	<89	<39	1,1,2-Trichloroethane	<4.7	<0.86
Pentane	<130	<43	2-Hexanone	<180	<43
Trichlorofluoromethane	<97	<17	Tetrachloroethene	30,000 ve	4,500 ve
Acetone	<200	<86	Dibromochloromethane	<3.7	<0.43
2-Propanol	<370	<150	1,2-Dibromoethane (EDB)	<3.3	<0.43
1,1-Dichloroethene	<17	<4.3	Chlorobenzene	<20	<4.3
trans-1,2-Dichloroethene	<17	<4.3	Ethylbenzene	<19	<4.3
Methylene chloride	<3,700	<1,100	1,1,2,2-Tetrachloroethane	<5.9	<0.86
t-Butyl alcohol (TBA)	<520	<170	Nonane	<230	<43
3-Chloropropene	<67	<21	Isopropylbenzene	<110	<21
CFC-113	<33	<4.3	2-Chlorotoluene	<220	<43
Carbon disulfide	<270	<86	Propylbenzene	<110	<21
Methyl t-butyl ether (MTBE)	<78	<21	4-Ethyltoluene	<110	<21
Vinyl acetate	<300	<86	m,p-Xylene	<37	<8.6
1,1-Dichloroethane	<17	<4.3	o-Xylene	<19	<4.3
cis-1,2-Dichloroethene	<17	<4.3	Styrene	<37	<8.6
Hexane	<150	<43	Bromoform	<89	<8.6
Chloroform	15	3.1	Benzyl chloride	<2.2	<0.43
Ethyl acetate	<310	<86	1,3,5-Trimethylbenzene	<110	<21
Tetrahydrofuran	<13	<4.3	1,2,4-Trimethylbenzene	<110	<21
2-Butanone (MEK)	<130	<43	1,3-Dichlorobenzene	<26	<4.3
1,2-Dichloroethane (EDC)	<1.7	<0.43	1,4-Dichlorobenzene	<10	<1.7
1,1,1-Trichloroethane	<23	<4.3	1,2-Dichlorobenzene	<26	<4.3
Carbon tetrachloride	<27	<4.3	1,2,4-Trichlorobenzene	<32	<4.3
Benzene	<14	<4.3	Naphthalene	<11	<2.1
Cyclohexane	<300	<86	Hexachlorobutadiene	<9.2	<0.86

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-01-080520-(01)	Client:	Urban Environmental Partners
Date Received:	08/06/20	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	08/05/20	Lab ID:	008092-04
Date Analyzed:	08/21/20	Data File:	082026.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	108	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	3.5	0.70	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.022	<0.01	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	0.41	0.076
Bromomethane	<1.6	<0.4	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	140 ve	75 ve	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.11	<0.02
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	18	7.6	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	180 ve	53 ve	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.1	0.24
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.58	0.13
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	9.1	2.6	Bromoform	<2.1	<0.2
Chloroform	0.16	0.033	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.097	0.024	1,4-Dichlorobenzene	<0.24	<0.04
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.63	<0.1	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	0.29 fb	0.056 fb
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-07-0-1-080520	Client:	Urban Environmental Partners
Date Received:	08/06/20	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	08/05/20	Lab ID:	008092-05 1/45
Date Analyzed:	08/20/20	Data File:	082021.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	105	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<54	<31	1,2-Dichloropropane	<10	<2.2
Dichlorodifluoromethane	1,700	340	1,4-Dioxane	<16	<4.5
Chloromethane	<170	<81	2,2,4-Trimethylpentane	<210	<45
F-114	<31	<4.5	Methyl methacrylate	<180	<45
Vinyl chloride	<12	<4.5	Heptane	<180	<45
1,3-Butadiene	<1	<0.45	Bromodichloromethane	<3	<0.45
Butane	<110	<45	Trichloroethene	42	7.8
Bromomethane	<70	<18	cis-1,3-Dichloropropene	<20	<4.5
Chloroethane	<120	<45	4-Methyl-2-pentanone	<180	<45
Vinyl bromide	<20	<4.5	trans-1,3-Dichloropropene	<20	<4.5
Ethanol	<340	<180	Toluene	<850	<220
Acrolein	<93	<40	1,1,2-Trichloroethane	<4.9	<0.9
Pentane	<130	<45	2-Hexanone	<180	<45
Trichlorofluoromethane	<100	<18	Tetrachloroethene	27,000 ve	3,900 ve
Acetone	<210	<90	Dibromochloromethane	<3.8	<0.45
2-Propanol	<390	<160	1,2-Dibromoethane (EDB)	<3.5	<0.45
1,1-Dichloroethene	<18	<4.5	Chlorobenzene	<21	<4.5
trans-1,2-Dichloroethene	<18	<4.5	Ethylbenzene	<20	<4.5
Methylene chloride	<3,900	<1,100	1,1,2,2-Tetrachloroethane	<6.2	<0.9
t-Butyl alcohol (TBA)	<550	<180	Nonane	<240	<45
3-Chloropropene	<70	<22	Isopropylbenzene	<110	<22
CFC-113	<34	<4.5	2-Chlorotoluene	<230	<45
Carbon disulfide	<280	<90	Propylbenzene	<110	<22
Methyl t-butyl ether (MTBE)	<81	<22	4-Ethyltoluene	<110	<22
Vinyl acetate	<320	<90	m,p-Xylene	<39	<9
1,1-Dichloroethane	<18	<4.5	o-Xylene	<20	<4.5
cis-1,2-Dichloroethene	<18	<4.5	Styrene	<38	<9
Hexane	<160	<45	Bromoform	<93	<9
Chloroform	14	2.8	Benzyl chloride	<2.3	<0.45
Ethyl acetate	<320	<90	1,3,5-Trimethylbenzene	<110	<22
Tetrahydrofuran	<13	<4.5	1,2,4-Trimethylbenzene	<110	<22
2-Butanone (MEK)	<130	<45	1,3-Dichlorobenzene	<27	<4.5
1,2-Dichloroethane (EDC)	<1.8	<0.45	1,4-Dichlorobenzene	<11	<1.8
1,1,1-Trichloroethane	<25	<4.5	1,2-Dichlorobenzene	<27	<4.5
Carbon tetrachloride	<28	<4.5	1,2,4-Trichlorobenzene	<33	<4.5
Benzene	<14	<4.5	Naphthalene	<12	<2.2
Cyclohexane	<310	<90	Hexachlorobutadiene	<9.6	<0.9

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-01-080520	Client:	Urban Environmental Partners
Date Received:	08/06/20	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	08/05/20	Lab ID:	008092-06
Date Analyzed:	08/21/20	Data File:	082027.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	110	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	3.5	0.71	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.022	<0.01	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.27	<0.05
Bromomethane	<1.6	<0.4	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	140 ve	77 ve	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.11	<0.02
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	14	6.0	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<87	<25	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.0	0.24
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.58	0.13
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.16	0.033	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.089	0.022	1,4-Dichlorobenzene	<0.24	<0.04
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.63	<0.1	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	0.29 fb	0.055 fb
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-19-0-1-080520	Client:	Urban Environmental Partners
Date Received:	08/06/20	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	08/05/20	Lab ID:	008092-07 1/5.4
Date Analyzed:	08/20/20	Data File:	082019.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	109	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<6.5	<3.8	1,2-Dichloropropane	<1.2	<0.27
Dichlorodifluoromethane	1,900 ve	380 ve	1,4-Dioxane	<1.9	<0.54
Chloromethane	<20	<9.7	2,2,4-Trimethylpentane	<25	<5.4
F-114	<3.8	<0.54	Methyl methacrylate	<22	<5.4
Vinyl chloride	<1.4	<0.54	Heptane	<22	<5.4
1,3-Butadiene	<0.12	<0.054	Bromodichloromethane	<0.36	<0.054
Butane	<13	<5.4	Trichloroethene	<1.5	<0.27
Bromomethane	<8.4	<2.2	cis-1,3-Dichloropropene	<2.5	<0.54
Chloroethane	<14	<5.4	4-Methyl-2-pentanone	<22	<5.4
Vinyl bromide	<2.4	<0.54	trans-1,3-Dichloropropene	<2.5	<0.54
Ethanol	210	110	Toluene	<100	<27
Acrolein	<11	<4.9	1,1,2-Trichloroethane	<0.59	<0.11
Pentane	<16	<5.4	2-Hexanone	<22	<5.4
Trichlorofluoromethane	<12	<2.2	Tetrachloroethene	480	70
Acetone	94	39	Dibromochloromethane	<0.46	<0.054
2-Propanol	<46	<19	1,2-Dibromoethane (EDB)	<0.41	<0.054
1,1-Dichloroethene	<2.1	<0.54	Chlorobenzene	<2.5	<0.54
trans-1,2-Dichloroethene	<2.1	<0.54	Ethylbenzene	5.2	1.2
Methylene chloride	<470	<130	1,1,2,2-Tetrachloroethane	<0.74	<0.11
t-Butyl alcohol (TBA)	<65	<22	Nonane	<28	<5.4
3-Chloropropene	<8.5	<2.7	Isopropylbenzene	<13	<2.7
CFC-113	<4.1	<0.54	2-Chlorotoluene	<28	<5.4
Carbon disulfide	<34	<11	Propylbenzene	<13	<2.7
Methyl t-butyl ether (MTBE)	<9.7	<2.7	4-Ethyltoluene	<13	<2.7
Vinyl acetate	<38	<11	m,p-Xylene	28	6.3
1,1-Dichloroethane	<2.2	<0.54	o-Xylene	11	2.4
cis-1,2-Dichloroethene	<2.1	<0.54	Styrene	<4.6	<1.1
Hexane	<19	<5.4	Bromoform	<11	<1.1
Chloroform	0.32	0.065	Benzyl chloride	<0.28	<0.054
Ethyl acetate	<39	<11	1,3,5-Trimethylbenzene	<13	<2.7
Tetrahydrofuran	<1.6	<0.54	1,2,4-Trimethylbenzene	<13	<2.7
2-Butanone (MEK)	<16	<5.4	1,3-Dichlorobenzene	<3.2	<0.54
1,2-Dichloroethane (EDC)	<0.22	<0.054	1,4-Dichlorobenzene	<1.3	<0.22
1,1,1-Trichloroethane	<2.9	<0.54	1,2-Dichlorobenzene	<3.2	<0.54
Carbon tetrachloride	<3.4	<0.54	1,2,4-Trichlorobenzene	<4	<0.54
Benzene	<1.7	<0.54	Naphthalene	<1.4	<0.27
Cyclohexane	<37	<11	Hexachlorobutadiene	<1.2	<0.11

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-04-080520	Client:	Urban Environmental Partners
Date Received:	08/06/20	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	08/05/20	Lab ID:	008092-08
Date Analyzed:	08/21/20	Data File:	082028.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	108	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	9.2	1.9	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	4.6	1.1
1,3-Butadiene	<0.022	<0.01	Bromodichloromethane	<0.067	<0.01
Butane	4.3	1.8	Trichloroethene	<0.27	<0.05
Bromomethane	<1.6	<0.4	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	20	4.9
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	800 ve	430 ve	Toluene	<19	<5
Acrolein	2.1	0.92	1,1,2-Trichloroethane	<0.11	<0.02
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	110 ve	47 ve	Dibromochloromethane	<0.085	<0.01
2-Propanol	430 ve	180 ve	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	10	2.4
Methylene chloride	110 ve	31 ve	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	54	13
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	19	4.4
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	1.0	0.24
Hexane	8.0	2.3	Bromoform	<2.1	<0.2
Chloroform	0.47	0.097	Benzyl chloride	<0.052	<0.01
Ethyl acetate	26	7.3	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	3.1	1.0	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.66	0.16	1,4-Dichlorobenzene	<0.24	<0.04
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.63	<0.1	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	0.31 fb	0.059 fb
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-03-080520	Client:	Urban Environmental Partners
Date Received:	08/06/20	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	08/05/20	Lab ID:	008092-09
Date Analyzed:	08/21/20	Data File:	082029.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	95	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	9.5	1.9	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	4.9	1.2
1,3-Butadiene	<0.022	<0.01	Bromodichloromethane	<0.067	<0.01
Butane	4.7	2.0	Trichloroethene	<0.27	<0.05
Bromomethane	<1.6	<0.4	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	21	5.2
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	850 ve	450 ve	Toluene	<19	<5
Acrolein	2.2	0.96	1,1,2-Trichloroethane	<0.11	<0.02
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	120 ve	49 ve	Dibromochloromethane	<0.085	<0.01
2-Propanol	480 ve	190 ve	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	9.2	2.1
Methylene chloride	130 ve	38 ve	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	48	11
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	17	4.0
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	0.94	0.22
Hexane	6.0	1.7	Bromoform	<2.1	<0.2
Chloroform	0.50	0.10	Benzyl chloride	<0.052	<0.01
Ethyl acetate	27	7.5	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	0.32	0.11	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	3.4	1.1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.64	0.16	1,4-Dichlorobenzene	<0.24	<0.04
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.63	<0.1	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.35	0.11	Naphthalene	0.18 fb	0.034 fb
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-20-0-1-080520	Client:	Urban Environmental Partners
Date Received:	08/06/20	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	08/05/20	Lab ID:	008092-10 1/3.5
Date Analyzed:	08/20/20	Data File:	082017.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	107	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<4.2	<2.4	1,2-Dichloropropane	<0.81	<0.17
Dichlorodifluoromethane	3,700 ve	740 ve	1,4-Dioxane	<1.3	<0.35
Chloromethane	<13	<6.3	2,2,4-Trimethylpentane	<16	<3.5
F-114	<2.4	<0.35	Methyl methacrylate	<14	<3.5
Vinyl chloride	<0.89	<0.35	Heptane	<14	<3.5
1,3-Butadiene	<0.077	<0.035	Bromodichloromethane	<0.23	<0.035
Butane	<8.3	<3.5	Trichloroethene	<0.94	<0.17
Bromomethane	<5.4	<1.4	cis-1,3-Dichloropropene	<1.6	<0.35
Chloroethane	<9.2	<3.5	4-Methyl-2-pentanone	<14	<3.5
Vinyl bromide	<1.5	<0.35	trans-1,3-Dichloropropene	<1.6	<0.35
Ethanol	210 ve	110 ve	Toluene	<66	<17
Acrolein	<7.2	<3.1	1,1,2-Trichloroethane	<0.38	<0.07
Pentane	<10	<3.5	2-Hexanone	<14	<3.5
Trichlorofluoromethane	<7.9	<1.4	Tetrachloroethene	33	4.8
Acetone	43	18	Dibromochloromethane	<0.3	<0.035
2-Propanol	<30	<12	1,2-Dibromoethane (EDB)	<0.27	<0.035
1,1-Dichloroethene	<1.4	<0.35	Chlorobenzene	<1.6	<0.35
trans-1,2-Dichloroethene	<1.4	<0.35	Ethylbenzene	5.7	1.3
Methylene chloride	<300	<87	1,1,2,2-Tetrachloroethane	<0.48	<0.07
t-Butyl alcohol (TBA)	<42	<14	Nonane	<18	<3.5
3-Chloropropene	<5.5	<1.7	Isopropylbenzene	<8.6	<1.7
CFC-113	<2.7	<0.35	2-Chlorotoluene	<18	<3.5
Carbon disulfide	<22	<7	Propylbenzene	<8.6	<1.7
Methyl t-butyl ether (MTBE)	<6.3	<1.7	4-Ethyltoluene	<8.6	<1.7
Vinyl acetate	<25	<7	m,p-Xylene	30	6.8
1,1-Dichloroethane	<1.4	<0.35	o-Xylene	11	2.5
cis-1,2-Dichloroethene	<1.4	<0.35	Styrene	<3	<0.7
Hexane	<12	<3.5	Bromoform	<7.2	<0.7
Chloroform	0.46	0.094	Benzyl chloride	<0.18	<0.035
Ethyl acetate	<25	<7	1,3,5-Trimethylbenzene	<8.6	<1.7
Tetrahydrofuran	<1	<0.35	1,2,4-Trimethylbenzene	<8.6	<1.7
2-Butanone (MEK)	<10	<3.5	1,3-Dichlorobenzene	<2.1	<0.35
1,2-Dichloroethane (EDC)	0.21	0.052	1,4-Dichlorobenzene	<0.84	<0.14
1,1,1-Trichloroethane	<1.9	<0.35	1,2-Dichlorobenzene	<2.1	<0.35
Carbon tetrachloride	<2.2	<0.35	1,2,4-Trichlorobenzene	<2.6	<0.35
Benzene	<1.1	<0.35	Naphthalene	<0.92	<0.17
Cyclohexane	<24	<7	Hexachlorobutadiene	<0.75	<0.07

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-02-080520	Client:	Urban Environmental Partners
Date Received:	08/06/20	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	08/05/20	Lab ID:	008092-11
Date Analyzed:	08/21/20	Data File:	082030.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	108	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	3.2	0.65	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.022	<0.01	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.27	<0.05
Bromomethane	<1.6	<0.4	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	160 ve	83 ve	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.11	<0.02
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	27	11	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	330 ve	96 ve	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.1	0.24
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.55	0.13
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	21	6.0	Bromoform	<2.1	<0.2
Chloroform	0.15	0.030	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.081	0.020	1,4-Dichlorobenzene	<0.24	<0.04
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.63	<0.1	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	0.20 fb	0.039 fb
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Urban Environmental Partners
Date Received:	Not Applicable	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	Not Applicable	Lab ID:	00-1851 mb
Date Analyzed:	08/20/20	Data File:	082010.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	105	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	<0.49	<0.1	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.022	<0.01	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.27	<0.05
Bromomethane	<1.6	<0.4	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.11	<0.02
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<87	<25	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	1,4-Dichlorobenzene	<0.24	<0.04
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.63	<0.1	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	0.078 lc	0.015 lc
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Date of Report: 08/24/20
Date Received: 08/06/20
Project: Pine Lake Cleaners, F&BI 008092

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 008092-10 1/3.5 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	<4.2	<4.2	nm
Dichlorodifluoromethane	ug/m3	3,700	3,600	3
Chloromethane	ug/m3	<13	<13	nm
F-114	ug/m3	<2.4	<2.4	nm
Vinyl chloride	ug/m3	<0.89	<0.89	nm
1,3-Butadiene	ug/m3	<0.077	<0.077	nm
Butane	ug/m3	<8.3	<8.3	nm
Bromomethane	ug/m3	<5.4	<5.4	nm
Chloroethane	ug/m3	<9.2	<9.2	nm
Vinyl bromide	ug/m3	<1.5	<1.5	nm
Ethanol	ug/m3	210	210	0
Acrolein	ug/m3	<7.2	<7.2	nm
Pentane	ug/m3	<10	<10	nm
Trichlorofluoromethane	ug/m3	<7.9	<7.9	nm
Acetone	ug/m3	43	46	7
2-Propanol	ug/m3	<30	<30	nm
1,1-Dichloroethene	ug/m3	<1.4	<1.4	nm
trans-1,2-Dichloroethene	ug/m3	<1.4	<1.4	nm
Methylene chloride	ug/m3	<300	<300	nm
t-Butyl alcohol (TBA)	ug/m3	<42	<42	nm
3-Chloropropene	ug/m3	<5.5	<5.5	nm
CFC-113	ug/m3	<2.7	<2.7	nm
Carbon disulfide	ug/m3	<22	<22	nm
Methyl t-butyl ether (MTBE)	ug/m3	<6.3	<6.3	nm
Vinyl acetate	ug/m3	<25	<25	nm
1,1-Dichloroethane	ug/m3	<1.4	<1.4	nm
cis-1,2-Dichloroethene	ug/m3	<1.4	<1.4	nm
Hexane	ug/m3	<12	<12	nm
Chloroform	ug/m3	0.46	0.46	0
Ethyl acetate	ug/m3	<25	<25	nm
Tetrahydrofuran	ug/m3	<1	<1	nm
2-Butanone (MEK)	ug/m3	<10	<10	nm
1,2-Dichloroethane (EDC)	ug/m3	0.21	0.20	5
1,1,1-Trichloroethane	ug/m3	<1.9	<1.9	nm
Carbon tetrachloride	ug/m3	<2.2	<2.2	nm
Benzene	ug/m3	<1.1	<1.1	nm
Cyclohexane	ug/m3	<24	<24	nm
1,2-Dichloropropane	ug/m3	<0.81	<0.81	nm
1,4-Dioxane	ug/m3	<1.3	<1.3	nm
2,2,4-Trimethylpentane	ug/m3	<16	<16	nm

Date of Report: 08/24/20
Date Received: 08/06/20
Project: Pine Lake Cleaners, F&BI 008092

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 008092-10 1/3.5 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<14	<14	nm
Heptane	ug/m3	<14	<14	nm
Bromodichloromethane	ug/m3	<0.23	<0.23	nm
Trichloroethene	ug/m3	<0.94	<0.94	nm
cis-1,3-Dichloropropene	ug/m3	<1.6	<1.6	nm
4-Methyl-2-pentanone	ug/m3	<14	<14	nm
trans-1,3-Dichloropropene	ug/m3	<1.6	<1.6	nm
Toluene	ug/m3	<66	<66	nm
1,1,2-Trichloroethane	ug/m3	<0.38	<0.38	nm
2-Hexanone	ug/m3	<14	<14	nm
Tetrachloroethene	ug/m3	33	33	0
Dibromochloromethane	ug/m3	<0.3	<0.3	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.27	<0.27	nm
Chlorobenzene	ug/m3	<1.6	<1.6	nm
Ethylbenzene	ug/m3	5.7	5.5	4
1,1,2,2-Tetrachloroethane	ug/m3	<0.48	<0.48	nm
Nonane	ug/m3	<18	<18	nm
Isopropylbenzene	ug/m3	<8.6	<8.6	nm
2-Chlorotoluene	ug/m3	<18	<18	nm
Propylbenzene	ug/m3	<8.6	<8.6	nm
4-Ethyltoluene	ug/m3	<8.6	<8.6	nm
m,p-Xylene	ug/m3	30	29	3
o-Xylene	ug/m3	11	10	10
Styrene	ug/m3	<3	<3	nm
Bromoform	ug/m3	<7.2	<7.2	nm
Benzyl chloride	ug/m3	<0.18	<0.18	nm
1,3,5-Trimethylbenzene	ug/m3	<8.6	<8.6	nm
1,2,4-Trimethylbenzene	ug/m3	<8.6	<8.6	nm
1,3-Dichlorobenzene	ug/m3	<2.1	<2.1	nm
1,4-Dichlorobenzene	ug/m3	<0.84	<0.84	nm
1,2-Dichlorobenzene	ug/m3	<2.1	<2.1	nm
1,2,4-Trichlorobenzene	ug/m3	<2.6	<2.6	nm
Naphthalene	ug/m3	<0.92	<0.92	nm
Hexachlorobutadiene	ug/m3	<0.75	<0.75	nm

Date of Report: 08/24/20
Date Received: 08/06/20
Project: Pine Lake Cleaners, F&BI 008092

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Propene	ug/m3	23	83	70-130
Dichlorodifluoromethane	ug/m3	67	88	70-130
Chloromethane	ug/m3	28	85	70-130
F-114	ug/m3	94	90	70-130
Vinyl chloride	ug/m3	35	88	70-130
1,3-Butadiene	ug/m3	30	90	70-130
Butane	ug/m3	32	85	70-130
Bromomethane	ug/m3	52	93	70-130
Chloroethane	ug/m3	36	88	70-130
Vinyl bromide	ug/m3	59	88	70-130
Ethanol	ug/m3	25	87	70-130
Acrolein	ug/m3	31	93	70-130
Pentane	ug/m3	40	87	70-130
Trichlorofluoromethane	ug/m3	76	86	70-130
Acetone	ug/m3	32	83	70-130
2-Propanol	ug/m3	33	80	70-130
1,1-Dichloroethene	ug/m3	54	88	70-130
trans-1,2-Dichloroethene	ug/m3	54	91	70-130
Methylene chloride	ug/m3	94	105	70-130
t-Butyl alcohol (TBA)	ug/m3	41	80	70-130
3-Chloropropene	ug/m3	42	86	70-130
CFC-113	ug/m3	100	88	70-130
Carbon disulfide	ug/m3	42	81	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	88	70-130
Vinyl acetate	ug/m3	48	82	70-130
1,1-Dichloroethane	ug/m3	55	91	70-130
cis-1,2-Dichloroethene	ug/m3	54	91	70-130
Hexane	ug/m3	48	86	70-130
Chloroform	ug/m3	66	90	70-130
Ethyl acetate	ug/m3	49	96	70-130
Tetrahydrofuran	ug/m3	40	83	70-130
2-Butanone (MEK)	ug/m3	40	89	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	92	70-130
1,1,1-Trichloroethane	ug/m3	74	85	70-130
Carbon tetrachloride	ug/m3	85	79	70-130
Benzene	ug/m3	43	85	70-130
Cyclohexane	ug/m3	46	87	70-130
1,2-Dichloropropane	ug/m3	62	97	70-130
1,4-Dioxane	ug/m3	49	94	70-130
2,2,4-Trimethylpentane	ug/m3	63	95	70-130

Date of Report: 08/24/20
Date Received: 08/06/20
Project: Pine Lake Cleaners, F&BI 008092

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Methyl methacrylate	ug/m3	55	99	70-130
Heptane	ug/m3	55	96	70-130
Bromodichloromethane	ug/m3	90	93	70-130
Trichloroethene	ug/m3	73	98	70-130
cis-1,3-Dichloropropene	ug/m3	61	103	70-130
4-Methyl-2-pentanone	ug/m3	55	92	70-130
trans-1,3-Dichloropropene	ug/m3	61	107	70-130
Toluene	ug/m3	51	96	70-130
1,1,2-Trichloroethane	ug/m3	74	102	70-130
2-Hexanone	ug/m3	55	105	70-130
Tetrachloroethene	ug/m3	92	94	70-130
Dibromochloromethane	ug/m3	120	89	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	105	70-130
Chlorobenzene	ug/m3	62	85	70-130
Ethylbenzene	ug/m3	59	97	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	100	70-130
Nonane	ug/m3	71	97	70-130
Isopropylbenzene	ug/m3	66	96	70-130
2-Chlorotoluene	ug/m3	70	107	70-130
Propylbenzene	ug/m3	66	102	70-130
4-Ethyltoluene	ug/m3	66	109	70-130
m,p-Xylene	ug/m3	120	105	70-130
o-Xylene	ug/m3	59	107	70-130
Styrene	ug/m3	58	99	70-130
Bromoform	ug/m3	140	84	70-130
Benzyl chloride	ug/m3	70	101	70-130
1,3,5-Trimethylbenzene	ug/m3	66	100	70-130
1,2,4-Trimethylbenzene	ug/m3	66	103	70-130
1,3-Dichlorobenzene	ug/m3	81	109	70-130
1,4-Dichlorobenzene	ug/m3	81	102	70-130
1,2-Dichlorobenzene	ug/m3	81	98	70-130
1,2,4-Trichlorobenzene	ug/m3	100	95	70-130
Naphthalene	ug/m3	71	109	70-130
Hexachlorobutadiene	ug/m3	140	101	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

SAMPLE CHAIN OF CUSTODY ME 8/6/20

008092

Page # 1 of 2

Report To [redacted]@uepconsulting.com
Company Urban Environmental Partners llc
Address 2324 First Ave Ste 203
City, State, ZIP Seattle, Wa 98121
Phone (425)9 Email

SAMPLERS (signature) Matthew W Gronwald	
PROJECT NAME & ADDRESS: Pine Lake Cleaners	PO #
NOTES:	INVOICE TO: UEP

TURNAROUND TIME
☐ Standard
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Default: Clean after 3 days
☐ Archive (Fee may apply)

SAMPLE INFORMATION										ANALYSIS REQUESTED						
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium		Notes
SG-SV-18-0-1-080520	-01 01	20552	31	IA / (SG)	8/5/20	30+	0827	7	1427	X						X-per RK
AA-AA-01-080520	02	35331	078 52	Ambient IA / SG	8/5/20	30+	0727	7	1527	X						8/6/20 ME
SG-SV-17-0-1-080520-(01)	03	21453	12	IA / (SG)	8/5/20	30	0840	6	1600	X						
IA-IA-01-080520-(01)	04	20541	078 SL	(IA) / SG	8/5/20	30+	0840	9	1600	X						
SG-SV-17-0-1-080520	05	20546	88	IA / (SG)	8/5/20	28	0840	6	1600	X						
IA-IA-01-080520	06	18566	053 SL	(IA) / SG	8/5/20	29	0840	7	1600	X						
SG-SV-19-0-1-080520	07	20551	15	IA / (SG)	8/5/20	30+	1004	5	1725	X						
IA-IA-04-080520	08	18572	07850	(IA) / SG	8/5/20	30+	0950	8.5	1725	X						

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COCTO-15.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Matthew W Gronwald	Matthew W Gronwald	UEP llc	8/5/20	1900
Received by:	Roy	Roy KUROIWA	—	8/5/20	1902
Relinquished by:		Roy KUROIWA	—	8/6/20	1407
Received by:	HONG	HONG NGUYEN	FBI	8/6/20	14:07

Samples received at 22 °C

008092

SAMPLE CHAIN OF CUSTODY ME 8/6/20

Page # 2 of 2

~~Report To~~ jonathan@uepconsulting.com

Company Urban Environmental Partners llc

Address 2324 First Ave Ste 203

City, State, ZIP Seattle, Wa 98121

Phone (425) 922-9922 Email

SAMPLERS (signature)	
PROJECT NAME & ADDRESS: Pine Lake Cleaners	PO #
NOTES:	INVOICE TO: UEP llc

TURNAROUND TIME
- ☐ Standard
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Default: Clean after 3 days
- ☐ Archive (Fee may apply)

SAMPLE INFORMATION										ANALYSIS REQUESTED						
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium		Notes
IA-IA-03-080520	-09	23231	00604	(IA) / SG	8/5/20	30+	0954	8	1725	X						
SG-SV-20-01-080520	-10	23231	17	IA / (SG)	8/5/20	30	1060	5	1725	X						
~~IA-IA-01-080520~~		1856		IA / SG												
IA-IA-02-080520	11	20545	00605	(IA) / SG	8/5/20	30	1021	10	1745	X						
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												

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Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COCTO-15.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Matthew W. Grunwald	Matthew W. Grunwald	UEP llc	8/25/20	1900
Received by:	Roy Kuroiwa	—	8/5	1902
Relinquished by:	Roy Kuroiwa	—	8/6	1907
Received by:	HOOG NGUYEN	FBI	8/6/20	14:07

Samples received at 22°C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

February 1, 2021

Roy Kuroiwa, Project Manager
Urban Environmental Partners
2324 1st Ave, Suite 203
Seattle, WA 98121

Dear Mr Kuroiwa:

Included are the results from the testing of material submitted on January 20, 2021 from the Pine Lake Cleaners 2830 228th Ave SE Sammamish WA, F&BI 101270 project. There are 19 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Nathan Starr
UEP0201R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on January 20, 2021 by Friedman & Bruya, Inc. from the Urban Environmental Partners Pine Lake Cleaners 2830 228th Ave SE Sammamish WA, F&BI 101270 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Urban Environmental Partners
101270 -01	AA-AA-01-012021
101270 -02	SG-SV-17-0-1-012021
101270 -03	SG-SV-17-0-4-012021-(01)
101270 -04	IA-IA-01-012021
101270 -05	IA-IA-01-012021-(01)
101270 -06	SG-SV-18-0-1-012021
101270 -07	IA-IA-02-012021
101270 -08	SG-SV-19-0-1-012021
101270 -09	IA-IA-03-012021
101270 -10	SG-SV-20-0-1-012021
101270 -11	IA-IA-04-012021
101270 -12	SG-SV-21-0-1-012021

Methylene chloride was detected in several samples. The data were flagged as due to laboratory contamination.

The concentration of several TO-15 analytes exceeded the calibration range of the instrument. The data were flagged accordingly.

The TO-15 methylene chloride laboratory control sample failed the acceptance criteria. The data were flagged accordingly.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	AA-AA-01-012021	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-01
Date Analyzed:	01/26/21	Data File:	012610a.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	96	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.1	0.43	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	0.10	0.045	Bromodichloromethane	<0.067	<0.01
Butane	2.4	1.0	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	15	8.0	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	35 jl lc	10 jl lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	0.88	0.20
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.10	0.021	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.057	0.014	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.45	0.071	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.74	0.23	Naphthalene	0.13	0.025
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-17-0-1-012021	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-02 1/3.3
Date Analyzed:	01/26/21	Data File:	012618.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	102	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<4	<2.3	1,2-Dichloropropane	<0.76	<0.16
Dichlorodifluoromethane	4.0	0.81	1,4-Dioxane	<1.2	<0.33
Chloromethane	<12	<5.9	2,2,4-Trimethylpentane	<15	<3.3
F-114	<2.3	<0.33	Methyl methacrylate	<14	<3.3
Vinyl chloride	<0.84	<0.33	Heptane	<14	<3.3
1,3-Butadiene	<0.15	<0.066	Bromodichloromethane	<0.22	<0.033
Butane	<7.8	<3.3	Trichloroethene	<0.35	<0.066
Bromomethane	<7.7	<2	cis-1,3-Dichloropropene	<1.5	<0.33
Chloroethane	<8.7	<3.3	4-Methyl-2-pentanone	<14	<3.3
Vinyl bromide	<1.4	<0.33	trans-1,3-Dichloropropene	<1.5	<0.33
Ethanol	370 ve	200 ve	Toluene	<62	<16
Acrolein	<6.8	<3	1,1,2-Trichloroethane	<0.18	<0.033
Pentane	<9.7	<3.3	2-Hexanone	<14	<3.3
Trichlorofluoromethane	<7.4	<1.3	Tetrachloroethene	<22	<3.3
Acetone	<16	<6.6	Dibromochloromethane	<0.28	<0.033
2-Propanol	<28	<12	1,2-Dibromoethane (EDB)	<0.25	<0.033
1,1-Dichloroethene	<1.3	<0.33	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	<1.4	<0.33
Methylene chloride	<110 jl	<33 jl	1,1,2,2-Tetrachloroethane	<0.45	<0.066
t-Butyl alcohol (TBA)	<40	<13	Nonane	<17	<3.3
3-Chloropropene	<5.2	<1.6	Isopropylbenzene	<8.1	<1.6
CFC-113	<2.5	<0.33	2-Chlorotoluene	<17	<3.3
Carbon disulfide	<21	<6.6	Propylbenzene	<8.1	<1.6
Methyl t-butyl ether (MTBE)	<5.9	<1.6	4-Ethyltoluene	<8.1	<1.6
Vinyl acetate	<23	<6.6	m,p-Xylene	3.5	0.81
1,1-Dichloroethane	<1.3	<0.33	o-Xylene	1.6	0.37
cis-1,2-Dichloroethene	<1.3	<0.33	Styrene	<2.8	<0.66
Hexane	<12	<3.3	Bromoform	<6.8	<0.66
Chloroform	<0.16	<0.033	Benzyl chloride	<0.17	<0.033
Ethyl acetate	<24	<6.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Tetrahydrofuran	<0.97	<0.33	1,2,4-Trimethylbenzene	<8.1	<1.6
2-Butanone (MEK)	<9.7	<3.3	1,3-Dichlorobenzene	<2	<0.33
1,2-Dichloroethane (EDC)	<0.13	<0.033	1,4-Dichlorobenzene	<0.75	<0.13
1,1,1-Trichloroethane	<1.8	<0.33	1,2-Dichlorobenzene	<2	<0.33
Carbon tetrachloride	<1	<0.16	1,2,4-Trichlorobenzene	<2.4	<0.33
Benzene	<1.1	<0.33	Naphthalene	<0.86	<0.16
Cyclohexane	<23	<6.6	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-17-0-4-012021-(01)	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-03 1/3.6
Date Analyzed:	01/27/21	Data File:	012619.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	93	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<4.3	<2.5	1,2-Dichloropropane	<0.83	<0.18
Dichlorodifluoromethane	4.1	0.83	1,4-Dioxane	<1.3	<0.36
Chloromethane	<13	<6.5	2,2,4-Trimethylpentane	<17	<3.6
F-114	<2.5	<0.36	Methyl methacrylate	<15	<3.6
Vinyl chloride	<0.92	<0.36	Heptane	<15	<3.6
1,3-Butadiene	<0.16	<0.072	Bromodichloromethane	<0.24	<0.036
Butane	<8.6	<3.6	Trichloroethene	<0.39	<0.072
Bromomethane	<8.4	<2.2	cis-1,3-Dichloropropene	<1.6	<0.36
Chloroethane	<9.5	<3.6	4-Methyl-2-pentanone	<15	<3.6
Vinyl bromide	<1.6	<0.36	trans-1,3-Dichloropropene	<1.6	<0.36
Ethanol	640 ve	340 ve	Toluene	<68	<18
Acrolein	<7.4	<3.2	1,1,2-Trichloroethane	<0.2	<0.036
Pentane	<11	<3.6	2-Hexanone	<15	<3.6
Trichlorofluoromethane	<8.1	<1.4	Tetrachloroethene	<24	<3.6
Acetone	18	7.7	Dibromochloromethane	<0.31	<0.036
2-Propanol	<31	<13	1,2-Dibromoethane (EDB)	<0.28	<0.036
1,1-Dichloroethene	<1.4	<0.36	Chlorobenzene	<1.7	<0.36
trans-1,2-Dichloroethene	<1.4	<0.36	Ethylbenzene	<1.6	<0.36
Methylene chloride	<130 jl	<36 jl	1,1,2,2-Tetrachloroethane	<0.49	<0.072
t-Butyl alcohol (TBA)	<44	<14	Nonane	<19	<3.6
3-Chloropropene	<5.6	<1.8	Isopropylbenzene	<8.8	<1.8
CFC-113	<2.8	<0.36	2-Chlorotoluene	<19	<3.6
Carbon disulfide	<22	<7.2	Propylbenzene	<8.8	<1.8
Methyl t-butyl ether (MTBE)	<6.5	<1.8	4-Ethyltoluene	<8.8	<1.8
Vinyl acetate	<25	<7.2	m,p-Xylene	3.9	0.89
1,1-Dichloroethane	<1.5	<0.36	o-Xylene	1.8	0.41
cis-1,2-Dichloroethene	<1.4	<0.36	Styrene	<3.1	<0.72
Hexane	<13	<3.6	Bromoform	<7.4	<0.72
Chloroform	<0.18	<0.036	Benzyl chloride	<0.19	<0.036
Ethyl acetate	<26	<7.2	1,3,5-Trimethylbenzene	<8.8	<1.8
Tetrahydrofuran	<1.1	<0.36	1,2,4-Trimethylbenzene	<8.8	<1.8
2-Butanone (MEK)	<11	<3.6	1,3-Dichlorobenzene	<2.2	<0.36
1,2-Dichloroethane (EDC)	<0.15	<0.036	1,4-Dichlorobenzene	<0.82	<0.14
1,1,1-Trichloroethane	<2	<0.36	1,2-Dichlorobenzene	<2.2	<0.36
Carbon tetrachloride	<1.1	<0.18	1,2,4-Trichlorobenzene	<2.7	<0.36
Benzene	<1.2	<0.36	Naphthalene	<0.94	<0.18
Cyclohexane	<25	<7.2	Hexachlorobutadiene	<0.77	<0.072

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-01-012021	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-04
Date Analyzed:	01/26/21	Data File:	012611.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	99	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	3.8	0.76	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	0.091	0.041	Bromodichloromethane	<0.067	<0.01
Butane	3.6	1.5	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	720 ve	380 ve	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	7.4	1.1
Acetone	11	4.6	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.89	0.21
Methylene chloride	52 jl lc	15 jl lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	3.2	0.73
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	1.5	0.35
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.13	0.027	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	4.1	0.83
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.085	0.021	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.42	0.067	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.71	0.22	Naphthalene	0.47	0.089
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-01-012021-(01)	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-05
Date Analyzed:	01/26/21	Data File:	012612.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	97	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	3.9	0.80	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	0.086	0.039	Bromodichloromethane	<0.067	<0.01
Butane	3.8	1.6	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	720 ve	380 ve	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	7.2	1.1
Acetone	10	4.4	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.88	0.20
Methylene chloride	55 jl lc	16 jl lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	3.2	0.73
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	1.5	0.35
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.15	0.030	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	4.2	0.85
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.073	0.018	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.43	0.069	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.73	0.23	Naphthalene	0.45	0.085
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-18-0-1-012021	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-06 1/3.4
Date Analyzed:	01/27/21	Data File:	012620.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	100	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<4.1	<2.4	1,2-Dichloropropane	<0.79	<0.17
Dichlorodifluoromethane	4.5	0.91	1,4-Dioxane	<1.2	<0.34
Chloromethane	<13	<6.1	2,2,4-Trimethylpentane	<16	<3.4
F-114	<2.4	<0.34	Methyl methacrylate	<14	<3.4
Vinyl chloride	<0.87	<0.34	Heptane	<14	<3.4
1,3-Butadiene	<0.15	<0.068	Bromodichloromethane	<0.23	<0.034
Butane	<8.1	<3.4	Trichloroethene	<0.37	<0.068
Bromomethane	<7.9	<2	cis-1,3-Dichloropropene	<1.5	<0.34
Chloroethane	<9	<3.4	4-Methyl-2-pentanone	<14	<3.4
Vinyl bromide	<1.5	<0.34	trans-1,3-Dichloropropene	<1.5	<0.34
Ethanol	790 ve	420 ve	Toluene	<64	<17
Acrolein	<7	<3.1	1,1,2-Trichloroethane	<0.19	<0.034
Pentane	<10	<3.4	2-Hexanone	<14	<3.4
Trichlorofluoromethane	<7.6	<1.4	Tetrachloroethene	<23	<3.4
Acetone	22	9.2	Dibromochloromethane	<0.29	<0.034
2-Propanol	33	13	1,2-Dibromoethane (EDB)	<0.26	<0.034
1,1-Dichloroethene	<1.3	<0.34	Chlorobenzene	<1.6	<0.34
trans-1,2-Dichloroethene	<1.3	<0.34	Ethylbenzene	<1.5	<0.34
Methylene chloride	<120 jl	<34 jl	1,1,2,2-Tetrachloroethane	<0.47	<0.068
t-Butyl alcohol (TBA)	<41	<14	Nonane	<18	<3.4
3-Chloropropene	<5.3	<1.7	Isopropylbenzene	<8.4	<1.7
CFC-113	<2.6	<0.34	2-Chlorotoluene	<18	<3.4
Carbon disulfide	<21	<6.8	Propylbenzene	<8.4	<1.7
Methyl t-butyl ether (MTBE)	<6.1	<1.7	4-Ethyltoluene	<8.4	<1.7
Vinyl acetate	<24	<6.8	m,p-Xylene	<3	<0.68
1,1-Dichloroethane	<1.4	<0.34	o-Xylene	<1.5	<0.34
cis-1,2-Dichloroethene	<1.3	<0.34	Styrene	<2.9	<0.68
Hexane	<12	<3.4	Bromoform	<7	<0.68
Chloroform	<0.17	<0.034	Benzyl chloride	<0.18	<0.034
Ethyl acetate	<25	<6.8	1,3,5-Trimethylbenzene	<8.4	<1.7
Tetrahydrofuran	<1	<0.34	1,2,4-Trimethylbenzene	<8.4	<1.7
2-Butanone (MEK)	<10	<3.4	1,3-Dichlorobenzene	<2	<0.34
1,2-Dichloroethane (EDC)	<0.14	<0.034	1,4-Dichlorobenzene	<0.78	<0.13
1,1,1-Trichloroethane	<1.9	<0.34	1,2-Dichlorobenzene	<2	<0.34
Carbon tetrachloride	<1.1	<0.17	1,2,4-Trichlorobenzene	<2.5	<0.34
Benzene	<1.1	<0.34	Naphthalene	<0.89	<0.17
Cyclohexane	<23	<6.8	Hexachlorobutadiene	<0.73	<0.068

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-02-012021	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-07
Date Analyzed:	01/26/21	Data File:	012613.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	97	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	3.7	0.74	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	0.15	0.066	Bromodichloromethane	<0.067	<0.01
Butane	4.3	1.8	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	1,500 ve	770 ve	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	37	16	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.81	0.19
Methylene chloride	490 ve jl lc	140 ve jl lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	2.9	0.67
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	1.3	0.30
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	9.9	2.8	Bromoform	<2.1	<0.2
Chloroform	0.14	0.029	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	3.1	0.63
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.085	0.021	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.45	0.071	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.87	0.27	Naphthalene	0.33	0.063
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-19-0-1-012021	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-08 1/3.3
Date Analyzed:	01/27/21	Data File:	012621.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	99	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<4	<2.3	1,2-Dichloropropane	<0.76	<0.16
Dichlorodifluoromethane	5.7	1.2	1,4-Dioxane	<1.2	<0.33
Chloromethane	<12	<5.9	2,2,4-Trimethylpentane	<15	<3.3
F-114	<2.3	<0.33	Methyl methacrylate	<14	<3.3
Vinyl chloride	<0.84	<0.33	Heptane	<14	<3.3
1,3-Butadiene	<0.15	<0.066	Bromodichloromethane	<0.22	<0.033
Butane	<7.8	<3.3	Trichloroethene	<0.35	<0.066
Bromomethane	<7.7	<2	cis-1,3-Dichloropropene	<1.5	<0.33
Chloroethane	<8.7	<3.3	4-Methyl-2-pentanone	<14	<3.3
Vinyl bromide	<1.4	<0.33	trans-1,3-Dichloropropene	<1.5	<0.33
Ethanol	2,400 ve	1,300 ve	Toluene	<62	<16
Acrolein	<6.8	<3	1,1,2-Trichloroethane	<0.18	<0.033
Pentane	<9.7	<3.3	2-Hexanone	<14	<3.3
Trichlorofluoromethane	<7.4	<1.3	Tetrachloroethene	<22	<3.3
Acetone	43	18	Dibromochloromethane	<0.28	<0.033
2-Propanol	250 ve	100 ve	1,2-Dibromoethane (EDB)	<0.25	<0.033
1,1-Dichloroethene	<1.3	<0.33	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	<1.4	<0.33
Methylene chloride	<110 jl	<33 jl	1,1,2,2-Tetrachloroethane	<0.45	<0.066
t-Butyl alcohol (TBA)	<40	<13	Nonane	<17	<3.3
3-Chloropropene	<5.2	<1.6	Isopropylbenzene	<8.1	<1.6
CFC-113	<2.5	<0.33	2-Chlorotoluene	<17	<3.3
Carbon disulfide	<21	<6.6	Propylbenzene	<8.1	<1.6
Methyl t-butyl ether (MTBE)	<5.9	<1.6	4-Ethyltoluene	<8.1	<1.6
Vinyl acetate	<23	<6.6	m,p-Xylene	<2.9	<0.66
1,1-Dichloroethane	<1.3	<0.33	o-Xylene	<1.4	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	Styrene	<2.8	<0.66
Hexane	<12	<3.3	Bromoform	<6.8	<0.66
Chloroform	0.39	0.079	Benzyl chloride	<0.17	<0.033
Ethyl acetate	<24	<6.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Tetrahydrofuran	<0.97	<0.33	1,2,4-Trimethylbenzene	<8.1	<1.6
2-Butanone (MEK)	<9.7	<3.3	1,3-Dichlorobenzene	<2	<0.33
1,2-Dichloroethane (EDC)	0.17	0.043	1,4-Dichlorobenzene	<0.75	<0.13
1,1,1-Trichloroethane	<1.8	<0.33	1,2-Dichlorobenzene	<2	<0.33
Carbon tetrachloride	<1	<0.16	1,2,4-Trichlorobenzene	<2.4	<0.33
Benzene	<1.1	<0.33	Naphthalene	<0.86	<0.16
Cyclohexane	<23	<6.6	Hexachlorobutadiene	<0.7	<0.066

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-03-012021	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-09
Date Analyzed:	01/26/21	Data File:	012614.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	97	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	4.9	1.0	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	0.095	0.043	Bromodichloromethane	<0.067	<0.01
Butane	3.6	1.5	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	5.3	1.3
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	2,300 ve	1,200 ve	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	38	16	Dibromochloromethane	<0.085	<0.01
2-Propanol	280 ve	110 ve	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.49	0.11
Methylene chloride	93 ve jl lc	27 ve jl lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.8	0.41
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.79	0.18
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	1.0	0.24
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.32	0.065	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.17	0.043	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.43	0.069	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.64	0.20	Naphthalene	0.25	0.047
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-20-0-1-012021	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-10 1/3.4
Date Analyzed:	01/27/21	Data File:	012622.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	99	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<4.1	<2.4	1,2-Dichloropropane	<0.79	<0.17
Dichlorodifluoromethane	7.5	1.5	1,4-Dioxane	<1.2	<0.34
Chloromethane	<13	<6.1	2,2,4-Trimethylpentane	<16	<3.4
F-114	<2.4	<0.34	Methyl methacrylate	<14	<3.4
Vinyl chloride	<0.87	<0.34	Heptane	<14	<3.4
1,3-Butadiene	<0.15	<0.068	Bromodichloromethane	<0.23	<0.034
Butane	<8.1	<3.4	Trichloroethene	<0.37	<0.068
Bromomethane	<7.9	<2	cis-1,3-Dichloropropene	<1.5	<0.34
Chloroethane	<9	<3.4	4-Methyl-2-pentanone	<14	<3.4
Vinyl bromide	<1.5	<0.34	trans-1,3-Dichloropropene	<1.5	<0.34
Ethanol	1,600 ve	840 ve	Toluene	<64	<17
Acrolein	<7	<3.1	1,1,2-Trichloroethane	<0.19	<0.034
Pentane	<10	<3.4	2-Hexanone	<14	<3.4
Trichlorofluoromethane	<7.6	<1.4	Tetrachloroethene	<23	<3.4
Acetone	46	19	Dibromochloromethane	<0.29	<0.034
2-Propanol	170	71	1,2-Dibromoethane (EDB)	<0.26	<0.034
1,1-Dichloroethene	<1.3	<0.34	Chlorobenzene	<1.6	<0.34
trans-1,2-Dichloroethene	<1.3	<0.34	Ethylbenzene	<1.5	<0.34
Methylene chloride	<120 jl	<34 jl	1,1,2,2-Tetrachloroethane	<0.47	<0.068
t-Butyl alcohol (TBA)	<41	<14	Nonane	<18	<3.4
3-Chloropropene	<5.3	<1.7	Isopropylbenzene	<8.4	<1.7
CFC-113	<2.6	<0.34	2-Chlorotoluene	<18	<3.4
Carbon disulfide	<21	<6.8	Propylbenzene	<8.4	<1.7
Methyl t-butyl ether (MTBE)	<6.1	<1.7	4-Ethyltoluene	<8.4	<1.7
Vinyl acetate	<24	<6.8	m,p-Xylene	<3	<0.68
1,1-Dichloroethane	<1.4	<0.34	o-Xylene	<1.5	<0.34
cis-1,2-Dichloroethene	<1.3	<0.34	Styrene	<2.9	<0.68
Hexane	<12	<3.4	Bromoform	<7	<0.68
Chloroform	0.32	0.065	Benzyl chloride	<0.18	<0.034
Ethyl acetate	<25	<6.8	1,3,5-Trimethylbenzene	<8.4	<1.7
Tetrahydrofuran	<1	<0.34	1,2,4-Trimethylbenzene	<8.4	<1.7
2-Butanone (MEK)	<10	<3.4	1,3-Dichlorobenzene	<2	<0.34
1,2-Dichloroethane (EDC)	0.22	0.054	1,4-Dichlorobenzene	<0.78	<0.13
1,1,1-Trichloroethane	<1.9	<0.34	1,2-Dichlorobenzene	<2	<0.34
Carbon tetrachloride	<1.1	<0.17	1,2,4-Trichlorobenzene	<2.5	<0.34
Benzene	<1.1	<0.34	Naphthalene	<0.89	<0.17
Cyclohexane	<23	<6.8	Hexachlorobutadiene	<0.73	<0.068

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-04-012021	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-11
Date Analyzed:	01/26/21	Data File:	012615.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	99	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	4.8	0.97	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	0.084	0.038	Bromodichloromethane	<0.067	<0.01
Butane	3.2	1.3	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	4.5	1.1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	1,200 ve	630 ve	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	35	15	Dibromochloromethane	<0.085	<0.01
2-Propanol	200 ve	81 ve	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.43	0.10
Methylene chloride	190 ve jl lc	54 ve jl lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.6	0.37
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.69	0.16
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	5.3	1.5	Bromoform	<2.1	<0.2
Chloroform	0.26	0.053	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.20	0.050	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.42	0.067	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.61	0.19	Naphthalene	0.18	0.034
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-21-0-1-012021	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-12 1/3.3
Date Analyzed:	01/26/21	Data File:	012616.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	102	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<4	<2.3	1,2-Dichloropropane	<0.76	<0.16
Dichlorodifluoromethane	2.2	0.44	1,4-Dioxane	<1.2	<0.33
Chloromethane	<12	<5.9	2,2,4-Trimethylpentane	<15	<3.3
F-114	<2.3	<0.33	Methyl methacrylate	<14	<3.3
Vinyl chloride	<0.84	<0.33	Heptane	<14	<3.3
1,3-Butadiene	<0.15	<0.066	Bromodichloromethane	<0.22	<0.033
Butane	<7.8	<3.3	Trichloroethene	<0.35	<0.066
Bromomethane	<7.7	<2	cis-1,3-Dichloropropene	<1.5	<0.33
Chloroethane	<8.7	<3.3	4-Methyl-2-pentanone	<14	<3.3
Vinyl bromide	<1.4	<0.33	trans-1,3-Dichloropropene	<1.5	<0.33
Ethanol	<25	<13	Toluene	<62	<16
Acrolein	<6.8	<3	1,1,2-Trichloroethane	<0.18	<0.033
Pentane	<9.7	<3.3	2-Hexanone	<14	<3.3
Trichlorofluoromethane	<7.4	<1.3	Tetrachloroethene	<22	<3.3
Acetone	<16	<6.6	Dibromochloromethane	<0.28	<0.033
2-Propanol	<28	<12	1,2-Dibromoethane (EDB)	<0.25	<0.033
1,1-Dichloroethene	<1.3	<0.33	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	<1.4	<0.33
Methylene chloride	<110 jl	<33 jl	1,1,2,2-Tetrachloroethane	<0.45	<0.066
t-Butyl alcohol (TBA)	<40	<13	Nonane	<17	<3.3
3-Chloropropene	<5.2	<1.6	Isopropylbenzene	<8.1	<1.6
CFC-113	<2.5	<0.33	2-Chlorotoluene	<17	<3.3
Carbon disulfide	<21	<6.6	Propylbenzene	<8.1	<1.6
Methyl t-butyl ether (MTBE)	<5.9	<1.6	4-Ethyltoluene	<8.1	<1.6
Vinyl acetate	<23	<6.6	m,p-Xylene	<2.9	<0.66
1,1-Dichloroethane	<1.3	<0.33	o-Xylene	<1.4	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	Styrene	<2.8	<0.66
Hexane	<12	<3.3	Bromoform	<6.8	<0.66
Chloroform	<0.16	<0.033	Benzyl chloride	<0.17	<0.033
Ethyl acetate	<24	<6.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Tetrahydrofuran	<0.97	<0.33	1,2,4-Trimethylbenzene	<8.1	<1.6
2-Butanone (MEK)	<9.7	<3.3	1,3-Dichlorobenzene	<2	<0.33
1,2-Dichloroethane (EDC)	<0.13	<0.033	1,4-Dichlorobenzene	<0.75	<0.13
1,1,1-Trichloroethane	<1.8	<0.33	1,2-Dichlorobenzene	<2	<0.33
Carbon tetrachloride	<1	<0.16	1,2,4-Trichlorobenzene	<2.4	<0.33
Benzene	<1.1	<0.33	Naphthalene	<0.86	<0.16
Cyclohexane	<23	<6.6	Hexachlorobutadiene	<0.7	<0.066

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Urban Environmental Partners
Date Received:	Not Applicable	Project:	Pine Lake Cleaners
Date Collected:	Not Applicable	Lab ID:	01-206 MB
Date Analyzed:	01/26/21	Data File:	012609.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	103	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	<0.49	<0.1	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35 jl	<10 jl	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.31	<0.05	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	<0.1	<0.02
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Date of Report: 02/01/21
Date Received: 01/20/21
Project: Pine Lake Cleaners 2830 228th Ave SE Sammamish WA, F&BI 101270

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 101270-12 1/3.3 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	<4	<4	nm
Dichlorodifluoromethane	ug/m3	2.2	2.2	0
Chloromethane	ug/m3	<12	<12	nm
F-114	ug/m3	<2.3	<2.3	nm
Vinyl chloride	ug/m3	<0.84	<0.84	nm
1,3-Butadiene	ug/m3	<0.15	<0.15	nm
Butane	ug/m3	<7.8	<7.8	nm
Bromomethane	ug/m3	<7.7	<7.7	nm
Chloroethane	ug/m3	<8.7	<8.7	nm
Vinyl bromide	ug/m3	<1.4	<1.4	nm
Ethanol	ug/m3	<25	<25	nm
Acrolein	ug/m3	<6.8	<6.8	nm
Pentane	ug/m3	<9.7	<9.7	nm
Trichlorofluoromethane	ug/m3	<7.4	<7.4	nm
Acetone	ug/m3	<16	<16	nm
2-Propanol	ug/m3	<28	<28	nm
1,1-Dichloroethene	ug/m3	<1.3	<1.3	nm
trans-1,2-Dichloroethene	ug/m3	<1.3	<1.3	nm
Methylene chloride	ug/m3	<110	<110	nm
t-Butyl alcohol (TBA)	ug/m3	<40	<40	nm
3-Chloropropene	ug/m3	<5.2	<5.2	nm
CFC-113	ug/m3	<2.5	<2.5	nm
Carbon disulfide	ug/m3	<21	<21	nm
Methyl t-butyl ether (MTBE)	ug/m3	<5.9	<5.9	nm
Vinyl acetate	ug/m3	<23	<23	nm
1,1-Dichloroethane	ug/m3	<1.3	<1.3	nm
cis-1,2-Dichloroethene	ug/m3	<1.3	<1.3	nm
Hexane	ug/m3	<12	<12	nm
Chloroform	ug/m3	<0.16	<0.16	nm
Ethyl acetate	ug/m3	<24	<24	nm
Tetrahydrofuran	ug/m3	<0.97	<0.97	nm
2-Butanone (MEK)	ug/m3	<9.7	<9.7	nm
1,2-Dichloroethane (EDC)	ug/m3	<0.13	<0.13	nm
1,1,1-Trichloroethane	ug/m3	<1.8	<1.8	nm
Carbon tetrachloride	ug/m3	<1	<1	nm
Benzene	ug/m3	<1.1	<1.1	nm
Cyclohexane	ug/m3	<23	<23	nm
1,2-Dichloropropane	ug/m3	<0.76	<0.76	nm
1,4-Dioxane	ug/m3	<1.2	<1.2	nm
2,2,4-Trimethylpentane	ug/m3	<15	<15	nm

Date of Report: 02/01/21
Date Received: 01/20/21
Project: Pine Lake Cleaners 2830 228th Ave SE Sammamish WA, F&BI 101270

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 101270-12 1/3.3 (Duplicate, continued)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<14	<14	nm
Heptane	ug/m3	<14	<14	nm
Bromodichloromethane	ug/m3	<0.22	<0.22	nm
Trichloroethene	ug/m3	<0.35	<0.35	nm
cis-1,3-Dichloropropene	ug/m3	<1.5	<1.5	nm
4-Methyl-2-pentanone	ug/m3	<14	<14	nm
trans-1,3-Dichloropropene	ug/m3	<1.5	<1.5	nm
Toluene	ug/m3	<62	<62	nm
1,1,2-Trichloroethane	ug/m3	<0.18	<0.18	nm
2-Hexanone	ug/m3	<14	<14	nm
Tetrachloroethene	ug/m3	<22	<22	nm
Dibromochloromethane	ug/m3	<0.28	<0.28	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.25	<0.25	nm
Chlorobenzene	ug/m3	<1.5	<1.5	nm
Ethylbenzene	ug/m3	<1.4	<1.4	nm
1,1,2,2-Tetrachloroethane	ug/m3	<0.45	<0.45	nm
Nonane	ug/m3	<17	<17	nm
Isopropylbenzene	ug/m3	<8.1	<8.1	nm
2-Chlorotoluene	ug/m3	<17	<17	nm
Propylbenzene	ug/m3	<8.1	<8.1	nm
4-Ethyltoluene	ug/m3	<8.1	<8.1	nm
m,p-Xylene	ug/m3	<2.9	<2.9	nm
o-Xylene	ug/m3	<1.4	<1.4	nm
Styrene	ug/m3	<2.8	<2.8	nm
Bromoform	ug/m3	<6.8	<6.8	nm
Benzyl chloride	ug/m3	<0.17	<0.17	nm
1,3,5-Trimethylbenzene	ug/m3	<8.1	<8.1	nm
1,2,4-Trimethylbenzene	ug/m3	<8.1	<8.1	nm
1,3-Dichlorobenzene	ug/m3	<2	<2	nm
1,4-Dichlorobenzene	ug/m3	<0.75	<0.75	nm
1,2-Dichlorobenzene	ug/m3	<2	<2	nm
1,2,4-Trichlorobenzene	ug/m3	<2.4	<2.4	nm
Naphthalene	ug/m3	<0.86	<0.86	nm
Hexachlorobutadiene	ug/m3	<0.7	<0.7	nm

Date of Report: 02/01/21
Date Received: 01/20/21
Project: Pine Lake Cleaners 2830 228th Ave SE Sammamish WA, F&BI 101270

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Propene	ug/m3	23	77	70-130
Dichlorodifluoromethane	ug/m3	67	98	70-130
Chloromethane	ug/m3	28	94	70-130
F-114	ug/m3	94	101	70-130
Vinyl chloride	ug/m3	35	94	70-130
1,3-Butadiene	ug/m3	30	91	70-130
Butane	ug/m3	32	81	70-130
Bromomethane	ug/m3	52	116	70-130
Chloroethane	ug/m3	36	104	70-130
Vinyl bromide	ug/m3	59	108	70-130
Ethanol	ug/m3	25	86	70-130
Acrolein	ug/m3	31	90	70-130
Pentane	ug/m3	40	86	70-130
Trichlorofluoromethane	ug/m3	76	89	70-130
Acetone	ug/m3	32	86	70-130
2-Propanol	ug/m3	33	94	70-130
1,1-Dichloroethene	ug/m3	54	107	70-130
trans-1,2-Dichloroethene	ug/m3	54	108	70-130
Methylene chloride	ug/m3	94	22 vo	70-130
t-Butyl alcohol (TBA)	ug/m3	41	100	70-130
3-Chloropropene	ug/m3	42	91	70-130
CFC-113	ug/m3	100	106	70-130
Carbon disulfide	ug/m3	42	91	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	101	70-130
Vinyl acetate	ug/m3	48	92	70-130
1,1-Dichloroethane	ug/m3	55	98	70-130
cis-1,2-Dichloroethene	ug/m3	54	107	70-130
Hexane	ug/m3	48	89	70-130
Chloroform	ug/m3	66	106	70-130
Ethyl acetate	ug/m3	49	101	70-130
Tetrahydrofuran	ug/m3	40	101	70-130
2-Butanone (MEK)	ug/m3	40	107	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	101	70-130
1,1,1-Trichloroethane	ug/m3	74	108	70-130
Carbon tetrachloride	ug/m3	85	111	70-130
Benzene	ug/m3	43	103	70-130
Cyclohexane	ug/m3	46	101	70-130
1,2-Dichloropropane	ug/m3	62	99	70-130
1,4-Dioxane	ug/m3	49	104	70-130
2,2,4-Trimethylpentane	ug/m3	63	89	70-130

Date of Report: 02/01/21
Date Received: 01/20/21
Project: Pine Lake Cleaners 2830 228th Ave SE Sammamish WA, F&BI 101270

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample (Continued)

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Methyl methacrylate	ug/m3	55	94	70-130
Heptane	ug/m3	55	76	70-130
Bromodichloromethane	ug/m3	90	104	70-130
Trichloroethene	ug/m3	73	105	70-130
cis-1,3-Dichloropropene	ug/m3	61	106	70-130
4-Methyl-2-pentanone	ug/m3	55	109	70-130
trans-1,3-Dichloropropene	ug/m3	61	107	70-130
Toluene	ug/m3	51	104	70-130
1,1,2-Trichloroethane	ug/m3	74	104	70-130
2-Hexanone	ug/m3	55	93	70-130
Tetrachloroethene	ug/m3	92	112	70-130
Dibromochloromethane	ug/m3	120	112	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	108	70-130
Chlorobenzene	ug/m3	62	108	70-130
Ethylbenzene	ug/m3	59	107	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	109	70-130
Nonane	ug/m3	71	91	70-130
Isopropylbenzene	ug/m3	66	114	70-130
2-Chlorotoluene	ug/m3	70	116	70-130
Propylbenzene	ug/m3	66	108	70-130
4-Ethyltoluene	ug/m3	66	107	70-130
m,p-Xylene	ug/m3	120	111	70-130
o-Xylene	ug/m3	59	114	70-130
Styrene	ug/m3	58	110	70-130
Bromoform	ug/m3	140	106	70-130
Benzyl chloride	ug/m3	70	124	70-130
1,3,5-Trimethylbenzene	ug/m3	66	107	70-130
1,2,4-Trimethylbenzene	ug/m3	66	114	70-130
1,3-Dichlorobenzene	ug/m3	81	120	70-130
1,4-Dichlorobenzene	ug/m3	81	118	70-130
1,2-Dichlorobenzene	ug/m3	81	121	70-130
1,2,4-Trichlorobenzene	ug/m3	100	134 vo	70-130
Naphthalene	ug/m3	71	129	70-130
Hexachlorobutadiene	ug/m3	140	122	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

101270

SAMPLE CHAIN OF CUSTODY ME

01-20-21

Page # 1 of 2

Report To Nathan Stern ; Roy Kuroiwa
Company Urban Environmental Partners llc
Address 2324 1st Ave Ste 203
City, State, ZIP Seattle, Wa 98121
Phone (206) 229-6804 Email sternne@usplopeer.com rkkpe@comcast.net

SAMPLERS (signature) Matthew W. Grunwald

PROJECT NAME & ADDRESS 2830 228th Ave SE Pine Lake Cleaners Sammamish, Wa

PO #

NOTES:

INVOICE TO UEP llc

TURNAROUND TIME
X Standard
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Default: Clean after 3 days
☐ Archive (Fee may apply)

SAMPLE INFORMATION										ANALYSIS REQUESTED						
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 ETEXN	TO15 cVOCs	APH	Helium		Notes
AA-AA-01-012021	01	18565	07870	(IA) / SG	1/20/21	30"	0744	05"	1615	X						
SG-SV-17-0-1-012021	02	21453	31	IA / (SG)	1/20/21	30"+	0855	04"	1440	X						
SG-SV-17-0-1-012021-(01)	03	18572	08	IA / (SG)	1/20/21	29"	0855	06"	1655	X						
IA-IA-01-012021	04	20554	07850	(IA) / SG	1/20/21	30"+	0850	08"	1650	X						
IA-IA-01-012021-(01)	OK	18576	05354	(IA) / SG	1/20/21	29"	0850	08"	1656	X						
SG-SV-18-0-1-012021	06	23230	111	IA / (SG)	1/20/21	30"	0902	05"	1640	X						
IA-IA-02-012021	07	23234	06608	(IA) / SG	1/20/21	29"	0858	07"	1702	X						valve open cap off B
SG-SV-19-0-1-012021	08	23231		IA / (SG)	1/20/21	30"+	0947	03"	1715	X						

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COCTO-15.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Matthew W. Grunwald	Matthew W. Grunwald	UEP, llc	1/20/21	1810
Received by:	JOE MONTANO	FB&F	1/20/21	1860
Relinquished by:				
Received by:				

Samples received at 18 °C

SAMPLE CHAIN OF CUSTODY

101270

01-20-21

Page # 2 of 2

Report To Nathan Starr ; Roy Kuroiwa
Company Urban Environmental Partners llc
Address 2324 1st Ave Ste. 203
City, State, ZIP Seattle, Wa 98121
Phone (206) 229-6804 Email starn@uspioneer.com rkkpe@comcast.net

SAMPLERS (signature) Matthew W. Grunwald

PROJECT NAME & ADDRESS Pine Lake Commons 2830 228th Ave SE Sammamish, Wa

PO #

NOTES:

INVOICE TO UEP llc

TURNAROUND TIME
X Standard
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Default: Clean after 3 days
☐ Archive (Fee may apply)

SAMPLE INFORMATION / ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium		Notes
IA-IA-03-012021	09	20544	05348	(IA) / SG	1/20/21	30"	0942	08	1715	X						
SG-SV-20-0-1-012021	10	20543		IA / (SG)	1/20/21	30"	0953	05	1625	X						
IA-IA-04-012021	11	21484	06602	(IA) / SG	1/20/21	29"	0949	08	1716	X						
SG-SV-21-0-1-012021	12	18566	17	IA / (SG)	1/20/21	30"	0915	04"	1600	X						
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Matthew W. Grunwald	Matthew W. Grunwald	UEP llc	1/20/21	1810
Received by:	Joe Mohammed	FBSI	1/20/21	1810
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COCTO-15.DOC

Samples received at 18 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

March 5, 2021

Nathan Starr, Project Manager
Pioneer Technologies Corp
5205 Corporate Center Ct, Suite A
Lacey, WA 98503

Dear Mr Starr:

Included are the results from the testing of material submitted on February 24, 2021 from the PLC, F&BI 102398 project. There are 23 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
PTC0305R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 24, 2021 by Friedman & Bruya, Inc. from the Pioneer Technologies Corp PLC, F&BI 102398 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Pioneer Technologies Corp
102398 -01	AA-AA-01-022421
102398 -02	SG-SV-17-0-1-022421
102398 -03	SG-SV-17-0-1-022421-(01)
102398 -04	IA-IA-01-022421
102398 -05	IA-IA-01-022421-(01)
102398 -06	SG-SV-18-0-1-022421
102398 -07	IA-IA-02-022421
102398 -08	SG-SV-21-0-1-022421
102398 -09	SG-SV-19-0-1-022421
102398 -10	IA-IA-03-022421
102398 -11	SG-SV-20-0-1-022421
102398 -12	IA-IA-04-022421

Several TO-15 analytes exceeded the calibration range. In addition, an internal standard failed the acceptance criteria for samples IA-IA-01-022421, IA-IA-01-022421-(01), IA-IA-02-022421, and IA-IA-03-022421. The samples were diluted and reanalyzed with acceptable results. Both data sets were reported for affected analytes.

Ethanol in the TO-15 laboratory control sample exceeded the acceptance criteria. The data were flagged accordingly.

The TO-15 acrolein, EDB and naphthalene concentrations were reported below standard laboratory reporting limits in several samples. The data were qualified accordingly.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	AA-AA-01-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-01
Date Analyzed:	02/26/21	Data File:	022611.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	92	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.1	0.43	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.078	0.016	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.069	0.017	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.45	0.071	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.37	0.12	Naphthalene	0.089 j	0.017 j
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-17-0-1-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-02 1/17
Date Analyzed:	02/26/21	Data File:	022623.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	86	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<20	<12	1,2-Dichloropropane	<3.9	<0.85
Dichlorodifluoromethane	290	58	1,4-Dioxane	<6.1	<1.7
Chloromethane	<63	<31	2,2,4-Trimethylpentane	<79	<17
F-114	<12	<1.7	Methyl methacrylate	<70	<17
Vinyl chloride	<4.3	<1.7	Heptane	<70	<17
1,3-Butadiene	<0.75	<0.34	Bromodichloromethane	<1.1	<0.17
Butane	<40	<17	Trichloroethene	18	3.3
Bromomethane	<40	<10	cis-1,3-Dichloropropene	<7.7	<1.7
Chloroethane	<45	<17	4-Methyl-2-pentanone	<70	<17
Vinyl bromide	<7.4	<1.7	trans-1,3-Dichloropropene	<7.7	<1.7
Ethanol	<130	<68	Toluene	<320	<85
Acrolein	<33 j	<14 j	1,1,2-Trichloroethane	<0.93	<0.17
Pentane	<50	<17	2-Hexanone	<70	<17
Trichlorofluoromethane	<38	<6.8	Tetrachloroethene	20,000 ve	2,900 ve
Acetone	<81	<34	Dibromochloromethane	<1.4	<0.17
2-Propanol	<150	<59	1,2-Dibromoethane (EDB)	<0.65 j	<0.085 j
1,1-Dichloroethene	<6.7	<1.7	Chlorobenzene	<7.8	<1.7
trans-1,2-Dichloroethene	<6.7	<1.7	Ethylbenzene	<7.4	<1.7
Methylene chloride	<590	<170	1,1,2,2-Tetrachloroethane	<2.3	<0.34
t-Butyl alcohol (TBA)	<210	<68	Nonane	<89	<17
3-Chloropropene	<27	<8.5	Isopropylbenzene	<42	<8.5
CFC-113	<13	<1.7	2-Chlorotoluene	<88	<17
Carbon disulfide	<110	<34	Propylbenzene	<42	<8.5
Methyl t-butyl ether (MTBE)	<31	<8.5	4-Ethyltoluene	<42	<8.5
Vinyl acetate	<120	<34	m,p-Xylene	<15	<3.4
1,1-Dichloroethane	<6.9	<1.7	o-Xylene	<7.4	<1.7
cis-1,2-Dichloroethene	<6.7	<1.7	Styrene	<14	<3.4
Hexane	<60	<17	Bromoform	<35	<3.4
Chloroform	6.1	1.2	Benzyl chloride	<0.88	<0.17
Ethyl acetate	<120	<34	1,3,5-Trimethylbenzene	<42	<8.5
Tetrahydrofuran	<5	<1.7	1,2,4-Trimethylbenzene	<42	<8.5
2-Butanone (MEK)	<50	<17	1,3-Dichlorobenzene	<10	<1.7
1,2-Dichloroethane (EDC)	<0.69	<0.17	1,4-Dichlorobenzene	<4.0	<0.65
1,1,1-Trichloroethane	<9.3	<1.7	1,2-Dichlorobenzene	<10	<1.7
Carbon tetrachloride	<5.3	<0.85	1,2,4-Trichlorobenzene	<13	<1.7
Benzene	<5.4	<1.7	Naphthalene	<0.98 j	<0.19 j
Cyclohexane	<120	<34	Hexachlorobutadiene	<3.6	<0.34

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-17-0-1-022421-(01)	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-03 1/16
Date Analyzed:	02/26/21	Data File:	022622.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	84	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<19	<11	1,2-Dichloropropane	<3.7	<0.8
Dichlorodifluoromethane	270	55	1,4-Dioxane	<5.8	<1.6
Chloromethane	<59	<29	2,2,4-Trimethylpentane	<75	<16
F-114	<11	<1.6	Methyl methacrylate	<66	<16
Vinyl chloride	<4.1	<1.6	Heptane	<66	<16
1,3-Butadiene	<0.71	<0.32	Bromodichloromethane	<1.1	<0.16
Butane	<38	<16	Trichloroethene	18	3.4
Bromomethane	<37	<9.6	cis-1,3-Dichloropropene	<7.3	<1.6
Chloroethane	<42	<16	4-Methyl-2-pentanone	<66	<16
Vinyl bromide	<7	<1.6	trans-1,3-Dichloropropene	<7.3	<1.6
Ethanol	<120	<64	Toluene	<300	<80
Acrolein	<31 j	<13 j	1,1,2-Trichloroethane	<0.87	<0.16
Pentane	<47	<16	2-Hexanone	<66	<16
Trichlorofluoromethane	<36	<6.4	Tetrachloroethene	23,000 ve	3,400 ve
Acetone	<76	<32	Dibromochloromethane	<1.4	<0.16
2-Propanol	<140	<56	1,2-Dibromoethane (EDB)	<0.62 j	<0.08 j
1,1-Dichloroethene	<6.3	<1.6	Chlorobenzene	<7.4	<1.6
trans-1,2-Dichloroethene	<6.3	<1.6	Ethylbenzene	<6.9	<1.6
Methylene chloride	<560	<160	1,1,2,2-Tetrachloroethane	<2.2	<0.32
t-Butyl alcohol (TBA)	<190	<64	Nonane	<84	<16
3-Chloropropene	<25	<8	Isopropylbenzene	<39	<8
CFC-113	<12	<1.6	2-Chlorotoluene	<83	<16
Carbon disulfide	<100	<32	Propylbenzene	<39	<8
Methyl t-butyl ether (MTBE)	<29	<8	4-Ethyltoluene	<39	<8
Vinyl acetate	<110	<32	m,p-Xylene	<14	<3.2
1,1-Dichloroethane	<6.5	<1.6	o-Xylene	<6.9	<1.6
cis-1,2-Dichloroethene	<6.3	<1.6	Styrene	<14	<3.2
Hexane	<56	<16	Bromoform	<33	<3.2
Chloroform	5.9	1.2	Benzyl chloride	<0.83	<0.16
Ethyl acetate	<120	<32	1,3,5-Trimethylbenzene	<39	<8
Tetrahydrofuran	<4.7	<1.6	1,2,4-Trimethylbenzene	<39	<8
2-Butanone (MEK)	<47	<16	1,3-Dichlorobenzene	<9.6	<1.6
1,2-Dichloroethane (EDC)	<0.65	<0.16	1,4-Dichlorobenzene	<3.7	<0.61
1,1,1-Trichloroethane	<8.7	<1.6	1,2-Dichlorobenzene	<9.6	<1.6
Carbon tetrachloride	<5	<0.8	1,2,4-Trichlorobenzene	<12	<1.6
Benzene	<5.1	<1.6	Naphthalene	<0.92 j	<0.18 j
Cyclohexane	<110	<32	Hexachlorobutadiene	<3.4	<0.32

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-01-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-04
Date Analyzed:	02/26/21	Data File:	022612.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	94	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23 J	<0.05 J
Dichlorodifluoromethane	4.1	0.83	1,4-Dioxane	<0.36 J	<0.1 J
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7 J	<1 J
F-114	<0.7	<0.1	Methyl methacrylate	<4.1 J	<1 J
Vinyl chloride	<0.26	<0.1	Heptane	<4.1 J	<1 J
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067 J	<0.01 J
Butane	3.4	1.5	Trichloroethene	<0.11 J	<0.02 J
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45 J	<0.1 J
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1 J	<1 J
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45 J	<0.1 J
Ethanol	540 ve ca	290 ve ca	Toluene	<19 J	<5 J
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055 J	<0.01 J
Pentane	<3	<1	2-Hexanone	<4.1 J	<1 J
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	7.9 J	1.2 J
Acetone	9.6	4.1	Dibromochloromethane	<0.085 J	<0.01 J
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077 J	<0.01 J
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.63	0.14
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	2.0	0.46
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.92	0.21
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.14	0.029	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.11	0.028	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.42	0.067	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.44	0.14	Naphthalene	0.48	0.092
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-01-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-04 1/2
Date Analyzed:	03/02/21	Data File:	030126.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

Compounds:	Concentration ug/m3	ppbv
1,2-Dichloropropane	<0.46	<0.1
1,4-Dioxane	<0.72	<0.2
2,2,4-Trimethylpentane	<9.3	<2
Methyl methacrylate	<8.2	<2
Heptane	<8.2	<2
Bromodichloromethane	<0.13	<0.02
Trichloroethene	<0.21	<0.04
cis-1,3-Dichloropropene	<0.91	<0.2
4-Methyl-2-pentanone	<8.2	<2
trans-1,3-Dichloropropene	<0.91	<0.2
Toluene	<38	<10
1,1,2-Trichloroethane	<0.11	<0.02
2-Hexanone	<8.2	<2
Tetrachloroethene	<14	<2
Dibromochloromethane	<0.17	<0.02
1,2-Dibromoethane (EDB)	<0.15	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-01-022421-(01)	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-05
Date Analyzed:	02/26/21	Data File:	022613.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	95	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23 J	<0.05 J
Dichlorodifluoromethane	4.2	0.85	1,4-Dioxane	<0.36 J	<0.1 J
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7 J	<1 J
F-114	<0.7	<0.1	Methyl methacrylate	<4.1 J	<1 J
Vinyl chloride	<0.26	<0.1	Heptane	<4.1 J	<1 J
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067 J	<0.01 J
Butane	3.8	1.6	Trichloroethene	<0.11 J	<0.02 J
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45 J	<0.1 J
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1 J	<1 J
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45 J	<0.1 J
Ethanol	580 ve ca	310 ve ca	Toluene	<19 J	<5 J
Acrolein	<2.0 j	<0.85 j	1,1,2-Trichloroethane	<0.055 J	<0.01 J
Pentane	<3	<1	2-Hexanone	<4.1 J	<1 J
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	8.3 J	1.2 J
Acetone	10	4.4	Dibromochloromethane	<0.085 J	<0.01 J
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077 J	<0.01 J
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.65	0.15
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	2.1	0.48
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.96	0.22
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.15	0.030	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.11	0.028	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.44	0.070	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.47	0.15	Naphthalene	0.57	0.11
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-01-022421-(01)	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-05 1/2
Date Analyzed:	03/02/21	Data File:	030125.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

Compounds:	Concentration ug/m3	ppbv
1,2-Dichloropropane	<0.46	<0.1
1,4-Dioxane	<0.72	<0.2
2,2,4-Trimethylpentane	<9.3	<2
Methyl methacrylate	<8.2	<2
Heptane	<8.2	<2
Bromodichloromethane	<0.13	<0.02
Trichloroethene	<0.21	<0.04
cis-1,3-Dichloropropene	<0.91	<0.2
4-Methyl-2-pentanone	<8.2	<2
trans-1,3-Dichloropropene	<0.91	<0.2
Toluene	<38	<10
1,1,2-Trichloroethane	<0.11	<0.02
2-Hexanone	<8.2	<2
Tetrachloroethene	<14	<2
Dibromochloromethane	<0.17	<0.02
1,2-Dibromoethane (EDB)	<0.15	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-18-0-1-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-06 1/8.2
Date Analyzed:	02/26/21	Data File:	022621.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	87	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<9.9	<5.7	1,2-Dichloropropane	<1.9	<0.41
Dichlorodifluoromethane	330	67	1,4-Dioxane	<3	<0.82
Chloromethane	<30	<15	2,2,4-Trimethylpentane	<38	<8.2
F-114	<5.7	<0.82	Methyl methacrylate	<34	<8.2
Vinyl chloride	<2.1	<0.82	Heptane	<34	<8.2
1,3-Butadiene	<0.36	<0.16	Bromodichloromethane	<0.55	<0.082
Butane	<19	<8.2	Trichloroethene	<0.88	<0.16
Bromomethane	<19	<4.9	cis-1,3-Dichloropropene	<3.7	<0.82
Chloroethane	<22	<8.2	4-Methyl-2-pentanone	<34	<8.2
Vinyl bromide	<3.6	<0.82	trans-1,3-Dichloropropene	<3.7	<0.82
Ethanol	92 ve ca	49 ve ca	Toluene	<150	<41
Acrolein	<16 j	<7.0 j	1,1,2-Trichloroethane	<0.45	<0.082
Pentane	<24	<8.2	2-Hexanone	<34	<8.2
Trichlorofluoromethane	<18	<3.3	Tetrachloroethene	7,800 ve	1,200 ve
Acetone	<39	<16	Dibromochloromethane	<0.7	<0.082
2-Propanol	<71	<29	1,2-Dibromoethane (EDB)	<0.32 j	<0.041 j
1,1-Dichloroethene	<3.3	<0.82	Chlorobenzene	<3.8	<0.82
trans-1,2-Dichloroethene	<3.3	<0.82	Ethylbenzene	<3.6	<0.82
Methylene chloride	<280	<82	1,1,2,2-Tetrachloroethane	<1.1	<0.16
t-Butyl alcohol (TBA)	<99	<33	Nonane	<43	<8.2
3-Chloropropene	<13	<4.1	Isopropylbenzene	<20	<4.1
CFC-113	<6.3	<0.82	2-Chlorotoluene	<42	<8.2
Carbon disulfide	<51	<16	Propylbenzene	<20	<4.1
Methyl t-butyl ether (MTBE)	<15	<4.1	4-Ethyltoluene	<20	<4.1
Vinyl acetate	<58	<16	m,p-Xylene	<7.1	<1.6
1,1-Dichloroethane	<3.3	<0.82	o-Xylene	<3.6	<0.82
cis-1,2-Dichloroethene	<3.3	<0.82	Styrene	<7	<1.6
Hexane	<29	<8.2	Bromoform	<17	<1.6
Chloroform	<0.4	<0.082	Benzyl chloride	<0.42	<0.082
Ethyl acetate	<59	<16	1,3,5-Trimethylbenzene	<20	<4.1
Tetrahydrofuran	<2.4	<0.82	1,2,4-Trimethylbenzene	<20	<4.1
2-Butanone (MEK)	<24	<8.2	1,3-Dichlorobenzene	<4.9	<0.82
1,2-Dichloroethane (EDC)	<0.33	<0.082	1,4-Dichlorobenzene	<1.9	<0.31
1,1,1-Trichloroethane	<4.5	<0.82	1,2-Dichlorobenzene	<4.9	<0.82
Carbon tetrachloride	<2.6	<0.41	1,2,4-Trichlorobenzene	<6.1	<0.82
Benzene	<2.6	<0.82	Naphthalene	<2.1	<0.41
Cyclohexane	<56	<16	Hexachlorobutadiene	<1.7	<0.16

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-02-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-07
Date Analyzed:	02/26/21	Data File:	022614.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23 J	<0.05 J
Dichlorodifluoromethane	4.3	0.87	1,4-Dioxane	<0.36 J	<0.1 J
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7 J	<1 J
F-114	<0.7	<0.1	Methyl methacrylate	<4.1 J	<1 J
Vinyl chloride	<0.26	<0.1	Heptane	<4.1 J	<1 J
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067 J	<0.01 J
Butane	4.0	1.7	Trichloroethene	<0.11 J	<0.02 J
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45 J	<0.1 J
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1 J	<1 J
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45 J	<0.1 J
Ethanol	730 ve ca	390 ve ca	Toluene	<19 J	<5 J
Acrolein	<2.0 j	<0.85 j	1,1,2-Trichloroethane	<0.055 J	<0.01 J
Pentane	<3	<1	2-Hexanone	<4.1 J	<1 J
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	7.5 J	1.1 J
Acetone	9.1	3.8	Dibromochloromethane	<0.085 J	<0.01 J
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077 J	<0.01 J
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.61	0.14
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.9	0.45
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.91	0.21
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.15	0.030	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.10	0.025	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.44	0.070	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.48	0.15	Naphthalene	0.47	0.089
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-02-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-07 1/2
Date Analyzed:	03/01/21	Data File:	030124.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	91	70	130

Compounds:	Concentration ug/m3	ppbv
1,2-Dichloropropane	<0.46	<0.1
1,4-Dioxane	<0.72	<0.2
2,2,4-Trimethylpentane	<9.3	<2
Methyl methacrylate	<8.2	<2
Heptane	<8.2	<2
Bromodichloromethane	<0.13	<0.02
Trichloroethene	<0.21	<0.04
cis-1,3-Dichloropropene	<0.91	<0.2
4-Methyl-2-pentanone	<8.2	<2
trans-1,3-Dichloropropene	<0.91	<0.2
Toluene	<38	<10
1,1,2-Trichloroethane	<0.11	<0.02
2-Hexanone	<8.2	<2
Tetrachloroethene	<14	<2
Dibromochloromethane	<0.17	<0.02
1,2-Dibromoethane (EDB)	<0.15	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-21-0-1-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-08 1/5.5
Date Analyzed:	02/26/21	Data File:	022620.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	115	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<6.6	<3.8	1,2-Dichloropropane	<1.3	<0.28
Dichlorodifluoromethane	<2.7	<0.55	1,4-Dioxane	<2	<0.55
Chloromethane	<20	<9.9	2,2,4-Trimethylpentane	<26	<5.5
F-114	<3.8	<0.55	Methyl methacrylate	<23	<5.5
Vinyl chloride	<1.4	<0.55	Heptane	<23	<5.5
1,3-Butadiene	1.5	0.68	Bromodichloromethane	<0.37	<0.055
Butane	<13	<5.5	Trichloroethene	<0.59	<0.11
Bromomethane	<13	<3.3	cis-1,3-Dichloropropene	<2.5	<0.55
Chloroethane	<15	<5.5	4-Methyl-2-pentanone	31	7.6
Vinyl bromide	<2.4	<0.55	trans-1,3-Dichloropropene	<2.5	<0.55
Ethanol	150 ve ca	78 ve ca	Toluene	<100	<27
Acrolein	<11 j	<4.7 j	1,1,2-Trichloroethane	<0.3	<0.055
Pentane	<16	<5.5	2-Hexanone	<23	<5.5
Trichlorofluoromethane	<12	<2.2	Tetrachloroethene	<37	<5.5
Acetone	<26	<11	Dibromochloromethane	<0.47	<0.055
2-Propanol	<47	<19	1,2-Dibromoethane (EDB)	<0.42	<0.055
1,1-Dichloroethene	<2.2	<0.55	Chlorobenzene	<2.5	<0.55
trans-1,2-Dichloroethene	<2.2	<0.55	Ethylbenzene	<2.4	<0.55
Methylene chloride	<190	<55	1,1,2,2-Tetrachloroethane	<0.76	<0.11
t-Butyl alcohol (TBA)	<67	<22	Nonane	190	36
3-Chloropropene	<8.6	<2.7	Isopropylbenzene	<14	<2.7
CFC-113	<4.2	<0.55	2-Chlorotoluene	<28	<5.5
Carbon disulfide	<34	<11	Propylbenzene	<14	<2.7
Methyl t-butyl ether (MTBE)	<9.9	<2.7	4-Ethyltoluene	<14	<2.7
Vinyl acetate	<39	<11	m,p-Xylene	<4.8	<1.1
1,1-Dichloroethane	<2.2	<0.55	o-Xylene	<2.4	<0.55
cis-1,2-Dichloroethene	<2.2	<0.55	Styrene	<4.7	<1.1
Hexane	<19	<5.5	Bromoform	<11	<1.1
Chloroform	<0.27	<0.055	Benzyl chloride	<0.29	<0.055
Ethyl acetate	<40	<11	1,3,5-Trimethylbenzene	<14	<2.7
Tetrahydrofuran	<1.6	<0.55	1,2,4-Trimethylbenzene	<14	<2.7
2-Butanone (MEK)	<16	<5.5	1,3-Dichlorobenzene	<3.3	<0.55
1,2-Dichloroethane (EDC)	<0.22	<0.055	1,4-Dichlorobenzene	<1.3	<0.21
1,1,1-Trichloroethane	<3	<0.55	1,2-Dichlorobenzene	<3.3	<0.55
Carbon tetrachloride	<1.7	<0.28	1,2,4-Trichlorobenzene	<4.1	<0.55
Benzene	<1.8	<0.55	Naphthalene	<1.4	<0.28
Cyclohexane	<38	<11	Hexachlorobutadiene	<1.2	<0.11

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-19-0-1-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-09 1/5.6
Date Analyzed:	02/26/21	Data File:	022619.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	91	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<6.7	<3.9	1,2-Dichloropropane	<1.3	<0.28
Dichlorodifluoromethane	390 ve	79 ve	1,4-Dioxane	<2	<0.56
Chloromethane	<21	<10	2,2,4-Trimethylpentane	<26	<5.6
F-114	<3.9	<0.56	Methyl methacrylate	<23	<5.6
Vinyl chloride	<1.4	<0.56	Heptane	<23	<5.6
1,3-Butadiene	<0.25	<0.11	Bromodichloromethane	<0.38	<0.056
Butane	<13	<5.6	Trichloroethene	<0.6	<0.11
Bromomethane	<13	<3.4	cis-1,3-Dichloropropene	<2.5	<0.56
Chloroethane	<15	<5.6	4-Methyl-2-pentanone	<23	<5.6
Vinyl bromide	<2.4	<0.56	trans-1,3-Dichloropropene	<2.5	<0.56
Ethanol	200 ve ca	110 ve ca	Toluene	<110	<28
Acrolein	<11 j	<4.8 j	1,1,2-Trichloroethane	<0.31	<0.056
Pentane	<17	<5.6	2-Hexanone	<23	<5.6
Trichlorofluoromethane	<13	<2.2	Tetrachloroethene	420 ve	62 ve
Acetone	27	11	Dibromochloromethane	<0.48	<0.056
2-Propanol	<48	<20	1,2-Dibromoethane (EDB)	<0.43	<0.056
1,1-Dichloroethene	<2.2	<0.56	Chlorobenzene	<2.6	<0.56
trans-1,2-Dichloroethene	<2.2	<0.56	Ethylbenzene	<2.4	<0.56
Methylene chloride	<190	<56	1,1,2,2-Tetrachloroethane	<0.77	<0.11
t-Butyl alcohol (TBA)	<68	<22	Nonane	<29	<5.6
3-Chloropropene	<8.8	<2.8	Isopropylbenzene	<14	<2.8
CFC-113	<4.3	<0.56	2-Chlorotoluene	<29	<5.6
Carbon disulfide	<35	<11	Propylbenzene	<14	<2.8
Methyl t-butyl ether (MTBE)	<10	<2.8	4-Ethyltoluene	<14	<2.8
Vinyl acetate	<39	<11	m,p-Xylene	<4.9	<1.1
1,1-Dichloroethane	<2.3	<0.56	o-Xylene	<2.4	<0.56
cis-1,2-Dichloroethene	<2.2	<0.56	Styrene	<4.8	<1.1
Hexane	<20	<5.6	Bromoform	<12	<1.1
Chloroform	<0.27	<0.056	Benzyl chloride	<0.29	<0.056
Ethyl acetate	<40	<11	1,3,5-Trimethylbenzene	<14	<2.8
Tetrahydrofuran	<1.7	<0.56	1,2,4-Trimethylbenzene	<14	<2.8
2-Butanone (MEK)	<17	<5.6	1,3-Dichlorobenzene	<3.4	<0.56
1,2-Dichloroethane (EDC)	<0.23	<0.056	1,4-Dichlorobenzene	<1.3	<0.21
1,1,1-Trichloroethane	<3.1	<0.56	1,2-Dichlorobenzene	<3.4	<0.56
Carbon tetrachloride	<1.8	<0.28	1,2,4-Trichlorobenzene	<4.2	<0.56
Benzene	<1.8	<0.56	Naphthalene	<1.5	<0.28
Cyclohexane	<39	<11	Hexachlorobutadiene	<1.2	<0.11

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-03-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-10
Date Analyzed:	02/26/21	Data File:	022615.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	93	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	0.26 J	0.056 J
Dichlorodifluoromethane	4.6	0.93	1,4-Dioxane	<0.36 J	<0.1 J
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7 J	<1 J
F-114	<0.7	<0.1	Methyl methacrylate	<4.1 J	<1 J
Vinyl chloride	<0.26	<0.1	Heptane	<4.1 J	<1 J
1,3-Butadiene	0.15	0.070	Bromodichloromethane	0.094 J	0.014 J
Butane	2.9	1.2	Trichloroethene	<0.11 J	<0.02 J
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45 J	<0.1 J
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	9.0 J	2.2 J
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45 J	<0.1 J
Ethanol	1,400 ve ca	740 ve ca	Toluene	<19 J	<5 J
Acrolein	<2.0 j	<0.85 j	1,1,2-Trichloroethane	<0.055 J	<0.01 J
Pentane	<3	<1	2-Hexanone	<4.1 J	<1 J
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8 J	<1 J
Acetone	43 ve	18 ve	Dibromochloromethane	<0.085 J	<0.01 J
2-Propanol	880 ve	360 ve	1,2-Dibromoethane (EDB)	<0.077 J	<0.01 J
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.0	0.23
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.46	0.11
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.28	0.057	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.21	0.051	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.44	0.070	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.71	0.22	Naphthalene	0.21	0.041
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-03-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-10 1/2
Date Analyzed:	03/01/21	Data File:	030123.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	91	70	130

Compounds:	Concentration ug/m3	ppbv
1,2-Dichloropropane	<0.46	<0.1
1,4-Dioxane	<0.72	<0.2
2,2,4-Trimethylpentane	<9.3	<2
Methyl methacrylate	<8.2	<2
Heptane	<8.2	<2
Bromodichloromethane	<0.13	<0.02
Trichloroethene	<0.21	<0.04
cis-1,3-Dichloropropene	<0.91	<0.2
4-Methyl-2-pentanone	<8.2	<2
trans-1,3-Dichloropropene	<0.91	<0.2
Toluene	<38	<10
1,1,2-Trichloroethane	<0.11	<0.02
2-Hexanone	<8.2	<2
Tetrachloroethene	<14	<2
Dibromochloromethane	<0.17	<0.02
1,2-Dibromoethane (EDB)	<0.15	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-20-0-1-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-11 1/6.0
Date Analyzed:	02/26/21	Data File:	022617.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	89	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<7.2	<4.2	1,2-Dichloropropane	<1.4	<0.3
Dichlorodifluoromethane	840 ve	170 ve	1,4-Dioxane	<2.2	<0.6
Chloromethane	<22	<11	2,2,4-Trimethylpentane	<28	<6
F-114	<4.2	<0.6	Methyl methacrylate	<25	<6
Vinyl chloride	<1.5	<0.6	Heptane	<25	<6
1,3-Butadiene	<0.27	<0.12	Bromodichloromethane	<0.4	<0.06
Butane	<14	<6	Trichloroethene	<0.64	<0.12
Bromomethane	<14	<3.6	cis-1,3-Dichloropropene	<2.7	<0.6
Chloroethane	<16	<6	4-Methyl-2-pentanone	<25	<6
Vinyl bromide	<2.6	<0.6	trans-1,3-Dichloropropene	<2.7	<0.6
Ethanol	240 ve ca	130 ve ca	Toluene	<110	<30
Acrolein	<12 j	<5.1 j	1,1,2-Trichloroethane	<0.33	<0.06
Pentane	<18	<6	2-Hexanone	<25	<6
Trichlorofluoromethane	<13	<2.4	Tetrachloroethene	45	6.6
Acetone	<29	<12	Dibromochloromethane	<0.51	<0.06
2-Propanol	<52	<21	1,2-Dibromoethane (EDB)	<0.46	<0.06
1,1-Dichloroethene	<2.4	<0.6	Chlorobenzene	<2.8	<0.6
trans-1,2-Dichloroethene	<2.4	<0.6	Ethylbenzene	<2.6	<0.6
Methylene chloride	<210	<60	1,1,2,2-Tetrachloroethane	<0.82	<0.12
t-Butyl alcohol (TBA)	<73	<24	Nonane	<31	<6
3-Chloropropene	<9.4	<3	Isopropylbenzene	<15	<3
CFC-113	<4.6	<0.6	2-Chlorotoluene	<31	<6
Carbon disulfide	<37	<12	Propylbenzene	<15	<3
Methyl t-butyl ether (MTBE)	<11	<3	4-Ethyltoluene	<15	<3
Vinyl acetate	<42	<12	m,p-Xylene	<5.2	<1.2
1,1-Dichloroethane	<2.4	<0.6	o-Xylene	<2.6	<0.6
cis-1,2-Dichloroethene	<2.4	<0.6	Styrene	<5.1	<1.2
Hexane	<21	<6	Bromoform	<12	<1.2
Chloroform	<0.29	<0.06	Benzyl chloride	<0.31	<0.06
Ethyl acetate	<43	<12	1,3,5-Trimethylbenzene	<15	<3
Tetrahydrofuran	<1.8	<0.6	1,2,4-Trimethylbenzene	<15	<3
2-Butanone (MEK)	<18	<6	1,3-Dichlorobenzene	<3.6	<0.6
1,2-Dichloroethane (EDC)	<0.24	<0.06	1,4-Dichlorobenzene	<1.4	<0.23
1,1,1-Trichloroethane	<3.3	<0.6	1,2-Dichlorobenzene	<3.6	<0.6
Carbon tetrachloride	<1.9	<0.3	1,2,4-Trichlorobenzene	<4.5	<0.6
Benzene	<1.9	<0.6	Naphthalene	<1.6	<0.3
Cyclohexane	<41	<12	Hexachlorobutadiene	<1.3	<0.12

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-04-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-12
Date Analyzed:	02/26/21	Data File:	022616.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	0.24	0.052
Dichlorodifluoromethane	5.2	1.1	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	0.17	0.076	Bromodichloromethane	0.08	0.012
Butane	3.1	1.3	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	8.0	2.0
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	1,300 ve	ca 670 ve ca	Toluene	<19	<5
Acrolein	<2.0 j	<0.85 j	1,1,2-Trichloroethane	0.060	0.011
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	49	20	Dibromochloromethane	<0.085	<0.01
2-Propanol	980 ve	400 ve	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.0	0.23
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.45	0.10
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.27	0.056	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.23	0.058	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.45	0.072	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.75	0.23	Naphthalene	0.18	0.034
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Pioneer Technologies Corp
Date Received:	Not Applicable	Project:	PLC, F&BI 102398
Date Collected:	Not Applicable	Lab ID:	01-446 MB
Date Analyzed:	02/26/21	Data File:	022610.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	91	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	<0.49	<0.1	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.0 j	<0.85 j	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.31	<0.05	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	<0.057 j	<0.011 j
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Date of Report: 03/05/21
Date Received: 02/24/21
Project: PLC, F&BI 102398

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 102398-11 1/6.0 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	<7.2	<7.2	nm
Dichlorodifluoromethane	ug/m3	840	840	0
Chloromethane	ug/m3	<22	<22	nm
F-114	ug/m3	<4.2	<4.2	nm
Vinyl chloride	ug/m3	<1.5	<1.5	nm
1,3-Butadiene	ug/m3	<0.27	<0.27	nm
Butane	ug/m3	<14	<14	nm
Bromomethane	ug/m3	<14	<14	nm
Chloroethane	ug/m3	<16	<16	nm
Vinyl bromide	ug/m3	<2.6	<2.6	nm
Ethanol	ug/m3	240	190	23
Acrolein	ug/m3	<12	<12	nm
Pentane	ug/m3	<18	<18	nm
Trichlorofluoromethane	ug/m3	<13	<13	nm
Acetone	ug/m3	<29	<29	nm
2-Propanol	ug/m3	<52	<52	nm
1,1-Dichloroethene	ug/m3	<2.4	<2.4	nm
trans-1,2-Dichloroethene	ug/m3	<2.4	<2.4	nm
Methylene chloride	ug/m3	<210	<210	nm
t-Butyl alcohol (TBA)	ug/m3	<73	<73	nm
3-Chloropropene	ug/m3	<9.4	<9.4	nm
CFC-113	ug/m3	<4.6	<4.6	nm
Carbon disulfide	ug/m3	<37	<37	nm
Methyl t-butyl ether (MTBE)	ug/m3	<11	<11	nm
Vinyl acetate	ug/m3	<42	<42	nm
1,1-Dichloroethane	ug/m3	<2.4	<2.4	nm
cis-1,2-Dichloroethene	ug/m3	<2.4	<2.4	nm
Hexane	ug/m3	<21	<21	nm
Chloroform	ug/m3	<0.29	0.29	nm
Ethyl acetate	ug/m3	<43	<43	nm
Tetrahydrofuran	ug/m3	<1.8	<1.8	nm
2-Butanone (MEK)	ug/m3	<18	<18	nm
1,2-Dichloroethane (EDC)	ug/m3	<0.24	<0.24	nm
1,1,1-Trichloroethane	ug/m3	<3.3	<3.3	nm
Carbon tetrachloride	ug/m3	<1.9	<1.9	nm
Benzene	ug/m3	<1.9	<1.9	nm
Cyclohexane	ug/m3	<41	<41	nm
1,2-Dichloropropane	ug/m3	<1.4	<1.4	nm
1,4-Dioxane	ug/m3	<2.2	<2.2	nm
2,2,4-Trimethylpentane	ug/m3	<28	<28	nm

Date of Report: 03/05/21
Date Received: 02/24/21
Project: PLC, F&BI 102398

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 102398-11 1/6.0 (Duplicate, continued)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<25	<25	nm
Heptane	ug/m3	<25	<25	nm
Bromodichloromethane	ug/m3	<0.4	<0.4	nm
Trichloroethene	ug/m3	<0.64	<0.64	nm
cis-1,3-Dichloropropene	ug/m3	<2.7	<2.7	nm
4-Methyl-2-pentanone	ug/m3	<25	<25	nm
trans-1,3-Dichloropropene	ug/m3	<2.7	<2.7	nm
Toluene	ug/m3	<110	<110	nm
1,1,2-Trichloroethane	ug/m3	<0.33	<0.33	nm
2-Hexanone	ug/m3	<25	<25	nm
Tetrachloroethene	ug/m3	45	44	2
Dibromochloromethane	ug/m3	<0.51	<0.51	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.46	<0.46	nm
Chlorobenzene	ug/m3	<2.8	<2.8	nm
Ethylbenzene	ug/m3	<2.6	<2.6	nm
1,1,2,2-Tetrachloroethane	ug/m3	<0.82	<0.82	nm
Nonane	ug/m3	<31	<31	nm
Isopropylbenzene	ug/m3	<15	<15	nm
2-Chlorotoluene	ug/m3	<31	<31	nm
Propylbenzene	ug/m3	<15	<15	nm
4-Ethyltoluene	ug/m3	<15	<15	nm
m,p-Xylene	ug/m3	<5.2	<5.2	nm
o-Xylene	ug/m3	<2.6	<2.6	nm
Styrene	ug/m3	<5.1	<5.1	nm
Bromoform	ug/m3	<12	<12	nm
Benzyl chloride	ug/m3	<0.31	<0.31	nm
1,3,5-Trimethylbenzene	ug/m3	<15	<15	nm
1,2,4-Trimethylbenzene	ug/m3	<15	<15	nm
1,3-Dichlorobenzene	ug/m3	<3.6	<3.6	nm
1,4-Dichlorobenzene	ug/m3	<1.4	<1.4	nm
1,2-Dichlorobenzene	ug/m3	<3.6	<3.6	nm
1,2,4-Trichlorobenzene	ug/m3	<4.5	<4.5	nm
Naphthalene	ug/m3	<1.6	<1.6	nm
Hexachlorobutadiene	ug/m3	<1.3	<1.3	nm

Date of Report: 03/05/21
Date Received: 02/24/21
Project: PLC, F&BI 102398

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Propene	ug/m3	23	95	70-130
Dichlorodifluoromethane	ug/m3	67	104	70-130
Chloromethane	ug/m3	28	85	70-130
F-114	ug/m3	94	105	70-130
Vinyl chloride	ug/m3	35	101	70-130
1,3-Butadiene	ug/m3	30	98	70-130
Butane	ug/m3	32	108	70-130
Bromomethane	ug/m3	52	103	70-130
Chloroethane	ug/m3	36	109	70-130
Vinyl bromide	ug/m3	59	108	70-130
Ethanol	ug/m3	25	132 vo	70-130
Acrolein	ug/m3	31	107	70-130
Pentane	ug/m3	40	104	70-130
Trichlorofluoromethane	ug/m3	76	102	70-130
Acetone	ug/m3	32	109	70-130
2-Propanol	ug/m3	33	116	70-130
1,1-Dichloroethene	ug/m3	54	108	70-130
trans-1,2-Dichloroethene	ug/m3	54	104	70-130
Methylene chloride	ug/m3	94	96	70-130
t-Butyl alcohol (TBA)	ug/m3	41	97	70-130
3-Chloropropene	ug/m3	42	105	70-130
CFC-113	ug/m3	100	106	70-130
Carbon disulfide	ug/m3	42	113	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	92	70-130
Vinyl acetate	ug/m3	48	98	70-130
1,1-Dichloroethane	ug/m3	55	112	70-130
cis-1,2-Dichloroethene	ug/m3	54	104	70-130
Hexane	ug/m3	48	97	70-130
Chloroform	ug/m3	66	110	70-130
Ethyl acetate	ug/m3	49	109	70-130
Tetrahydrofuran	ug/m3	40	106	70-130
2-Butanone (MEK)	ug/m3	40	102	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	108	70-130
1,1,1-Trichloroethane	ug/m3	74	102	70-130
Carbon tetrachloride	ug/m3	85	101	70-130
Benzene	ug/m3	43	104	70-130
Cyclohexane	ug/m3	46	92	70-130
1,2-Dichloropropane	ug/m3	62	114	70-130
1,4-Dioxane	ug/m3	49	105	70-130
2,2,4-Trimethylpentane	ug/m3	63	110	70-130

Date of Report: 03/05/21
Date Received: 02/24/21
Project: PLC, F&BI 102398

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample (Continued)

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Methyl methacrylate	ug/m3	55	112	70-130
Heptane	ug/m3	55	114	70-130
Bromodichloromethane	ug/m3	90	112	70-130
Trichloroethene	ug/m3	73	108	70-130
cis-1,3-Dichloropropene	ug/m3	61	106	70-130
4-Methyl-2-pentanone	ug/m3	55	94	70-130
trans-1,3-Dichloropropene	ug/m3	61	106	70-130
Toluene	ug/m3	51	98	70-130
1,1,2-Trichloroethane	ug/m3	74	113	70-130
2-Hexanone	ug/m3	55	111	70-130
Tetrachloroethene	ug/m3	92	104	70-130
Dibromochloromethane	ug/m3	120	109	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	104	70-130
Chlorobenzene	ug/m3	62	108	70-130
Ethylbenzene	ug/m3	59	105	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	124	70-130
Nonane	ug/m3	71	112	70-130
Isopropylbenzene	ug/m3	66	123	70-130
2-Chlorotoluene	ug/m3	70	107	70-130
Propylbenzene	ug/m3	66	108	70-130
4-Ethyltoluene	ug/m3	66	108	70-130
m,p-Xylene	ug/m3	120	105	70-130
o-Xylene	ug/m3	59	107	70-130
Styrene	ug/m3	58	105	70-130
Bromoform	ug/m3	140	114	70-130
Benzyl chloride	ug/m3	70	120	70-130
1,3,5-Trimethylbenzene	ug/m3	66	107	70-130
1,2,4-Trimethylbenzene	ug/m3	66	105	70-130
1,3-Dichlorobenzene	ug/m3	81	119	70-130
1,4-Dichlorobenzene	ug/m3	81	107	70-130
1,2-Dichlorobenzene	ug/m3	81	112	70-130
1,2,4-Trichlorobenzene	ug/m3	100	103	70-130
Naphthalene	ug/m3	71	107	70-130
Hexachlorobutadiene	ug/m3	140	112	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

102398

SAMPLE CHAIN OF CUSTODY

02-24-21

Page # 1 of 2

Report To Nathan Steer
Company Pioneer
Address 5205 Corp. Center Ct. SE Ste A
City, State, ZIP Lacey, WA 98503
Phone 206-890-4849 Email SteerN@uspioneer.com

SAMPLERS (signature)

PROJECT NAME & ADDRESS: PLC

PO #

NOTES:

INVOICE TO: Pioneer

TURNAROUND TIME
☒ Standard
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Default: Clean after 3 days
☐ Archive (Fee may apply)

SAMPLE INFORMATION										ANALYSIS REQUESTED						
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium		Notes
AA-AA-01-022421	01	37240	07871	(IA) / SG	2/24/21	29	0732	4	1555	X						8-hr
SG-SV-17-01-022421	02	20555	8-hr N/A	IA / (SG)		29	0822	5	1500							8-hr
SG-SV-17-01-022421-(01)	03	18574	N/A 8-hr	IA / (SG)		30	0822	4	1500							
IA-IA-01-022421	04	35331	~~N/A~~ 0780 ~~8-hr~~ LM	(IA) / SG		30+	0818	4	1710							
IA-IA-01-022421-(01)	05	37224	05356 ~~07870~~ MS	(IA) / SG		30	0818	5	1710							
SG-SV-18-01-022421	06	23227	N/A 8-hr	IA / (SG)		29	0836	4	1640							
IA-IA-02-022421	07	~~32097~~ ~~5226~~	07847	(IA) / SG		30+	0827	4	1640							
SG-SV-21-01-022421	08	18568	N/A 8-hr	IA / (SG)		30+	0847	4	1520							

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Nathan Steer	Pioneer	2/24/21	1841
Received by:	JOE MOHAMMED	FSDE	2/24/21	1841
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COCTO-15.DOC

Samples received at 18 °C

102398

SAMPLE CHAIN OF CUSTODY ME

02-24-21

Page # 2 of 2

Report To See page 1

Company

Address

City, State, ZIP

Phone Email

SAMPLERS (signature)

PROJECT NAME & ADDRESS: See Page 1

PO #

NOTES:

INVOICE TO

TURNAROUND TIME
☒ Standard
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Default: Clean after 3 days
☐ Archive (Fee may apply)

SAMPLE INFORMATION										ANALYSIS REQUESTED						
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium		Notes
S6-SV-19-0-1-022421	09	20546	N/A 8-hr	IA / (SG)	2/24/21	30+	0925	4	1513	X						8-hr
1A-1A-03-022421	10	37228	07845	(IA) / SG	↓	29	0922	5	1744	↓						↓
S6-SV-20-0-1-022421	11	18561	N/A 8-hr	IA / (SG)		30+	0946	6	1749							
1A-1A-04-022421	12	37214	08183	(IA) / SG		30+	0936	7	1755							
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												

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FORMS\COC\COCTO-15.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Nathan Stearns	Nathan Stearns	Pioneer	2/24/21	1841
Received by:	JOE MOHAMED	FBA	2/24/21	1841
Relinquished by:				
Received by:				

Samples received at 18 °C

APPENDIX D: PLC Work Plan and IV Investigation Report

Vapor Intrusion Investigation Report

Pine Lake Cleaners Site
2830 228th Avenue Southeast
Sammamish, WA 98075

Prepared for:

Urban Environmental Partners llc
2324 First Avenue, Suite 203
Seattle, WA 98121

Prepared by:

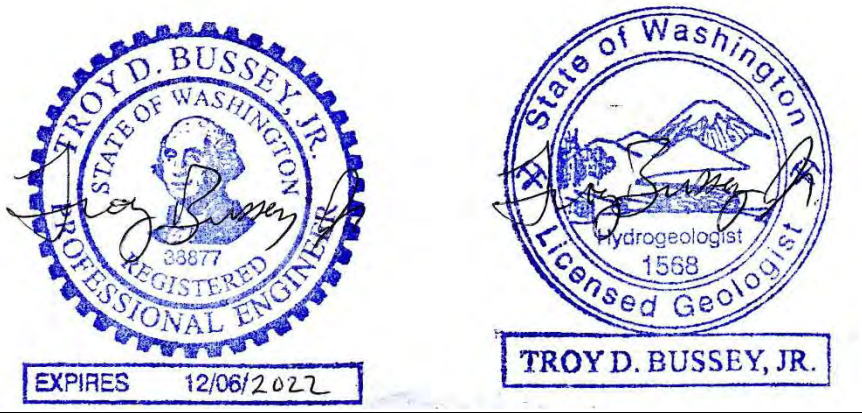
PIONEER TECHNOLOGIES CORPORATION

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May 2021

Professional Certification

This document was prepared under my direction. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I hereby certify that I was in responsible charge of the work performed for this document.



May 14, 2021

Troy D. Bussey Jr.
Principal Engineer
PIONEER Technologies Corporation
Washington P.E. Registration No. 38877
Washington L.G. and L.HG. Registration No. 1568

Date

Executive Summary

The purpose of this Vapor Intrusion (VI) Investigation Report (Report) is to document (1) the 2020 and 2021 VI investigation activities conducted at the Pine Lake Cleaners (PLC) Site (Site) in accordance with the July 2020 VI Investigation Work Plan, and (2) the evaluation of all 2018 through 2021 VI investigation results. Soil vapor, indoor air, and ambient air samples were collected during August 2020, January 2021, and February 2021 sampling events to supplement previous October 2018 VI sampling results. The purpose of the VI investigation and evaluation activities was to determine if constituents of potential concern (COPCs) in the subsurface pose an unacceptable VI risk for current and anticipated future commercial land use in the PLC suite and the adjacent suite.

The Site consists of the commercial tenant suite occupied by PLC, a dry cleaner facility since 1990, that is located on the west end of the Pine Lake Plaza Building (Building) in Sammamish, Washington. The current and anticipated future land use of the Building and the associated property is commercial. PLC replaced a former tetrachloroethene (PCE)-based, dry-cleaning machine with a non-chlorinated solvent-based, dry-cleaning machine in 2019.

The key conclusions for the VI pathway based on the 2018 through 2021 investigation results are:

- PCE and trichloroethene (TCE) are the only relevant VI COPCs based on current conditions.
- PCE does not pose an unacceptable VI risk for any land use based on current conditions.
- The single TCE exceedance in the August 2020 indoor air sample at IA-01 may be due to ongoing storage and use of Picrin® at the spot cleaning area and/or VI.
- TCE does not pose an unacceptable VI risk for current and anticipated future commercial land use based on current conditions. Furthermore, it is highly unlikely that there would ever be a TCE permissible exposure limit exceedance (which is the applicable indoor air human health standard as long as Picrin® is used as part of PLC operations).

Even though there are no unacceptable VI risks for current and anticipated future commercial land use based on current conditions, PIONEER recommends including the following remedial components in the selected MTCA remedy to help ensure protection of human health for the VI pathway :

- Permanently discontinue the storage and use of the Picrin® spot cleaner in order to prevent future TCE releases.
- Unless determined to be unnecessary based on future VI-related sampling and analysis after Picrin® is permanently discontinued, develop and record (with King County) a restrictive covenant to prevent future residential land use within the PLC suite.
- Inspect and document the condition of the concrete slab within the PLC suite on a regular basis (e.g., annually) to identify potential preferential pathways that might allow PCE and TCE to migrate from soil vapor to indoor air. Based on the inspection results, promptly repair any cracks in the concrete slab to eliminate potential preferential pathways, and then document the repair.
- Collect a representative indoor air sample within the PLC suite periodically (e.g., once every five years), and analyze the sample for PCE, TCE, cis- and trans-1,2-dichloroethene, and vinyl chloride as confirmational monitoring to ensure future indoor air concentrations for PCE, TCE, and degradation byproducts remain less than indoor air SLs for commercial/industrial land use.

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Appendix C 2020-2021 Laboratory Reports and Data Quality Review
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Appendix E Picrin® Safety Data Sheet

List of Acronyms

Acronym	Explanation
bgs	Below ground surface
Building	Pine Lake Plaza Building
CLARC	Cleanup Level and Risk Calculation
COPC	Constituent of Potential Concern
Ecology	Washington State Department of Ecology
HVAC	Heating, Ventilation, and Air Conditioning
MTCA	Model Toxics Control Act
PCE	Tetrachloroethene
PEL	Permissible Exposure Limit
PID	Photoionization Detector
PIONEER	PIONEER Technologies Corporation
PLC	Pine Lake Cleaners
ppmv	Parts per Million by Volume
Report	Vapor Intrusion Investigation Report
SL	Screening Level
TCE	Trichloroethene
UEP	Urban Environmental Partners, llc
USEPA	United States Environmental Protection Agency
VCP	Voluntary Cleanup Program
VI	Vapor Intrusion
VOC	Volatile Organic Compound
WAC	Washington Administrative Code
Work Plan	Vapor Intrusion Investigation Work Plan

SECTION 1: INTRODUCTION

1.1 Purpose

The purpose of this Vapor Intrusion (VI) Investigation Report (Report) is to document (1) the 2020 and 2021 VI investigation activities conducted at the Pine Lake Cleaners (PLC) Site (Site) in accordance with the July 2020 VI Investigation Work Plan (Work Plan; see Appendix A), and (2) the evaluation of all 2018 through 2021 VI investigation results. The purpose of the VI investigation and evaluation activities was to determine if constituents of potential concern (COPCs) in the subsurface pose an unacceptable VI risk for current and anticipated future commercial land use in the PLC suite and the adjacent suite.

1.2 Site Background

A brief overview of Site background information is presented in this section to provide context for the VI investigation activities. The information presented in this section is based on the Urban Environmental Partners, llc (UEP) Focused Phase II Assessment Report (UEP 2018), unless otherwise noted.

1.2.1 Site Location

The Site consists of the commercial tenant suite occupied by PLC, a dry cleaner facility, located at 2830 228th Avenue Southeast in Sammamish, Washington (see Figure 1). PLC is located on the west end of the Pine Lake Plaza Building (Building) as shown on Figure 1. Based on elevation contour information obtained from the King County iMap database, the elevation of PLC is approximately 435 feet above mean sea level.

1.2.2 Environmental Setting

The Site is located in Western Washington, which is typified by relatively mild temperatures and a marine-influenced climate. The average annual precipitation measured approximately 2,000 feet north of PLC between 1996 and 2017 is approximately 47 inches, with most precipitation falling between October and April (King County Hydrologic Information Center 2020).

PLC and the surrounding area are underlain by substantial thicknesses of Vashon glacial till (Washington Department of Natural Resources 2002; Booth et al 2012; Conestoga-Rovers & Associates 2011; UEP 2018). These glacially compacted deposits consist of a very dense mixture of silt, sand, gravel, and clay, and are typically characterized by relatively low vertical hydraulic conductivity. The depth to groundwater at the Site (in the more permeable Vashon advance outwash deposits) is likely on the order of 80 feet below ground surface (bgs; Conestoga-Rovers & Associates 2011; UEP 2018). Regardless of the exact depth to groundwater, there is a very low probability that there is any shallow groundwater underneath PLC based on the presence of dense, low permeability glacial till deposits and geologic data from the surrounding area.

There are no nearby creeks, rivers, or natural water bodies located in close proximity to PLC. The closest surface water body, Pine Lake, is located approximately 0.2 miles to the west of PLC.

1.2.3 Pine Lake Plaza Building

The Building is a 1990-vintage, one-story retail strip mall that encloses approximately 7,272 square feet of space. The Building is located on a 30,501 square feet property identified as King County Tax Parcel 102406-9111. The current and anticipated future land use of the Building and the property is commercial. Current commercial tenants in the Building from west to east are PLC, Plateau Jewelers (jewelry store with shop), Avanti (therapy offices), Regis Salon (salon), American Family Insurance (offices), and Bel Viso Day Spa and Laser Centers (spa).

Key Building construction and utility information includes (SoundEarth Strategies 2018; UEP 2018):

- The Building was constructed in a terraced fashion due to the ground surface topography, with the PLC suite located at the lowest elevation and the eastern portion of the Building at the highest elevation (see photograph in Appendix B).
- The Building foundation is concrete slab-on-grade, with a sandy silt sub-base (reworked local till) that is approximately two to three feet thick.
- The Building does not have a basement or crawl space.
- The masonry-framed Building is heated by electricity provided by Puget Sound Energy.
- The Building is not equipped with a heating, ventilation, and air conditioning (HVAC) system that moves indoor air between the tenant suites. Rather, each suite has its own HVAC system.
- Potable water and sewer service are provided to the Building by the Sammamish Plateau Water and Sewer District. No evidence of potable or process water supply wells have been observed in the vicinity of the Building.
- Asphalt-paved parking areas are located east and south of the Building. Stormwater appears to be diverted into stormwater catch basins in the parking areas, which discharges into the municipal storm water system.

1.2.4 Adjacent Occupied Suites and Buildings

The Plateau Jewelers suite is the only suite within the Building that borders the PLC suite. The Plateau Jewelers is the adjacent suite to the east of PLC. Plateau Jewelers includes jewelry display areas and a jeweler's shop that includes work benches, chemical storage areas, and chemicals (see Appendix B).

The current occupied buildings that are located closest to PLC include the following:

- A single single-family residence is located approximately 110 feet to the east-northeast of PLC.
- A restaurant is located approximately 160 feet to the south-southeast of PLC.
- A dental office is located across 228th Avenue Southeast approximately 220 feet to the southwest of PLC.
- A multi-family residential building is located across 228th Avenue Southeast approximately 230 feet to the west of PLC.

1.2.5 PLC Operations

PLC has operated as a dry-cleaning facility at the Site since 1990 (SoundEarth Strategies 2018). The PLC suite is configured with the front door and customer counter located on the south side, the dry-cleaning machine located in the north-central portion, and a boiler room and restroom located in the northeastern corner (see Figure 2). Spot cleaning and pressing of laundry is performed in the central and

southeast portions of the suite. See Appendix B for photographs of the PLC suite and the key operational features described below.

Key operational features at the Site include the two former tetrachloroethene (PCE)-based, dry-cleaning machines, which were located at the same location as the current dry-cleaning machine (see Figure 2). PLC operated the two PCE-based machines from 1990 to 2019. The most recent PCE-based, dry-cleaning machine was installed in 1999 and had been located on a metal spill containment plate since installation (SoundEarth Strategies 2018). Spent PCE from the two former dry-cleaning machines was stored inside the suite in a 16-gallon drum, which was picked up quarterly by Chem Safe Environmental for off-Site disposal (SoundEarth Strategies 2018). The current non-chlorinated solvent-based, dry-cleaning machine was installed in circa October 2019 according to personal correspondence between the property owner (Bryan Syrdal) and UEP.[1]

Another key operational feature at the Site is the spot cleaning area near the center of the PLC suite (see Figure 2). Spot cleaning chemicals are currently stored on the northern portion of an elevated work surface (similar to an ironing board), and sprayed or applied to clothing stains on the southern portion of the elevated work surface. According to February 2021 personal correspondence between a PLC worker and PIONEER Technologies Corporation (PIONEER), the spot cleaning area has been used for spot cleaning for at least 20 years.

Other key operational features at the Site include two drains in the PLC boiler room and a side sewer system located on the northside of the Building. An accessible floor drain is located in the northeastern portion of the PLC boiler room (see Figure 2). A second inaccessible drain is apparently located under the boiler in order to capture water from the boiler. Any water or liquids entering these drains presumably flow north to the 3-inch-diameter, polyvinyl chloride side sewer lateral that is located approximately three feet north of the Building (Eastside Consultants 1989). Water and any liquids entering this side sewer lateral from the PLC drains would flow by gravity to the side sewer pump station located at the low point of this side sewer lateral (i.e., western terminus of the side sewer lateral) before being pumped to the sewer main line (see Figure 2).[2]

1.2.6 Summary of 2018 Soil Vapor Sampling

The following 17 soil vapor samples were collected in October 2018 as part of previous Site investigation activities (see Figure 2):

- Sub-slab soil vapor sample SS-01 was collected adjacent to the former PCE-based, dry-cleaning machine, and analyzed for PCE and potential degradation byproducts. This sample was collected by SoundEarth Strategies, with results presented in Appendix C of UEP's Focused Phase II Assessment Report (UEP 2018).

[1] According to June 2020 personal correspondence between the operator (Aaron Youn) and UEP, the cleaner used for the new machine was the hydrocarbon-based Ktex product. Field observations suggest that another hydrocarbon-based product is also used (Pinnacle by Streets). According to the safety data sheets, Ktex and Pinnacle do not include chlorinated solvents.

[2] The side sewer lateral turns to the south near the eastern end of the Building before discharging to a westward-draining, 6-inch-diameter, ductile iron force main that is located approximately 35 feet south of the Building.

- A total of 16 Gore Sorber™ sub-slab soil vapor samples (designated SV-1 through SV-16) were collected in a grid pattern that included samples located inside and outside of PLC. The samples were analyzed for chlorinated volatile organic compounds (VOCs) and petroleum VOCs. Although the Gore Sorber™ samples collected within the PLC suite provided useful screening information, it should be noted that there is some uncertainty associated with the samples collected within the PLC suite because of ongoing use of PCE for dry-cleaning operations when the samples were collected in 2018 and the nature of the Gore Sorber™ sampling method.

Results for these previous 17 soil vapor samples from 2018 are summarized in Section 3 along with the 2020-2021 soil vapor results.

1.2.7 Summary of 2018 Soil Sampling

The following three shallow soil samples were collected in October 2018 from potential release locations as part of previous Site investigation activities (see Figure 2):

- Soil sample SS-01-01 was collected adjacent to the former PCE-based, dry-cleaning machine at a depth of approximately one foot bgs, and analyzed for PCE and potential degradation byproducts. This sample was collected by SoundEarth Strategies, with results presented in Appendix C of UEP's Focused Phase II Assessment Report (UEP 2018).
- Soil sample SV-2 were collected adjacent to the former PCE-based, dry-cleaning machine at a depth of approximately two feet bgs, and analyzed for PCE, potential degradation byproducts, and select other VOCs.
- Soil sample SV-3 was collected within the boiler room at a depth of approximately two feet bgs, and analyzed for PCE, potential degradation byproducts, and select other VOCs.

To provide context for the evaluation of VI investigation results, the 2018 soil sampling results are summarized in this paragraph. No constituents were detected in SS-01-01, and PCE was the only constituent detected in SV-2 and SV-3. PCE soil concentrations in SV-2 and SV-3 were 0.041 mg/kg and 0.035 mg/kg, respectively. As discussed in the Work Plan (see Appendix A), these detected PCE soil concentration were less than the Model Toxics Control Act (MTCA) soil direct contact screening level (SL) for unrestricted land use (480 mg/kg) and the MTCA soil-to-groundwater SL (0.05 mg/kg).

1.3 Regulatory Context

It is expected that this MTCA Site will be addressed through the Washington State Department of Ecology's (Ecology's) Standard or Expedited Voluntary Cleanup Program (VCP) as described in Washington Administrative Code (WAC) 173-340-515.

1.4 Report Organization

This Report is organized as follows:

- Section 2: 2020-2021 VI Investigation Activities
- Section 3: VI Investigation Results
- Section 4: Discussion of VI Investigation Results
- Section 5: Conclusions and Recommendations
- Section 6: References

SECTION 2: 2020-2021 VI INVESTIGATION ACTIVITIES

The purpose of this section is to summarize the 2020-2021 VI investigation activities. Representatives from UEP and PIONEER conducted the 2020-2021 investigation fieldwork. Prior to each VI sampling event, UEP and PIONEER compiled an inventory of chemicals present in the PLC and Plateau Jewelers suites (see Appendix B). Although the tenants of both suites requested to leave most chemicals in place during sampling, the chemicals that were deemed most concerning as a potential chlorinated solvent indoor air source were removed (see Appendix B for chemicals that were removed and chemicals that were not removed during each event). VI sampling events were conducted on August 5, 2020, January 20, 2021, and February 24, 2021. All windows and doors in the PLC and Plateau Jewelers suites were closed during sampling, and the HVAC systems were operated in a manner similar to normal work day conditions (e.g., the heat was on during the January 20, 2021 and February 24, 2021 events). Soil vapor samples were collected from SV-17 through SV-20 during the August 5, 2020 event and from SV-17 through SV-21 during the February 24, 2021 event (see Figure 2).[3] Indoor air samples were collected from IA-01 through IA-04 (which were paired with SV-17 through SV-20 locations) during all three events.[4] Ambient air samples were collected from upwind location AA-01 during all three events. A photographic log of representative photographs and completed field forms for all three events are included in Appendix B.

Friedman & Bruya in Seattle, Washington analyzed soil vapor, indoor air, and ambient air samples for VOCs by United States Environmental Protection Agency (USEPA) Method TO-15. Laboratory reports for all collected samples are included in Appendix C. A data quality review of the laboratory data was performed and is documented in Appendix C. The data quality review indicated that the quality of the results produced by the laboratory were acceptable and that all data were usable for the purpose of this Report as qualified by the laboratory. No additional data qualifiers were added to the laboratory results as a result of the data quality review.

All investigation activities were conducted in general accordance with the Work Plan (see Appendix A). However, a few minor deviations from the Work Plan occurred. These minor deviations did not compromise the investigation objectives or the use of the data obtained during the investigation. The Work Plan deviations were:

- Sampling locations IA-03/SV-19 and IA-04/SV-20 in Plateau Jewelers were adjusted slightly to minimize damage to the jewelry display area.[5]
- An additional soil vapor sampling location (SV-21) was added after the August 5, 2020 sampling event in order to determine soil vapor concentrations to the south of SV-18.

[3] The soil vapor samples collected during the January 20, 2021 event were not valid as discussed later in this section.

[4] As discussed in the Work Plan, the paired sample location IA-01/SV-17 was co-located with the 2018 sample that had the highest PCE soil vapor concentration (i.e., the SV-7 location adjacent to the spot cleaning area).

[5] Since potential preferential pathways (e.g., utilities that penetrate the concrete slab, significant cracks in the concrete slab) were not identified in the vicinity of SV-17 through SV-20 prior to the August 5, 2020 sampling event, none of the sampling locations had to be adjusted to account for potential preferential pathways.

- Indoor air and ambient air samples were collected during two winter (heating season) sampling events rather than one sampling event. The soil vapor results from the January 20, 2021 sampling event were not valid because a field sampling error occurred with the soil vapor tubing valves during the event. As a result, a soil vapor, indoor air, and ambient air event was conducted on February 24, 2021 to provide a synoptic event with all media. Although the January 20, 2021 soil vapor samples are invalid, the January 20, 2021 indoor air and ambient air samples provide a second set of valid winter indoor air and ambient air results.
- Although not specified in the Work Plan, a field duplicate soil vapor sample was collected during each sampling event.
- Although sample canisters were filled over an approximately eight-hour period as specified in the work plan, some of the sample canisters were stopped before the stoppage criteria included in the Work Plan (i.e., "sampling will stop when the remaining canister vacuum is approximately three to five inches of mercury or after ten hours of sampling, whichever occurs first"). Valid samples with a final vacuum greater than five inches of mercury were SV-17, SV-18, IA-01, IA-02, IA-03, IA-04, and AA-01 during the August 5, 2020 sampling event (ranging from six to ten inches of mercury), IA-01, IA-02, IA-03, and IA-04 during the January 20, 2021 sampling event (ranging from seven to eight inches of mercury), and SV-20 and IA-04 during the February 24, 2021 sampling event (ranging from six to seven inches of mercury). The sampling duration for Plateau Jewelers samples was limited to the hours of operation, which affected the stopping time for some Plateau Jewelers samples.
- Photoionization detector (PID) measurements adjacent to chemical products were not obtained during the August 5, 2020 and January 20, 2021 sampling events as recommended in the Work Plan.
- The data quality review of 2020-2021 sampling results was performed by PIONEER rather than an independent data quality validator because the anticipated data quality validator was not available when the work needed to be performed.

SECTION 3: VI INVESTIGATION RESULTS

The purpose of this section is to summarize 2018, 2020, and 2021 soil vapor sampling results and the 2020-2021 indoor air sampling results relative to MTCA SLs. Analytical laboratory reports and a tabulation of all results for the August 5, 2020, January 20, 2021, and February 24, 2021 sampling events are included in Appendix C and Appendix D, respectively.

3.1 Sub-Slab Soil Vapor Results

Concentrations of constituents detected in at least one 2018, 2020, or 2021 sub-slab soil vapor sample were compared to sub-slab soil vapor SLs for unrestricted land use and commercial/industrial land use (see Table 1).[6] Key sub-slab soil vapor results were:

- PCE was detected in every sub-slab soil vapor sample collected within the PLC suite (i.e., SS-01, SV-1 through SV-12, SV-17, and SV-18) at concentrations exceeding the sub-slab soil vapor SL for commercial/industrial land use (see Figure 3).
- The highest PCE concentrations were present in a sample location adjacent to the spot cleaning area (i.e., PCE concentrations ranging from 20,200 µg/m^3 to 28,500 µg/m^3 at SV-7/SV-17).
- The PCE soil vapor exceedances were delineated to concentrations less than sub-slab soil vapor SL for unrestricted land use in all directions (i.e., SV-13 and SV-14 to the west, SV-15 and SV-16 to the north, SV-20 to the east, and SV-21 to the south; see Figure 3).
- Trichloroethene (TCE) concentrations in two sampling locations adjacent to the spot cleaning area (i.e., SV-6 and SV-7/SV-17) exceeded the sub-slab soil vapor SL for commercial/industrial land use and/or unrestricted land use (see Figure 4). The TCE concentration in SS-01 (collected in 2018 from a location adjacent to the PCE-based, dry-cleaning machine) also exceeded the sub-slab soil vapor SL for unrestricted land use. TCE was not detected in any other sub-slab soil vapor samples.
- The only other constituents with a sub-slab soil vapor SL exceedance were CFC-12, chloroform, and naphthalene. CFC-12 concentrations in all four August 5, 2020 samples, chloroform concentrations in two sample locations (i.e., SV-4 and SV-17), and naphthalene concentrations in three samples (i.e., SV-11 and the August 5, 2020 samples from SV-17 and SV-18) exceeded a sub-slab soil vapor SL.
- There were no exceedances of any sub-slab soil vapor SLs for unrestricted land use in the two samples collected adjacent to the side sewer lateral and between the boiler room drains and the side sewer pump station (i.e., SV-15 and SV-16; see Table 1 and Figures 3 and 4).

For the purposes of this Report, a constituent was identified as a soil vapor COPC for the VI pathway if the maximum detected concentration in any 2018, 2020, or 2021 sub-slab soil vapor sample exceeded the sub-slab soil vapor SL for unrestricted land use (see Table 1). The identified soil vapor COPCs for the VI pathway were:

[6] The sub-slab soil vapor SLs for unrestricted land use were the most stringent of the Method B sub-slab soil vapor carcinogenic and non-carcinogenic values from the Cleanup Level and Risk Calculation (CLARC) database (Ecology 2021). The sub-slab soil vapor SLs for commercial/industrial land use were the most stringent of the Method C sub-slab soil vapor carcinogenic and non-carcinogenic values from the CLARC database (Ecology 2021).

- PCE
- TCE
- CFC-12
- Chloroform
- Naphthalene

3.2 Indoor Air Results

Indoor air concentrations of soil vapor COPCs were compared to indoor air SLs for unrestricted land use and commercial/industrial land use (see Table 2).[7] Key indoor air results were:

- All PCE indoor air concentrations were less than the indoor air SL for unrestricted land use (see Table 2 and Figure 3).
- TCE was detected in the August 5, 2020 IA-01 indoor air sample at a concentration (0.41 µg/m^3) slightly exceeding the indoor air SL for unrestricted land use (0.33 µg/m^3) and less than the indoor air SL for commercial/industrial land use (see Table 2 and Figure 4). TCE was not detected in any other indoor air sample (including the January 20, 2021 and February 24, 2021 IA-01 samples) at reporting limits that were less than the indoor air SL for unrestricted land use.
- CFC-12, chloroform, and naphthalene were detected in every indoor air sample, and the concentrations of each constituent were relatively similar in all samples. None of the CFC-12 concentrations exceeded the indoor air SL for unrestricted land use, and all of the chloroform and naphthalene concentrations exceeded the indoor air SLs for unrestricted land use (see Table 2).

For the purposes of this Report, a constituent was identified as a potential indoor air COPC (pending a background evaluation) if the maximum detected concentration in any 2020 or 2021 indoor air sample exceeded the indoor air for unrestricted land use (see Table 2). The identified potential indoor air COPCs (pending a background evaluation) were:

- TCE
- Chloroform
- Naphthalene

[7] The indoor air SLs for unrestricted land use were the most stringent of the Method B air carcinogenic and non-carcinogenic values from the CLARC database (Ecology 2021). The indoor air SLs for commercial/industrial land use were the most stringent of the Method C air carcinogenic and non-carcinogenic values from the CLARC database (Ecology 2021).

SECTION 4: DISCUSSION OF VI INVESTIGATION RESULTS

The purpose of this section is to (1) present the background evaluation for the three potential indoor air COPCs and (2) discuss PCE and TCE releases and VI risks.

4.1 Background Evaluation

A background evaluation was conducted for the three potential indoor air COPCs identified in Section 3.2 (i.e., TCE, chloroform, and naphthalene). Factors considered in the background evaluation included information about the nature of the indoor air results (e.g., detection frequencies, magnitude and range of indoor air concentrations), literature values for indoor air background concentrations, and site-specific ambient air concentrations (e.g., ambient air concentrations in AA-01 during the three August 5, 2020, January 20, 2021, and February 24, 2021 sampling events). Based on the lines of evidence presented in Table 3, the indoor air detections of chloroform and naphthalene are attributable to indoor air and/or ambient air background. Thus, chloroform and naphthalene are not indoor air COPCs. As discussed in Table 3, the single TCE detection in IA-01 is potentially due to storage and use of the spot cleaning Picrin® product (which contains greater than 75% TCE as shown in Appendix E) on an elevated working surface immediately adjacent to sampling location IA-01. Thus, the single TCE exceedance in IA-01 may be due to indoor air background (i.e., Picrin®) and/or VI.

4.2 PCE and TCE Releases and VI Risks

Based on investigation results, PCE and TCE releases and VI risks from PCE and TCE appear to be relatively minor or insignificant. Only PCE and TCE are discussed in this section because PCE is the only constituent with a documented release to subsurface soil and TCE is the only constituent with an exceedance of indoor air SLs for unrestricted land use that may be attributable to VI. Key discussion points about releases and VI risks include the following:

- There appears to have been a relatively minor PCE release to soil underneath the concrete slab in the vicinity of the spot cleaning area. PCE sub-slab soil vapor concentrations at SV-7/SV-17 (adjacent to the spot cleaning area) were slightly higher to roughly four times higher than sub-slab soil vapor concentrations at all other sample locations within the PLC suite. A localized PCE spill and/or some historical spraying of a spot cleaning chemical containing PCE were the likely release mechanisms for the spot cleaning area. Fortunately, PCE is being attenuated across the concrete slab to prevent unacceptable indoor air exposures. There were no PCE exceedances of the indoor air SL for unrestricted land use in indoor air sample IA-01 (co-located with SV-7/SV-17) or in any other indoor air samples. As a result, PCE does not pose an unacceptable risk for any land use based on current conditions.
- There appears to have been a relatively minor TCE release into the concrete slab and/or soil underneath the concrete slab in the vicinity of the spot cleaning area. It is suspected that the release mechanism was/is drips from ongoing use of the Picrin® squeeze bottle for spot cleaning

(see photograph in Appendix B).[8] As discussed in Section 4.1, it is unclear if the single TCE exceedance in the August 5, 2020 indoor air sample at IA-01 was due to ongoing storage and use of Picrin® at the spot cleaning area and/or VI. Regardless, TCE does not pose an unacceptable VI risk for current and anticipated future land use based on current conditions because there were no exceedances of the indoor air SL for commercial/industrial land use. In addition, as long as Picrin® is used as part of PLC operations, the applicable indoor air human health standard for the PLC suite is the TCE Permissible Exposure Limit (PEL) established pursuant to the Occupational Safety and Health Act and the Washington Industrial Safety and Health Act. The current TCE PEL in WAC 296-841-20025 is 50 parts per million by volume (ppmv) for an 8-hour, time-weighted average, with a 15-minute short-term exposure limit of 200 ppmv.[9] Even though the Picrin® bottle was removed prior to indoor air sampling, it is highly unlikely that there would ever be a PEL exceedance since the maximum TCE indoor air concentration (0.41 µg/m^3) was six orders of magnitude less than the 270,000 µg/m^3 time-weighted average PEL.

- Although PCE was detected in an SV-2 soil sample near the dry-cleaning machine, this PCE release appears to be insignificant because (1) the PCE concentrations in the two soil samples collected where a PCE release from the machine would typically occur (i.e., SS-01-01 and SV-2) were less than the conservative PCE soil-to-groundwater SL (0.05 mg/kg), (2) spill containment was installed beneath the machine in 1999, (3) evidence of a spill or stained floor were not identified during Site interviews and reconnaissance (SoundEarth Strategies 2018), and (4) PCE sub-slab soil vapor concentrations at SS-01 and SV-2 were less than concentrations at most other sub-slab soil vapor sampling locations within the PLC suite.
- Although PCE was detected in an SV-3 soil sample in the boiler room, this PCE release appears to be insignificant because (1) the PCE concentration in the SV-3 sample was less than the conservative PCE soil-to-groundwater SL (0.05 mg/kg), (2) PCE waste was reportedly disposed of off-site (SoundEarth Strategies 2018), (3) evidence of a spill or stained floor were not identified during Site interviews and reconnaissance (SoundEarth Strategies 2018), (4) no volatiles were detected with the PID at the floor drain in the boiler room (see photograph in Appendix B), and (5) the drain under the boiler is not accessible. Perhaps most importantly, there were no exceedances of any sub-slab soil vapor SLs for unrestricted land use in the two soil vapor samples collected adjacent to the side sewer lateral and between the boiler room drains and the side sewer pump station (i.e., SV-15 and SV-16).
- Regardless of the exact nature of PCE and TCE releases, the lateral extent of PCE and TCE releases have been delineated in all directions to concentrations less than sub-slab soil vapor SLs for unrestricted land use. For example, PCE soil vapor exceedances were delineated with SV-13 and SV-14 to the west, SV-15 and SV-16 to the north, SV-20 to the east, and SV-21 to the south (see Figure 3).
- Although there were slight exceedances of the PCE sub-slab soil vapor SL for unrestricted land use in the SV-19 sample collected immediately adjacent to the eastern boundary of the PLC suite, it is unlikely that there would ever be an exceedance of the PCE indoor air SL for unrestricted land use in the Plateau Jewelers suite because (1) PCE was not detected in any

[8] The TCE impacts may be limited to the concrete slab given (1) the nature of the likely release (i.e., drips from a squeeze bottle), (2) the very low volume likely associated with these drips, (3) the relatively low TCE sub-slab soil vapor concentrations at SV-7/SV-17 (i.e., two to three orders of magnitude less than PCE concentrations), and (4) the inconsistent sub-slab soil vapor to indoor air attenuation factors at SV-17/IA-01 (i.e., the 0.0093 TCE attenuation factor for the August 5, 2020 samples was approximately 40 times higher than the 0.00024 PCE attenuation factor).

[9] The 50 ppmv and 200 ppmv PEL values correspond to approximately 270,000 µg/m^3 and 1,100,000 µg/m^3, respectively.

indoor air sample within the Plateau Jewelers suite, and (2) the higher elevation of the Plateau Jewelers suite provides approximately five feet of additional vadose zone soil for attenuation prior to indoor air.

SECTION 5: CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The key conclusions for the VI pathway based on the 2018 through 2021 investigation results are:

- PCE and TCE are the only relevant VI COPCs based on current conditions.
- PCE does not pose an unacceptable VI risk for any land use based on current conditions.
- The single TCE exceedance in the August 5, 2020 indoor air sample at IA-01 may be due to ongoing storage and use of Picrin® at the spot cleaning area and/or VI.
- TCE does not pose an unacceptable VI risk for current and anticipated future commercial land use based on current conditions. Furthermore, it is highly unlikely that there would ever be a TCE PEL exceedance (which is the applicable indoor air human health standard as long as Picrin® is used as part of PLC operations).

5.2 Recommendations

Even though the VI investigation and evaluation results demonstrated that there are no unacceptable VI risks for current and anticipated future commercial land use based on current conditions, PIONEER recommends including the following remedial components in the selected MTCA remedy to help ensure protection of human health for the VI pathway over the long-term:

- Permanently discontinue the storage and use of the Picrin® spot cleaner in order to prevent future TCE releases.
- Unless determined to be unnecessary based on future VI-related sampling and analysis after Picrin® is permanently discontinued, develop and record (with King County) a restrictive covenant to prevent future residential land use within the PLC suite.
- Inspect and document the condition of the concrete slab within the PLC suite on a regular basis (e.g., annually) to identify potential preferential pathways that might allow PCE and TCE to migrate from soil vapor to indoor air. Based on the inspection results, promptly repair any cracks in the concrete slab to eliminate potential preferential pathways, and then document the repair.
- Collect a representative indoor air sample within the PLC suite periodically (e.g., once every five years), and analyze the sample for PCE, TCE, cis- and trans-1,2-dichloroethene, and vinyl chloride as confirmational monitoring to ensure future indoor air concentrations for PCE, TCE, and degradation byproducts remain less than indoor air SLs for commercial/industrial land use.

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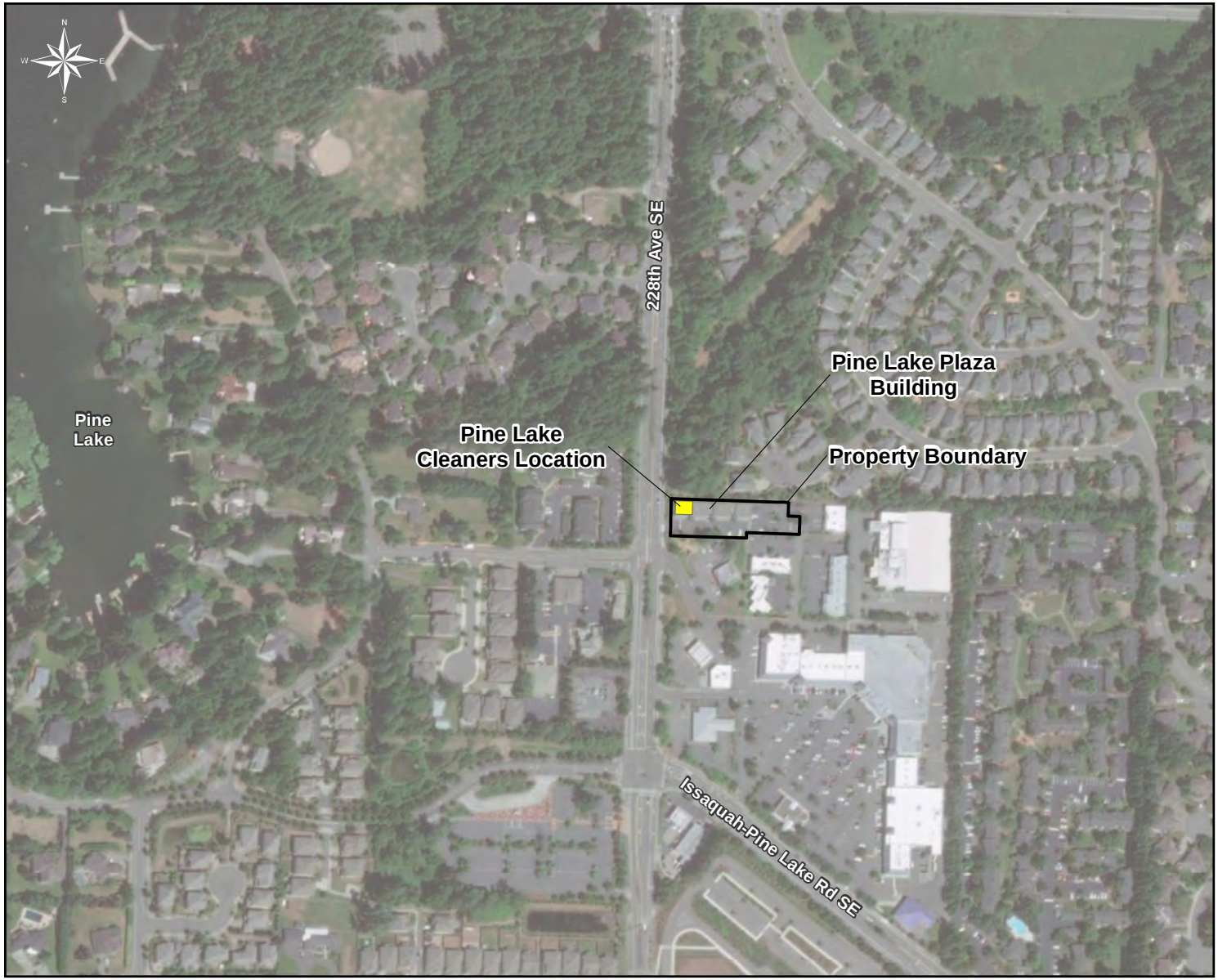
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Figures





Legend

- Pine Lake Cleaners Location
- Property Boundary

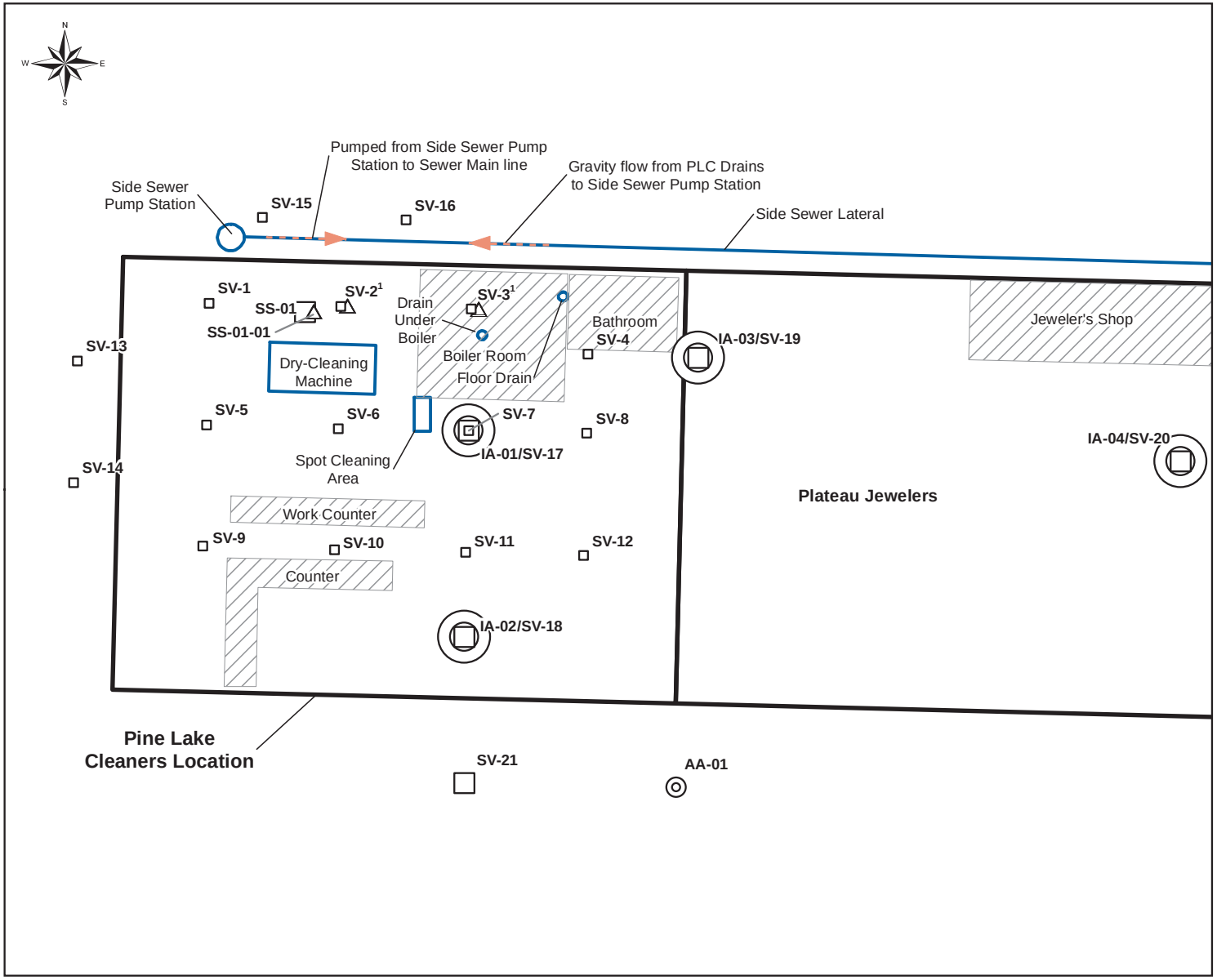
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Pine Lake Cleaners Location
Vapor Intrusion Investigation Report
Pine Lake Cleaners

Figure 1

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Legend

- Key Operational Features
- Assumed Sewer Flow Details

Sampling Locations

- Soil Sample
- Sub-Slab Soil Vapor Gore Sorber™ Sample
- Sub-Slab Soil Vapor Sample
- Indoor Air Sample
- Ambient Air Sample

Other Site Features

- Other Features
- Building Location

Notes:
[1]Co-located soil samples were collected at SV-2 and SV-3 at 2 ft bgs.
- With the exception of 2020-2021 sample locations, all geospatial features and sampling locations were provided by other consultants or georeferenced from reports by other consultants. All locations are approximate.

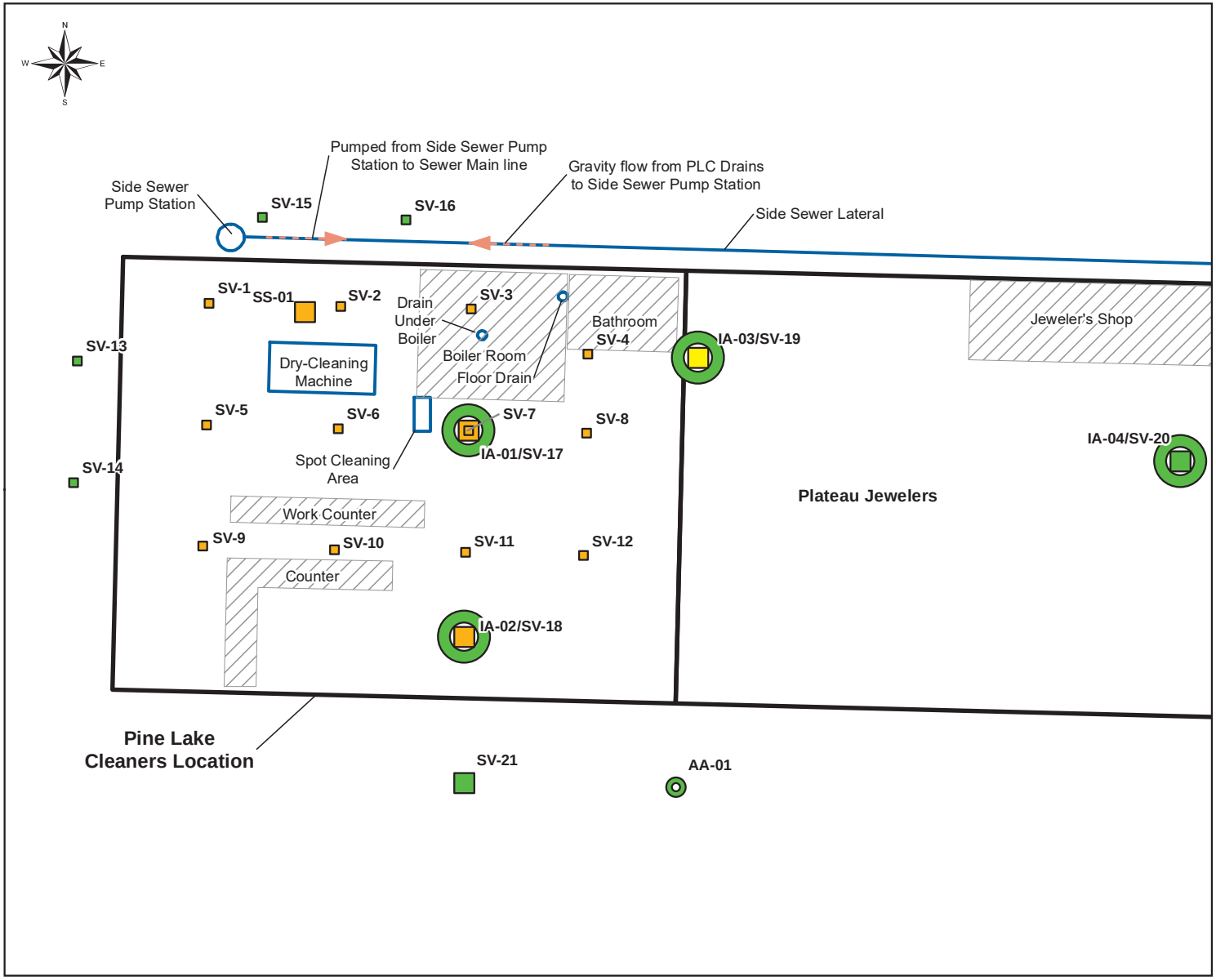
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Key Operational Features and Sampling Locations
Vapor Intrusion Investigation Report
Pine Lake Cleaners

Figure 2

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Legend

Vapor Intrusion Sampling Locations

- Sub-Slab Soil Vapor GoreSorber™ Sample
- Sub-Slab Soil Vapor Sample
- Indoor Air Sample
- Ambient Air Sample

PCE Soil Vapor Concentrations (ug/m^3)

- Max PCE ≤ 320
- 320 < Max PCE ≤ 1,300
- Max PCE > 1,300

PCE Indoor Air and Ambient Air Concentrations (ug/m^3)

- Max PCE ≤ 9.6
- 9.6 < Max PCE ≤ 40
- Max PCE > 40

Other Site Features

- Key Operational Features
- Assumed Sewer Flow Details
- Other Features
- Building Location

Notes:
- With the exception of 2020-2021 sample locations, all geospatial features and sampling locations were provided by other consultants or georeferenced from reports by other consultants. All locations are approximate.

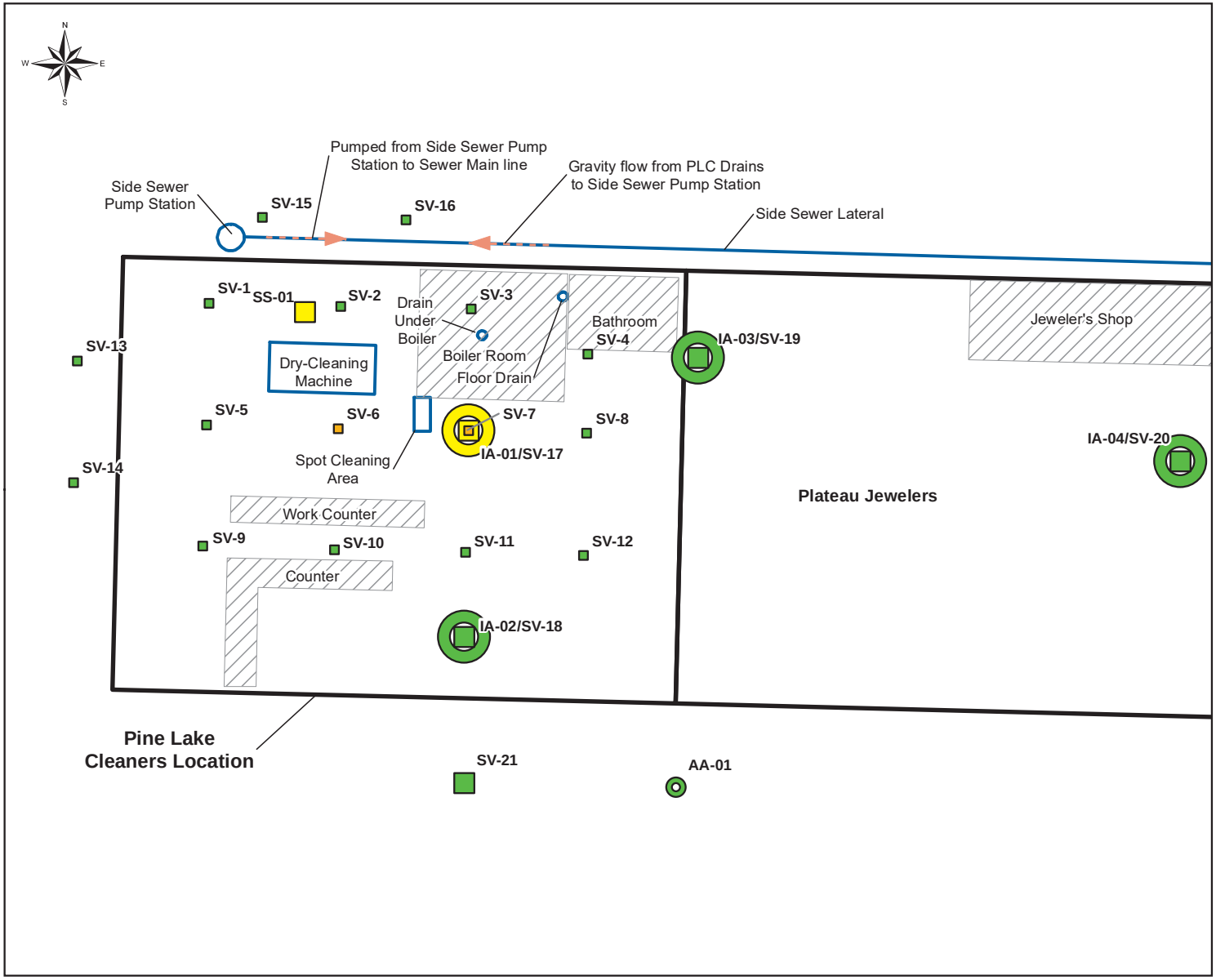
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Summary of PCE Vapor Intrusion Sampling Results
Vapor Intrusion Investigation Report
Pine Lake Cleaners

Figure 3

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Legend

Vapor Intrusion Sampling Locations

- Sub-Slab Soil Vapor GoreSorber™ Sample
- Sub-Slab Soil Vapor Sample
- Indoor Air Sample
- Ambient Air Sample

TCE Soil Vapor Concentrations (ug/m^3)

- Max TCE ≤ 11 or Non-Detect
- 11 < Max TCE ≤ 67
- Max TCE > 67

TCE Indoor Air and Ambient Air Concentrations (ug/m^3)

- Max TCE ≤ 0.33
- 0.33 < Max TCE ≤ 2.0
- Max TCE > 2.0

Other Site Features

- Key Operational Features
- Assumed Sewer Flow Details
- Other Features
- Building Location

Notes:
- With the exception of 2020-2021 sample locations, all geospatial features and sampling locations were provided by other consultants or georeferenced from reports by other consultants. All locations are approximate.

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PIONEER TECHNOLOGIES CORPORATION

Summary of TCE Vapor Intrusion Sampling Results
Vapor Intrusion Investigation Report
Pine Lake Cleaners

Figure 4

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Tables

Table 1: Summary of Sub-Slab Soil Vapor Sampling Results and Identification of Soil Vapor COPCs

| Constituent | Conc (µg/m³) in October 2018 Samples | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Conc (µg/m³) in August 5, 2020 Samples | | | | | | | | Conc (µg/m³) in February 24, 2021 Samples | | | | | | | | | Sub-Slab SV SL for Unrestricted Land Use | Sub-Slab SV SL for Commercial/Industrial Use | SV COPC?[2] |
|---|---|---

Table 2: Summary of Indoor Air Sampling Results and Identification of Potential Indoor Air COPCs

SV COPCs	Conc (µg/m^3) in August 5, 2020 Samples								Conc (µg/m^3) in January 20, 2021 Samples								Conc (µg/m^3) in February 24, 2021 Samples								IA SL for Unrestricted Land Use	Maximum Detected IA Conc. Exceeds IA SL for Unrestricted Land Use?	IA SL for Commercial/ Industrial Use	Maximum Detected IA Conc. Exceeds IA SL for Commercial/ Industrial Use?	Potential IA COPC (Pending Background Evaluation)?[2]
	IA-01[1]	Qualifier	IA-02	Qualifier	IA-03	Qualifier	IA-04	Qualifier	IA-01[1]	Qualifier	IA-02	Qualifier	IA-03	Qualifier	IA-04	Qualifier	IA-01[1]	Qualifier	IA-02	Qualifier	IA-03	Qualifier	IA-04	Qualifier					
PCE	6.8	U	6.8	U	6.8	U	6.8	U	**7.3**		6.8	U	6.8	U	6.8	U	**8.1**	J	**7.5**	J	6.8	UJ	6.8	U	9.6	No	40	No	No
TCE	**0.41**		0.27	U	0.27	U	0.27	U	0.11	U	0.11	U	0.11	U	0.11	U	0.11	UJ	0.11	UJ	0.11	UJ	0.11	U	0.33	**Yes**	2.0	No	**Yes**
CFC-12	**3.5**		**3.2**		**9.5**		**9.2**		**3.9**		**3.7**		**4.9**		**4.8**		**4.2**		**4.3**		**4.6**		**5.2**		46	No	100	No	No
Chloroform	**0.16**		**0.15**		**0.50**		**0.47**		**0.14**		**0.14**		**0.32**		**0.26**		**0.15**		**0.15**		**0.28**		**0.27**		0.11	**Yes**	1.1	No	**Yes**
Naphthalene	**0.29**	B	**0.20**	B	**0.18**	B	**0.31**	B	**0.46**		**0.33**		**0.25**		**0.18**		**0.53**		**0.47**		**0.21**		**0.18**		0.074	**Yes**	0.74	No	**Yes**

Notes:

B: Constituent was detected in method blank; Conc: Concentration; IA: Indoor air; J: Estimated concentration because internal standard associated with the analyte is out of control limits; SL: Screening level; SV: Soil vapor; U: Not detected at shown reporting limit

Constituents identified as a SV COPC are presented in this table.

Detected results are shown in bold font.

Detected results that exceeded the IA SL for Unrestricted Land Use are shaded yellow.

Detected results that exceeded the IA SL for Commercial/Industrial Use are shaded orange.

[1] Duplicate averaging was performed for these field duplicate samples using the following decision rules. If both duplicate resuls were non-detect, then the lowest reporting limit is shown. If one result was a detected concentration and one result was non-detect, then the detected concentration is shown. If both duplicate results were detected concentrations, then an average of the two detected concentrations is shown.

[2] A SV COPC with a detected result that exceeded the IA SL for Unrestricted Land Use was identified as a Potential IA COPC (Pending Background Evaluation).

Table 3: Background Evaluation for Potential IA COPCs

Potential IA COPC	Summary Information for IA Site Samples					Literature Values for IA Background Concentrations (µg/m^3)		Site-Specific AA Concentrations (µg/m3)						Background Evaluation	
	Number of IA Samples	Number of IA Detects	IA Detection Frequency	Minimum IA Sample Conc (µg/m^3)	Maximum IA Sample Conc (µg/m^3)	Range of 90th Percentile Background IA Conc in North American Residences (USEPA 2011)	Range of Potential Background Conc (Ecology 2018)	AA-01-080520	Qualifier	AA-01-012021	Qualifier	AA-01-022421	Qualifier	Are IA Detections Attributable to Background?	Rationale
TCE	12	1	8.3%	0.27 U	0.41	< RL - 2.1	Not listed	0.27	U	0.11	U	0.11	U	**Potentially**	Although the nature and magnitude of AA, IA, and SV concentrations do not suggest the presence of a widespread TCE background source, the spot cleaning Picrin product, which contains greater than 75% TCE (see Appendix E), is stored and used on an elevated working surface immediately adjacent to sampling location IA-01. The only TCE IA detection was in the August 2020 IA-01 sample. It is possible that this TCE detection in IA-01 was due to a recent use of the Picrin product on the elevated working surface immediately adjacent to the IA-01 sampling location.
Chloroform	12	12	100%	0.14	0.50	< RL - 6.2	Not listed	0.10		0.10		0.078		**Yes**	IA detections of chloroform were most likely due to IA and/or AA background because: • Chloroform was detected in all AA samples. • Chloroform IA concentrations were similar in all IA sample locations. • Chloroform was detected in all IA samples even though chloroform was not detected in some paired SV samples. • The chloroform SV concentrations in the August 2020 SV-19 and SV-20 samples (i.e., 0.32 µg/m^3 and 0.46 µg/m^3, respectively) were less than the chloroform concentrations in the two paired IA samples with the maximum chloroform IA concentrations at the Site (i.e., 0.50 µg/m^3 and 0.47 µg/m^3 in the August 2020 IA-03 and IA-04 samples, respectively). • In addition to AA sources, one or more chemical products within the PLC suite and/or Plateau Jewelers suite could have contained chloroform. • All chloroform IA concentrations were within the range of typical residential IA background concentrations (USEPA 2011).
Naphthalene	12	12	100%	0.18	0.53	Not listed	0.18 - 1.7	0.21	B	0.13		0.089	J	**Yes**	IA detections of naphthalene were most likely due to IA and/or AA background because: • Naphthalene was detected in all AA samples. • Naphthalene IA concentrations were similar in all IA sample locations. • Naphthalene was detected in all IA samples even though naphthalene was not detected in most paired SV samples. • Naphthalene was not detected in the February 2021 SV samples SV-17 and SV-18 that were paired with the maximum naphthalene IA concentrations at the Site (i.e., 0.53 µg/m^3 and 0.47 µg/m^3 in the February 2021 IA-01 and IA-02 samples, respectively). • In addition to AA sources, one or more petroleum-based chemical products present within the PLC suite and/or Plateau Jewelers suite could have contained naphthalene. • All naphthalene IA concentrations were within the range of typical IA background concentrations (Ecology 2018a). • The only two naphthalene SV exceedances (i.e., the August 2020 SV-17 and SV-18 samples) and all August 2020 IA samples were "B" flagged because naphthalene was also detected in the method blank.

Notes:

AA: Ambient air; B: Constituent was detected in method blank; Conc: Concentration(s); IA: Indoor air; J: Estimated concentration because internal standard associated with the analyte is out of control limits; RL: Reporting limit; SV: Soil vapor; U: Not detected at shown reporting limit

Appendix A

Vapor Intrusion Investigation Work Plan

Pine Lake Cleaners Site
2830 228th Avenue Southeast
Sammamish, WA 98075

Prepared for:

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2324 First Avenue, Suite 203
Seattle, WA 98121

Prepared by:

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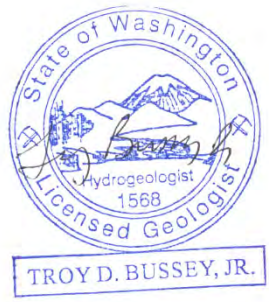
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July 2020

Professional Certification

This document was prepared under my direction. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I hereby certify that I was in responsible charge of the work performed for this document.





July 3, 2020

Troy D. Bussey Jr.
Principal Engineer
PIONEER Technologies Corporation
Washington P.E. Registration No. 38877
Washington L.G. and L.HG. Registration No. 1568

Date

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Appendices

Appendix A Procedure for Sub-Slab Soil Gas Sampling with a Vapor Pin
Appendix B Field Forms
Appendix C Sample Number Schema

List of Acronyms

Acronym	Explanation
bgs	Below ground surface
Building	Pine Lake Plaza Building
CFR	Code of Federal Regulations
CLARC	Cleanup Level and Risk Calculation
COPC	Constituent of Potential Concern
Ecology	Washington State Department of Ecology
HVAC	Heating, Ventilation, and Air Conditioning
MTCA	Model Toxics Control Act
PCE	Tetrachloroethene
PID	Photoionization Detector
PIONEER	PIONEER Technologies Corporation
PLC	Pine Lake Cleaners
QAPP	Quality Assurance Project Plan
QC	Quality Control
SAP	Sampling and Analysis Plan
SL	Screening Level
TCE	Trichloroethene
UEP	Urban Environmental Partners, llc
USEPA	United States Environmental Protection Agency
VCP	Voluntary Cleanup Program
VI	Vapor Intrusion
VOC	Volatile Organic Compound
WAC	Washington Administrative Code
Work Plan	Vapor Intrusion Investigation Work Plan

SECTION 1: INTRODUCTION

1.1 Purpose

The purpose of this Vapor Intrusion (VI) Investigation Work Plan (Work Plan) is to present the plan for implementing investigation activities that will provide data and information to evaluate potential exposures for the VI pathway at the Pine Lake Cleaners (PLC) Site. This Work Plan is focused on potential exposures associated with the VI pathway since that is the primary exposure pathway of potential concern at this time. The Site boundary will be defined following completion of Site investigation activities based on the lateral extent of screening level (SL) exceedances for constituents of potential concern (COPCs) in applicable media. The data and information collected as part of this Work Plan will be used to determine if VI of COPCs from the subsurface presents an unacceptable risk for commercial workers in the PLC suite and an adjacent suite.

1.2 Site Background

A brief overview of Site background information is presented in this section to provide context for the proposed VI investigation activities. The information presented in this section is based on the Urban Environmental Partners, llc (UEP) Focused Phase II Assessment Report (UEP 2018), unless otherwise noted.

1.2.1 Site Location

The Site currently consists of the commercial tenant suite occupied by PLC, a dry cleaner facility, located at 2830 228th Avenue Southeast in Sammamish, Washington (see Figure 1). PLC is located on the west end of the Pine Lake Plaza retail strip mall as shown on Figure 1. Based on elevation contour information obtained from the King County iMap database, the elevation of PLC is approximately 435 feet above mean sea level.

1.2.2 Environmental Setting

The Site is located in Western Washington, which is typified by relatively mild temperatures and a marine-influenced climate. The average annual precipitation measured approximately 2,000 feet north of PLC between 1996 and 2017 is approximately 47 inches, with most precipitation falling between October and April (King County Hydrologic Information Center 2020).

PLC and the surrounding area are underlain by substantial thicknesses of Vashon glacial till (Washington Department of Natural Resources 2002; Booth et al 2012; Conestoga-Rovers & Associates 2011; UEP 2018). These glacially compacted deposits consist of a very dense mixture of silt, sand, gravel, and clay, and are typically characterized by relatively low vertical hydraulic conductivity. The depth to groundwater at the Site (in the more permeable Vashon advance outwash deposits) is likely on the order of 80 feet below ground surface (bgs; Conestoga-Rovers & Associates 2011; UEP 2018). Regardless of the exact depth to groundwater, there is a very low probability that there is any shallow groundwater

underneath PLC based on the presence of dense, low permeability glacial till deposits and geologic data from the surrounding area.

There are no nearby creeks, rivers, or natural water bodies located in close proximity to PLC. The closest surface water body, Pine Lake, is located approximately 0.2 miles to the west of PLC.

1.2.3 Pine Lake Plaza Building

PLC is located within the Pine Lake Plaza Building (Building), which is a 1990-vintage, one-story building that encloses approximately 7,272 square feet of space. The Building is located on a 30,501 square feet property identified as King County Tax Parcel 102406-9111. The land use of the property is commercial, and the current tenants of the Building from west to east are PLC, Plateau Jewelers (jewelry store), Avanti (therapy offices), Regis Salon (salon), American Family Insurance (offices), and Bel Viso Day Spa and Laser Centers (spa).

Key Building construction and utility information includes (SoundEarth Strategies 2018; UEP 2018):

- The Building foundation is concrete slab-on-grade, with a sandy silt sub-base (reworked local till) that is approximately two to three feet thick.
- The Building does not have a basement or crawl space.
- The masonry-framed Building is heated by electricity provided by Puget Sound Energy.
- The Building is not equipped with a heating, ventilation, and air conditioning (HVAC) system that moves indoor air between the tenant suites. Rather, each suite has its own HVAC system.
- Potable water and sewer service are provided to the Building by the Sammamish Plateau Water and Sewer District. No evidence of potable or process water supply wells have been observed in the vicinity of the Building.
- Asphalt-paved parking areas are located east and south of the Building. Stormwater appears to be diverted into stormwater catch basins in the parking areas, which discharges into the municipal storm water system.

1.2.4 Adjacent Occupied Suites and Buildings

The Plateau Jewelers suite is the only suite within the Building that borders the PLC suite. The Plateau Jewelers is the adjacent suite to the east of PLC.

The current occupied buildings that are located closest to PLC include the following:

- A single single-family residence is located approximately 110 feet to the east-northeast of PLC.
- A restaurant is located approximately 160 feet to the south-southeast of PLC.
- A dental office is located across 228th Avenue Southeast approximately 220 feet to the southwest of PLC.
- A multi-family residential building is located across 228th Avenue Southeast approximately 230 feet to the west of PLC.

1.2.5 PLC Operations

PLC has operated as a dry-cleaning facility at the Site since 1990 (SoundEarth Strategies 2018). The PLC suite is configured with the front door and customer counter located on the south side, the dry-cleaning machine located in the north-central portion, and a boiler room and restroom located in the

northeastern corner. Spot cleaning and pressing of laundry is performed in the southeast portion of the suite. PLC operated two tetrachloroethene (PCE)-based, dry-cleaning machines at the Site from 1990 to 2019. The most recent PCE-based, dry-cleaning machine was installed in 1999 and had been located on a metal spill containment plate since installation (SoundEarth Strategies 2018). Spent PCE from the two former dry-cleaning machines was stored inside the suite in a 16-gallon drum, which was picked up quarterly by Chem Safe Environmental for off-Site disposal (SoundEarth Strategies 2018). The PCE-based, dry-cleaning machine was replaced with a non-chlorinated solvent-based, dry-cleaning machine in circa October 2019 according to personal correspondence between the property owner (Bryan Syrdal) and UEP.[1] In addition, none of the current spot cleaners include chlorinated solvents.[2]

Although two small floor drains are present in the boiler room, there is no indication that PCE was disposed of via the floor drains. The floor drains presumably drain north to the 3-inch-diameter, polyvinyl chloride sewer line that is located approximately three feet north of the Building (Eastside Consultants 1989). Water entering this sewer lateral from the floor drains would flow by gravity to the sewer pump station located at the low point of this sewer lateral (i.e., western terminus of the sewer lateral) before being pumped to the main sewer line (see Figure 2).[3]

1.2.6 Summary of Previous Site Investigations

Soil and soil vapor samples were collected during previous Site investigation activities conducted during October 2018 (SoundEarth Strategies 2018; UEP 2018). The sampling locations are shown in Figure 2. In summary:

- Three shallow soil samples were collected. Soil samples SS-01-01 and SV-2 were collected adjacent to the former PCE-based, dry-cleaning machine at depths of approximately one foot bgs and two feet bgs, respectively. Soil sample SV-3 was collected within the boiler room at a depth of approximately two feet bgs. The samples were analyzed for select chlorinated volatile organic compounds (VOCs).[4] No constituents were detected in SS-01-01. PCE was the only constituent detected in SV-2 and SV-3.
- Sub-slab soil vapor sample SS-01 was collected adjacent to the former PCE-based, dry-cleaning machine and analyzed for PCE and potential degradation byproducts. PCE and trichloroethene (TCE) were the only detected constituents.
- A total of 16 Gore Sorber™ sub-slab soil vapor samples (designated SV-1 through SV-16) were collected in a grid pattern that included samples located inside and outside of PLC. The samples were analyzed for chlorinated VOCs and petroleum VOCs. PCE was detected in all 16 Gore

[1] According to personal correspondence between the operator (Aaron Youn) and PLC, the cleaner used for the new machine is the hydrocarbon-based Ktex product. According to the safety data sheet, Ktex does not include any chlorinated solvents.

[2] According to personal correspondence between the operator (Aaron Youn) and PLC, the current spot cleaners are Hydro Spot (manufactured by Adco Professional Products) and the following products manufactured by Seitz: Purasol, Quickol, Lacol, Frankosol, Cavesol, Blutol, and Colorsol. According to the safety data sheets, the aforementioned spot cleaners do not include any chlorinated solvents.

[3] The sewer lateral turns to the south near the eastern end of the Building before discharging to a westward-draining, 6-inch-diameter, ductile iron force main that is located approximately 35 feet south of the Building.

[4] SS-01-01 was analyzed for PCE and potential degradation byproducts. SV-2 and SV-3 soil samples were analyzed for PCE, potential degradation byproducts, and a few additional VOCs.

Sorber™ samples and TCE was detected in two of the 16 Gore Sorber™ samples. Additional constituents were detected in one or two Gore Sorber™ samples.

The results for all soil vapor samples to date are summarized in Table 1.

1.3 Regulatory Context

It is expected that this Model Toxics Control Act (MTCA) Site will be addressed through the Washington State Department of Ecology's (Ecology's) Voluntary Cleanup Program (VCP) as described in Washington Administrative Code (WAC) 173-340-515. A VCP application was submitted to Ecology in August 2019. Ecology indicated it would accept the VCP application and assign a VCP number once a VCP opinion is requested.

1.4 Work Plan Organization

This Work Plan is organized as follows:

- Section 2: Summary of Existing Results
- Section 3: Sampling and Analysis Plan
- Section 4: Quality Assurance Project Plan
- Section 5: References

SECTION 2: SUMMARY OF EXISTING RESULTS

Since the VI pathway is the primary exposure pathway of potential concern at this time and the subject of this Work Plan, a summary of existing soil vapor results is presented in this section to support the design of VI investigation activities. For completeness, a brief summary of existing soil results relative to SLs for the soil direct contact exposure pathway and soil-to-groundwater transport pathway is also included in this section.[5]

2.1 Vapor Intrusion Pathway

2.1.1 Sub-Slab Soil Vapor SLs for the VI Pathway

Sub-slab soil vapor SLs were calculated for the unrestricted land use and commercial/industrial land use scenarios for each constituent detected in sub-slab soil vapor during previous Site investigations in order to assess the existing sub-slab soil vapor results (see Table 1). The sub-slab soil vapor SLs were calculated as follows:

- The sub-slab soil vapor SLs for unrestricted land use are the most stringent of the Method B sub-slab soil vapor carcinogenic and non-carcinogenic values from the Cleanup Level and Risk Calculation (CLARC) database (Ecology 2020).
- The sub-slab soil vapor SLs for commercial/industrial land use are the most stringent of the Method C sub-slab soil vapor carcinogenic and non-carcinogenic values from the CLARC database (Ecology 2020).

2.1.2 Current COPCs for the VI Pathway

For the purposes of this Work Plan, a constituent was identified as a COPC for the VI pathway if the maximum detected concentration in any previous sub-slab soil vapor sample exceeded the sub-slab soil vapor SL for unrestricted land use (see Table 1). The identified COPCs for the VI pathway at this time are:

- PCE
- TCE
- Chloroform
- Naphthalene

Additional COPCs will be identified as necessary based on the results obtained pursuant to this Work Plan.[6]

[5] The United States Environmental Protection Agency (USEPA) defines an exposure pathway as "the course a chemical or pollutant takes from the source to the organism exposed" and an exposure route as "the way a chemical or pollutant enters an organism after contact" (USEPA 1989). For an exposure pathway to be complete, all four of the following elements must be present: (1) on-site constituent source, (2) migration/transport route, (3) potentially exposed human or ecological receptor, and (4) route of exposure (e.g., ingestion of constituent in drinking water).

[6] As discussed in Sections 3 and 4, analyses will not be limited to these COPCs. Rather, samples will be analyzed for a full VOC list.

2.1.3 *Summary of COPC Exceedances for the VI Pathway*

PCE, which was detected in all 17 of the October 2018 sub-slab soil vapor samples, is the primary COPC for the VI pathway (and this Site). The maximum PCE sub-slab soil vapor concentration (20,200 µg/m^3 at SV-7) was approximately two orders of magnitude higher than the sub-slab soil vapor SL for unrestricted land use (320 µg/m^3) and approximately one order of magnitude higher than the sub-slab soil vapor SL for commercial/industrial use (1,300 µg/m^3; see Table 1). The 13 sub-slab soil vapor samples collected within the PLC suite (SS-01 and SV-1 through SV-12) had PCE concentrations ranging from 5,670 µg/m^3 to 20,200 µg/m^3. The ubiquitous detections of PCE in sub-slab soil vapor throughout the interior of the PLC suite at similar concentrations would appear to be indicative of a PCE indoor air source (i.e., the ongoing use of PCE for dry-cleaning operations when the samples were collected in 2018) and the adsorbent nature of the Gore Sorber™ samplers (rather than a PCE source in the subsurface underneath the PLC suite).[7] There were no exceedances of the PCE sub-slab soil vapor SL for unrestricted land use in any of the four soil vapor samples collected outside the PLC suite (SV-13 through SV-16). Most notably, there were no exceedances of the PCE sub-slab soil vapor SL for unrestricted land use in the two samples collected adjacent to the northern sewer lateral between the presumed floor drain connection and the sewer pump station (SV-15 and SV-16).

TCE, which is a PCE degradation byproduct, was detected in three sub-slab soil vapor samples (all located within the PLC suite). The maximum TCE sub-slab soil vapor concentration (192 µg/m^3 at SV-7) was approximately one order of magnitude higher than the sub-slab soil vapor SL for unrestricted land use (11 µg/m^3) and approximately three times higher than the sub-slab soil vapor SL for commercial/industrial use (67 µg/m^3; see Table 1).

The only other exceedances of sub-slab soil vapor SLs for unrestricted land use were the detections of chloroform in SV-4 (136 µg/m^3) and naphthalene (20.4 µg/m^3) in SV-11 (see Table 1). Chloroform and naphthalene were not detected in any other soil vapor samples.

2.2 Soil Direct Contact Pathway

A soil direct contact SL was calculated for the unrestricted land use and commercial/industrial land use scenarios for each constituent detected in soil during previous Site investigations. PCE is the only constituent that has been detected in soil. The PCE soil direct contact SLs for an unrestricted land use scenario and a commercial/industrial land use scenario were calculated in accordance with WAC 173-340-740(3)(b)(iii)(B) and WAC 173-340-745(5)(b)(iii)(B), respectively. The PCE soil direct contact SLs for an unrestricted land use scenario and a commercial/industrial land use scenario are 480 and 21,000 mg/kg, respectively. The maximum PCE soil concentration in the three existing soil samples (which are likely representative of worst-case conditions) was 0.041 mg/kg in SV-2. Thus, the soil direct pathway is not a concern at this Site based on existing results.

[7] For comparison, the maximum of the 90th percentile indoor air background PCE concentrations in studies of North American residences compiled by USEPA in 2011 was 7 µg/m^3 (USEPA 2011). PLC indoor air concentrations of PCE in 2018 from ongoing use of PCE for dry-cleaning operations would be expected to be many orders of magnitude higher than typical North American residences.

2.3 Soil-to-Groundwater Pathway

A soil-to-groundwater SL was calculated for each constituent detected in soil during previous Site investigations using the MTCA fixed parameter three-phase partitioning model in accordance with WAC 173-340-747(4).[8] PCE is the only constituent that has been detected in soil. MTCA defaults in WAC 173-340-747(4) were used as the input parameters and the PCE Method A groundwater cleanup level of 5 µg/L was used as the target groundwater concentration for the three-phase partitioning model calculation. The PCE soil-to-groundwater SL is 0.05 mg/kg. The maximum PCE soil concentration in the three existing soil samples (which are likely representative of worst-case conditions) was 0.041 mg/kg in SV-2. Thus, the soil-to-groundwater transport pathway and the groundwater as drinking water exposure pathway are not a concern at this Site based on existing results. Furthermore, there is a very low probability that there is any shallow groundwater underneath PLC based on the presence of dense, low permeability glacial till deposits and geologic data from the surrounding area.

2.4 Evaluation of Existing PCE Results

Based on existing results and information, any PCE impacts in the subsurface underneath PLC appear to be minor. PCE releases to the subsurface within dry-cleaning facilities typically occur (1) near the dry-cleaning machine, (2) near the PCE product/waste storage area(s), and/or (3) near floor drains. There does not appear to have been a significant release of PCE in the dry-cleaning machine area based on (1) the presence of spill containment beneath the machine since 1999, (2) the PCE concentrations in the two soil samples collected where a PCE release from the machine would typically occur (SS-01-01 and SV-2) were less than the conservative PCE soil-to-groundwater SL (0.05 mg/kg), and (3) the slightly lower PCE soil vapor concentrations in SS-01 and SV-2 (compared to other soil vapor sample locations). While it is difficult to definitively prove that no spills of PCE product or PCE waste ever occurred in the former PCE product/waste storage area(s), no evidence of a spill or stained floor were identified during previous Site interviews and reconnaissance (SoundEarth Strategies 2018). There does not appear to be a significant release of PCE associated with the floor drains in the boiler room based on (1) the documented off-site disposal of PCE waste, (2) the PCE concentration in the soil sample collected near the floor drains (SV-3) was less than the conservative PCE soil-to-groundwater SL (0.05 mg/kg), and (3) there were no exceedances of the PCE sub-slab soil vapor SL for unrestricted land use in the two soil vapor samples collected adjacent to the northern sewer lateral between the presumed floor drain connection location and the sewer pump station (SV-15 and SV-16). It is possible that there may have been a small PCE release from the use of a spot cleaner that contained PCE in the vicinity of SV-7 as indicated in a previous Site report (UEP 2018). However, it is more likely that the ubiquitous detections of PCE in sub-slab soil vapor throughout the interior of the PLC suite at similar concentrations were possibly due to a PCE indoor air source (i.e., the ongoing use of PCE for dry-cleaning operations when the samples were collected in 2018) and the adsorbent nature of the Gore Sorber™ samplers.

[8] If necessary, soil-to-groundwater SLs may be calculated in the future using other allowed methods pursuant to WAC 173-340-747.

SECTION 3: SAMPLING AND ANALYSIS PLAN

The purpose of this sampling and analysis plan (SAP) is to present the methodology for collecting and analyzing samples pursuant to this Work Plan in accordance with WAC 173-340-820 and applicable components of Ecology guidance (Ecology 1995). Typical background contents of a stand-alone SAP are not repeated if included elsewhere in this Work Plan.

3.1 Sampling Design

Since existing sub-slab soil vapor concentrations of PCE and other COPCs exceed sub-slab soil vapor SLs for commercial/industrial land use, a sampling design was developed to further evaluate the VI pathway using a multiple lines of evidence approach. Since there is no obvious subsurface PCE source area, paired indoor air and sub-slab soil vapor samples will be collected at the following four locations during the first sampling event (see Figure 2):

- A paired sample location (designated as IA-01/SV-17) will be co-located with the highest previous PCE soil vapor concentration (20,200 µg/m^3 at SV-7);
- A paired sample location (designated as IA-02/SV-18) will be approximately 5 feet from the southern exterior wall of the PLC tenant suite in order to determine concentrations of PCE (and other constituents) to the south of SV-7; and,
- Two paired sampling locations (designated as IA-03/SV-19 and IA-04/SV-20) will be located within the Plateau Jewelers suite in order to determine concentrations of PCE (and other constituents) to the east of SV-7.

Since soil vapor concentrations to the west and north of the PLC suite have already been delineated to concentrations less than sub-slab soil vapor SLs for unrestricted land use, additional sampling to the west and north of SV-7 (the highest previous PCE soil vapor concentration) is not warranted. In addition, sampling of the current occupied buildings adjacent to PLC (see Section 1.2.4) is not warranted since these buildings are more than 100 feet from the boundary of the PLC suite. As indicated in Ecology guidance, “buildings located more than 100 feet, horizontally, from the edge of the subsurface contamination are unlikely to experience unacceptable VI impacts (Ecology 2018).”

3.2 Investigation Roles and Responsibilities

The project team for implementing this SAP includes representatives from UEP, PIONEER Technologies Corporation (PIONEER), and Friedman & Bruya, Inc.

3.3 Pre-Mobilization Tasks

Before the commencement of field work, UEP and/or PIONEER will:

- Coordinate with the Building owner, PLC tenant, and Plateau Jeweler tenant regarding accessing sampling locations.
- Coordinate with the Building owner, PLC tenant, and Plateau Jeweler tenant regarding temporary removal of chemicals from the PLE and Plateau Jeweler suites at least 36 hours prior to sampling (to the extent practicable).

- Complete health and safety preparation tasks.
- Coordinate with the laboratory regarding key elements of the SAP / Quality Assurance Project Plan (QAPP).
- Obtain all necessary equipment and supplies.
- Verify initial Summa® Canister vacuums measured by Friedman & Bruya, Inc. A canister with an initial vacuum of less than 25 inches of mercury will be returned to Friedman & Bruya, Inc. in exchange for a replacement canister.

3.4 Field Investigation Procedures

3.4.1 Preparation Activities Prior to Sampling

UEP and/or PIONEER will complete the following activities prior to collecting samples during each sampling event in order to ensure representative data are collected and to help assess potential indoor air sources associated with current tenant operations:

- Conduct a reconnaissance of potential preferential pathways (e.g., utilities that penetrate the surface, significant cracks in the concrete slab). Depending on the results of this reconnaissance, the proposed locations of IA-01/SV-17 through IA-04/SV-20 may be adjusted to be closer to potentially preferential pathways or to avoid obstructions/access issues.
- Compile a comprehensive inventory of chemical products used in the PLC and Plateau Jewelers suites. The following information will be recorded for each chemical:
    - Product name/description;
    - Volatile ingredients included in the products;
    - Photoionization detector (PID) measurements adjacent to the product; and
    - A photograph of the product.
- All windows and doors in the PLC and Plateau Jewelers suites will be closed prior to sampling and will remain closed for the duration of the sampling (doors will only be opened to allow individuals to pass through as necessary to conduct sampling activities).
- The HVAC systems in the PLC and Plateau Jewelers suites will be operated in a manner similar to normal work day conditions (e.g., the heat will be on during the winter sampling event).

3.4.2 Sub-Slab Soil Vapor Sampling

Sub-slab soil vapor samples will be collected using the soil vapor pin procedures outlined in Appendix A. Each sub-slab soil vapor sample will be collected as synoptically as practicable with the associated paired indoor air sample. Each sub-slab soil vapor sample will be collected using the containers indicated in Table 2 over an approximately eight-hour period, with the flow rate controlled by the intake regulator provided by the laboratory. Sampling will stop when the remaining canister vacuum is approximately three to five inches of mercury or after ten hours of sampling, whichever occurs first. The final canister vacuum will be recorded on the chain-of-custody.

3.4.3 Indoor Air Sampling

Each indoor air sample will be collected as synoptically as practicable with the associated paired sub-slab soil vapor sample. Indoor air samples will be collected using the containers indicated in Table 2 at a breathing height (approximately five feet above ground surface), over an approximately eight-hour

period with the flow rate controlled by the intake regulator provided by the laboratory. Sampling will stop when the remaining canister vacuum contains approximately three to five inches of mercury or after ten hours of sampling, whichever occurs first. The final canister vacuum will be recorded on the chain-of-custody.

3.4.4 Ambient Air Sampling

In order to estimate ambient air background concentrations during the sampling period, an upwind ambient air sample will be collected each day that sub-slab soil vapor and indoor air samples are being collected. The wind direction will be determined by observations immediately prior to sample collection (or by using a wind rose generated with at least one year of wind data from a nearby meteorological station if there is no obvious wind direction during the day of sampling). Ambient air samples will be collected using the containers indicated in Table 2 at a breathing height (approximately five feet above ground surface), over an approximately eight-hour period with the flow rate controlled by the intake regulator provided by the laboratory. Sampling will stop when the remaining canister vacuum contains approximately three to five inches of mercury or after ten hours of sampling, whichever occurs first. The final canister vacuum will be recorded on the chain-of-custody.

3.4.5 Sampling Events

To evaluate seasonal variability, the proposed sub-slab soil vapor, indoor air, and ambient air samples will be collected during two sampling events. The first sampling event is expected to occur as soon as possible following preparation of the Work Plan (i.e., summer 2020). The second sampling event is expected to occur between November 2020 and February 2021 when the heating of buildings typically induces greater depressurization of the building relative to the subsurface, resulting in increased VI and higher indoor air concentrations of COPCs. Depending on the results obtained during the first sampling event, the sampling locations for the second sampling event may be adjusted. During each sampling event, samples collected from the PLC suite and samples collected from the Plateau Jewelers suite will be collected as synoptically as practicable (e.g., ideally within one week) given the constraints of obtaining access for two different active businesses.

3.4.6 Equipment Decontamination Procedures

Given the nature of sampling activities and the use of dedicated sampling equipment, it is not expected that equipment decontamination will be necessary. However, any non-dedicated equipment (e.g., hand tools) will be cleaned before use at a given sampling location.

3.4.7 Field Recordkeeping

UEP and/or PIONEER will complete the following forms to document each sampling event (see Appendix B):

- Field Checklist, which is used to assist with planning and coordination prior to a field event, and to document completion of field activities.
- Daily Field Report, which is used to document field activities on a daily basis (e.g., miscellaneous field notes, soil vapor, indoor air, and ambient air sampling notes).

- Indoor Air Sampling - Building Survey Checklist, which is used to document the reconnaissance of potential preferential pathways (e.g., utilities that penetrate the surface, significant cracks in the concrete slab), and to compile a comprehensive inventory of chemical products used in the PLC suite and Plateau Jewelers suite.

In addition, representative photographs should be taken as necessary to support documentation of the field investigation procedures.

3.5 Laboratory Analyses and Sample Containers

Sub-slab soil vapor, indoor air, and ambient air samples will be collected pursuant to this Work Plan. The laboratory analyses that are relevant to each media are shown in Table 2. All samples will be analyzed for a full VOC list, including the identified COPCs for the VI pathway. The analytical methods, sample container expectations, preservation requirements, and holding times for these laboratory analyses are presented in Table 2. Sample containers will be provided by the laboratory.

3.6 Sample Labeling and Shipment

3.6.1 Sample Labeling

Sample labels will clearly indicate the Site location, sample number identification, date, time, sampler's initials, and parameters to be analyzed. Each sample will be individually labeled. Each sample number identification will be unique and will adhere to the sample identification schema in Appendix C to the extent practicable.

3.6.2 Chain-of-Custody Documentation

Chain-of-custody procedures will be followed to maintain and document sample possession. A sample is considered under a person's custody if it is in that person's physical possession, within visual sight of that person after taking physical possession, secured by that person so that the sample cannot be tampered with, or secured by that person in an area that is restricted to unauthorized personnel.

The originator (the sampler) will complete requested information on the custody record, including signature and date. Original signed custody records listing the samples in the sample shipping container will accompany sample shipments. The originator of the custody record will retain a copy of the custody record.

3.6.3 Sample Shipment

Sample packaging and shipping procedures are based on USEPA specifications and United States Department of Transportation regulations as specified in 49 Code of Federal Regulations (CFR) 173.6 and 49 CFR 173.24. Canisters for sub-slab soil vapor, indoor air, and ambient air samples will be packed in cardboard boxes (e.g., the containers the laboratory used to ship the canisters) without preservation (i.e., no ice). Samples will be shipped as environmental samples and not hazardous material. Samples will be shipped express delivery to the laboratory.

3.7 Investigation-Derived Waste

It is anticipated that the only investigation-derived waste that will be generated during sampling activities will be personal protective equipment (e.g., nitrile gloves) and other disposable sampling equipment (e.g., small pieces of tubing). This investigation-derived waste will be disposed of as solid waste in the standard municipal solid waste stream.

SECTION 4: QUALITY ASSURANCE PROJECT PLAN

The purpose of this QAPP is to summarize the methodology for ensuring usable sampling and analysis data of acceptable quality are generated. This QAPP was prepared in general accordance with WAC 173-340-820 and Ecology guidance (Ecology 2016).

Typical contents of a stand-alone QAPP are not repeated if included elsewhere in this Work Plan. For instance, requirements for laboratory analytical methods, sample containers, preservation, and holding times are already described in the SAP. Likewise, field procedures associated with quality assurance (e.g., equipment decontamination, field recordkeeping, sample identification schema, sample handling and shipment) are already described in the SAP.

4.1 Calibration of Field Equipment

The PID will be calibrated daily using procedures in accordance with the manufacturer's recommendations. The calibration will be documented in the field notes.

4.2 Field Quality Control Samples

Field quality control (QC) samples will include field duplicates. One indoor air field duplicate will be collected during each sampling event. Field duplicates will be collected at random locations selected by the field sampling team. Field duplicate will be collected simultaneously with the primary sample using the same sample collection and preparation techniques. Indoor air field duplicates will be collected using a T-splitter at the point of sample collection. Blind duplicates will not be collected; rather, the duplicate sample will be identified with the same Site ID as the primary sample. Field duplicates will be analyzed for the same analytes as the primary sample.

4.3 Laboratory Quality Control Samples

Friedman & Bruya, Inc. will be responsible for conducting laboratory QC procedures and reporting laboratory QC results in accordance with the analytical methods and their standard operating procedures. Laboratory QC samples provide important qualitative results used to evaluate the laboratory QC procedures. Laboratory QC samples will include method blanks and laboratory control samples (also known as blank spikes) once per batch of analyses. In addition, it is also expected that Friedman & Bruya, Inc. will perform and report results of surrogate recovery for every sample. Expectations for laboratory control limits for laboratory control samples and surrogate recoveries are shown in Table 3.

4.4 Laboratory Target Reporting Limits

Analytical methods and the laboratory have been selected to achieve low target reporting limits. The VOC analyte list and a comparison of target reporting limits with the sub-slab soil vapor and indoor air

SLs for unrestricted use are presented in Table 4.[9] Almost all of the target reporting limits are less than the corresponding SLs for unrestricted land use. More importantly, all of the COPCs for the VI pathway have target reporting limits that are less than the SLs for unrestricted land use. Although the target reporting limits for some non-COPCs exceed a SL for unrestricted land use, the target reporting limits are reasonably sensitive.[10] Therefore, the target reporting limits are considered appropriate for the purposes of this investigation.

4.5 Data Quality Review and Validation

An evaluation of data quality will be performed for all field and lab data. Specifically, field records will be reviewed by UEP and/or PIONEER for completeness, accuracy, and legibility. The laboratory will review their results relative to method criteria and laboratory QC procedures as the data are generated. The laboratory will report their QC results and qualify data as necessary in a report suitable for a Level II data validation. An independent data quality validator will evaluate precision, accuracy, representativeness, comparability, completeness, and sensitivity by reviewing the following items relative to analytical method criteria, laboratory control limits, and national functional guidelines (USEPA 2016) as necessary:

- Comparison of actual analyses versus requested analyses
- Comparison of consistency between laboratory reports and associated electronic data deliverables
- Holding times
- Field QC sample results
- Lab QC sample results
- Actual reporting limits

The data quality validator may reject data or add other qualifications in addition to the laboratory qualifications. The data quality validation documentation will be included with the applicable laboratory reports for reporting purposes.

4.6 Corrective Action

The need for corrective action will be evaluated as appropriate for deviations from the SAP/QAPP and other potential data quality issues that arise in the field or the laboratory. Relatively minor field issues will be discussed, resolved, and documented by the PIONEER Project Manager, field personnel, and/or the laboratory. Corrective action decisions will be situation-dependent. Potential corrective action decisions may include one or more of the following:

- Revising the sampling and analysis methodology
- Collecting a new sample

[9] Sub-slab soil vapor SLs for unrestricted land use were calculated as described in Section 2.1. Indoor air SLs for unrestricted land use are the most stringent of the Method B indoor air carcinogenic and non-carcinogenic values from the CLARC database (Ecology 2020).

[10] The non-COPCs with a target reporting limit exceeding a corresponding SL for unrestricted land uses are 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloroethane, 1,2-Dibromoethane, 1,4-Dichlorobenzene, 3-Chloropropene, Acrolein, Benzyl chloride, Carbon tetrachloride, Hexachlorobutadiene, and Methylene chloride.

- Reanalyzing an existing sample
- Accepting the data with a recognized level of uncertainty
- Revising the sampling design

SECTION 5: REFERENCES

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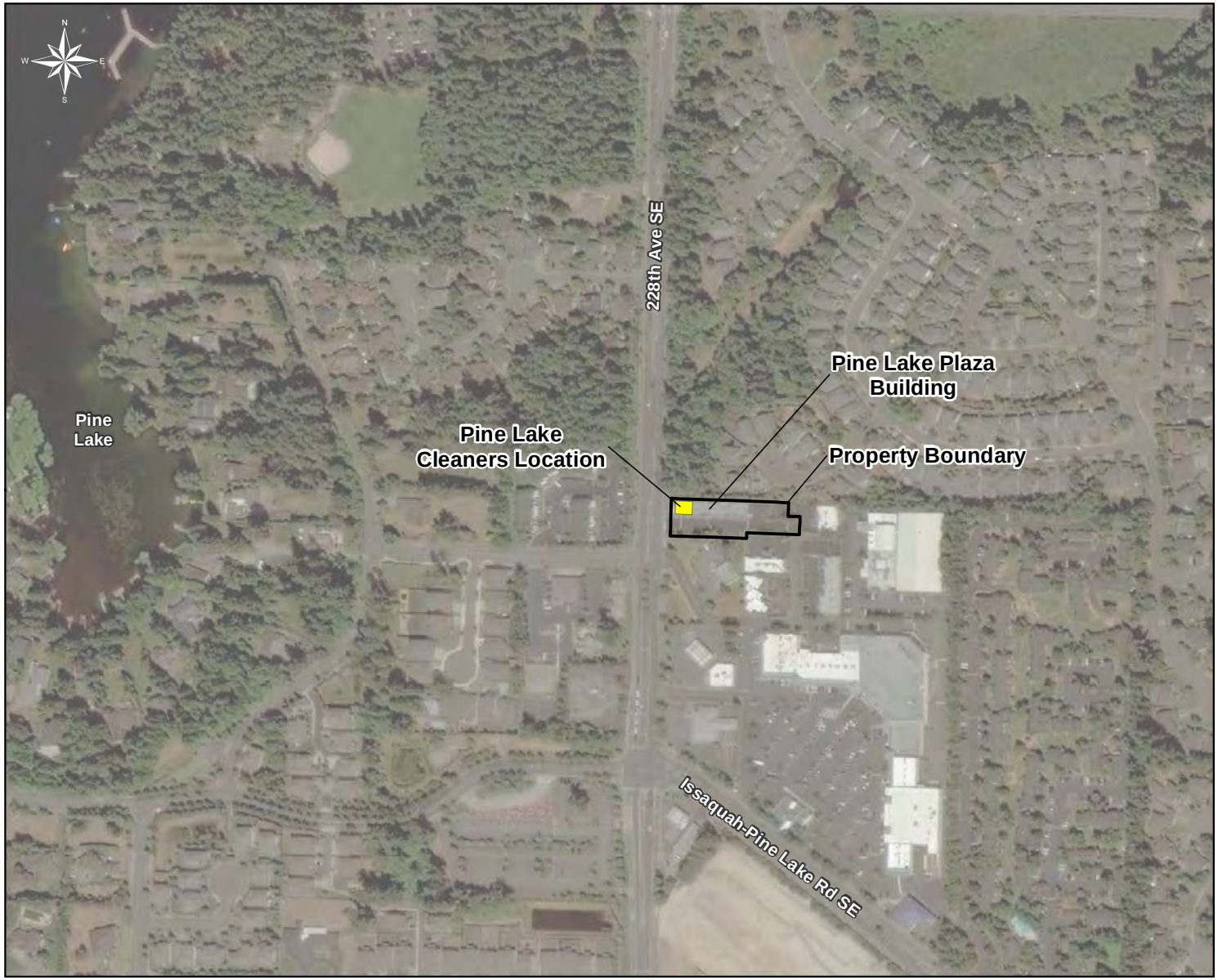
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Figures





Legend

- Pine Lake Cleaners Location
- Property Boundary

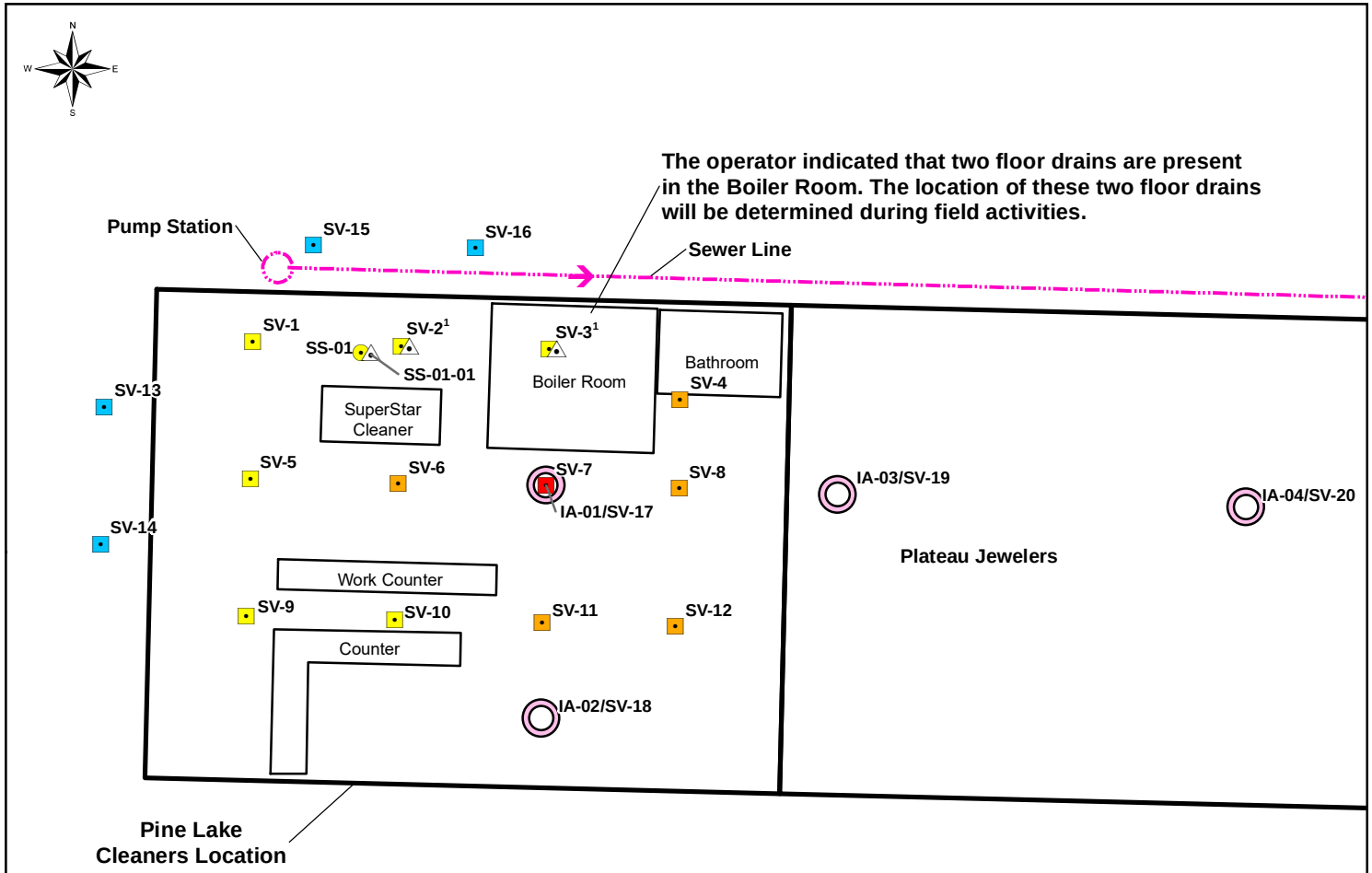
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Pine Lake Cleaners Location
Vapor Intrusion Investigation Work Plan
Pine Lake Cleaners

Figure 1

Document Path: G:\Projects\Urban Invironmental Partners\Pine Lakes Dry Cleaner\Maps\Fig_1 Site Location_Rev.mxd; Author: VN; Date Saved: 6/18/2020



The location of the upwind ambient air sample will be determined as described in the text.



Legend

- Proposed Indoor Air and Sub-Slab Soil Vapor Sample Location (May be Adjusted Based on Suite Layout)
- Sewer Line
- Building Location

Previous Sample

- Soil Sample Location
- Sub-Slab Soil Vapor Sample Location
- Sub-Slab Soil Vapor Gore Sorber™ Sample Location

Previous PCE Soil Vapor Concentration

- PCE ≤ 320 µg/m^3
- 320 µg/m^3 < PCE ≤ 1,300 µg/m^3
- 1,300 µg/m^3 < PCE ≤ 10,000 µg/m^3
- 10,000 µg/m^3 < PCE ≤ 20,000 µg/m^3
- PCE > 20,000 µg/m^3

Notes:
[1]Co-located soil samples were collected at SV-2 and SV-3 at 2 ft bgs.
- Geospatial data were provided by other consultants or georeferenced from reports by other consultants. All locations are approximate.

5 0 5 10 Feet

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Previous PCE Soil Vapor Results and Proposed Sampling Locations
Vapor Intrusion Investigation Work Plan
Pine Lake Cleaners

Figure 2

Document Path: G:\Projects\Urban Environmental Partners\Pine Lakes Dry Cleaner\Maps\Fig_2 Proposed IA and Historical Locations.mxd; Author: VN; Date Saved: 7/2/2020

Tables

Table 1: Summary of Previous Sub-Slab Soil Vapor Sampling Results and Identification of COPCs

Constituent Detected in at Least One Soil Vapor Sample	Previous Sub-Slab Soil Vapor Sample Constituent Concentrations (µg/m^3)																																		Sub-Slab SV SL for Unrestricted Land Use[1]	Maximum Detected Sub-Slab SV Conc. Exceeds SL for Unrestricted Land Use?	Sub-Slab SV SL for Commercial/ Industrial Use[2]	Maximum Detected Sub-Slab SV Conc. Exceeds SL for Commercial/ Industrial Use?	Constituent of Potential Concern?[3]
	SS-01	Qualifier	SV-1	Qualifier	SV-2	Qualifier	SV-3	Qualifier	SV-4	Qualifier	SV-5	Qualifier	SV-6	Qualifier	SV-7	Qualifier	SV-8	Qualifier	SV-9	Qualifier	SV-10	Qualifier	SV-11	Qualifier	SV-12	Qualifier	SV-13	Qualifier	SV-14	Qualifier	SV-15	Qualifier	SV-16	Qualifier					
Tetrachloroethene	**7,000**		**6,020**	E	**8,140**	E	**9,670**	E	**11,700**	E	**7,010**	E	**13,700**	E	**20,200**	E	**17,900**	E	**5,670**	E	**6,310**	E	**12,700**	E	**15,300**	E	**54.9**		**129**		**300**		**108**		320	**Yes**	1,300	**Yes**	**Yes**
Trichloroethene	**18**		13.7	U	13.8	U	13.8	U	13.8	U	13.7	U	**70**		**192**		13.8	U	13.7	U	13.8	U	13.7	U	13.8	U	13.8	U	13.8	U	13.9	U	13.9	U	11	**Yes**	67	**Yes**	**Yes**
1,1,1,2-Tetrachloroethane	NR		1.27	U	1.28	U	1.28	U	**1.35**		1.27	U	1.29	U	**2.94**		1.29	U	1.27	U	1.29	U	1.27	U	1.29	U	1.3	U	1.3	U	1.3	U	1.3	U	11	No	110	No	No
1,2,4-Trimethylbenzene	NR		1.67	U	1.69	U	1.69	U	1.69	U	1.67	U	1.7	U	1.67	U	1.69	U	1.67	U	1.7	U	**2.94**		**1.78**		1.7	U	1.7	U	1.7	U	1.71	U	30	No	2,000	No	No
1,4-Dichlorobenzene	NR		**3.08**	B	1.37	U	1.37	U	1.38	U	**3.26**	B	1.38	U	1.36	U	1.38	U	1.36	U	1.38	U	**3.15**	B	1.38	U	1.38	U	1.39	U	1.39	U	1.39	U	7.6	No	76	No	No
Chloroform	NR		67.5	U	67.7	U	67.7	U	**136**		67.4	U	67.9	U	67.5	U	67.8	U	67.5	U	67.9	U	67.5	U	67.8	U	67.9	U	67.9	U	68	U	68	U	3.6	**Yes**	36	**Yes**	**Yes**
Ethylbenzene	NR		1.63	U	1.64	U	1.64	U	1.65	U	1.62	U	1.66	U	1.63	U	1.65	U	1.63	U	1.65	U	1.63	U	1.65	U	1.66	U	1.66	U	1.66	U	1.66	U	15,000	No	33,000	No	No
Naphthalene	NR		3.12	U	3.14	U	3.14	U	3.15	U	3.1	U	3.16	U	3.12	U	3.15	U	3.11	U	3.16	U	**20.4**		3.16	U	3.17	U	3.17	U	3.17	U	3.18	U	2.5	**Yes**	25	No	**Yes**
Octane	NR		3.55	U	3.57	U	3.57	U	3.59	U	**4.04**		3.6	U	3.55	U	3.59	U	3.54	U	3.59	U	**5.55**		3.59	U	3.6	U	3.6	U	3.61	U	3.61	U	No Value	N/A	No Value	N/A	No
Pentadecane	NR		3.12	U	3.14	U	3.14	U	3.15	U	3.1	U	3.16	U	3.12	U	3.15	U	3.11	U	3.16	U	3.12	U	**7.21**		3.17	U	3.17	U	3.17	U	3.18	U	No Value	N/A	No Value	N/A	No
Toluene	NR		3.45	U	3.47	U	3.47	U	3.48	U	3.43	U	3.49	U	3.45	U	3.48	U	3.44	U	**3.98**	B	**11.9**	B	3.48	U	3.49	U	3.5	U	**14.5**	B	**62.2**	B	76,000	No	170,000	No	No
TPH	NR		**133**		28.8	U	**36.1**		**37.2**		**506**		**33.5**		**42.6**		**70.6**		**113**		**68.5**		**1,010**	E	**1,830**	E	29	U	29	U	**241**		**512**		4,700	No	4,700	No	No
Tridecane	NR		3.12	U	3.14	U	3.14	U	3.15	U	**3.28**		3.16	U	3.12	U	3.15	U	3.11	U	3.16	U	3.12	U	3.16	U	3.17	U	3.17	U	3.17	U	3.18	U	No Value	N/A	No Value	N/A	No
Undecane	NR		3.12	U	3.14	U	3.14	U	3.15	U	3.1	U	3.16	U	3.12	U	3.15	U	3.11	U	3.16	U	**4.25**		3.16	U	3.17	U	3.17	U	3.17	U	3.18	U	No Value	N/A	No Value	N/A	No
m&p-Xylenes	NR		**1.7**	B	1.5	U	1.5	U	1.5	U	**3.51**	B	1.51	U	1.48	U	**2.39**	B	**2.21**	B	**1.58**	B	**3.89**	B	**2.1**	B	**3.36**	B	1.51	U	1.51	U	1.51	U	1,500[4]	No	3,300[4]	No	No
o-Xylene	NR		2.06	U	2.08	U	2.08	U	2.08	U	2.05	U	2.09	U	2.06	U	2.08	U	2.06	U	2.09	U	**2.35**	B	2.09	U	2.09	U	2.09	U	2.1	U	2.1	U	1,500[4]	No	3,300[4]	No	No

Notes:

B: Constituent found in sample and associated blank; Conc.: Concentration; E: Estimated concentration because concentration exceeds upper calibration level; N/A: Not applicable; No Value: No value exists for this constituent in the CLARC database (Ecology 2020); NR: Not Reported; SL: Screening Level; SV: Soil Vapor; U: Not detected at shown reporting limit

Detected results are shown in bold font.

[1] The sub-slab soil vapor SL for unrestricted land use are the most stringent of the Method B carcinogenic and non-carcinogenic values from the CLARC database (Ecology 2020).

[2] The sub-slab soil vapor SLs for commercial/industrial land use are the most stringent of the Method C carcinogenic and non-carcinogenic values from the CLARC database (Ecology 2020).

[3] Constituents that were detected in one or more samples were identified as a COPC if there was an exceedance of the sub-slab soil vapor SL for unrestricted land use.

[4] Values are based on total xylenes.

Table 2: Analytical Methods, Sample Containers, Preservation, and Holding Times

Constituents	Media	Analytical Method	Sample Containers	Preservation	Extraction Holding Times (days)	Analysis Holding Time (days)
VOCs	Sub-Slab Soil Vapor, Indoor Air, and Ambient Air Samples	USEPA Method TO-15 Select Ion Monitoring (SIM)	6-liter evacuated SUMMA® Canister, individually certified clean by the laboratory, equipped with a Swagelok 1/4-inch stainless steel bellows valve, brass cap, particulate filter, and vacuum gauge. Regulator shall be adjusted for a flow rate for an 8-hour sample collection.	None	N/A	30

Table 3: Laboratory Control Limits

Constituents	Media	Analytical Method	LCS	MS/MSD		Surrogates
			% Recovery	% Recovery	RPD	% Recovery
VOCs	Sub-Slab Soil Vapor, Indoor Air, and Ambient Air Samples	USEPA Method TO-15 Select Ion Monitoring (SIM)	70 - 130	N/A	N/A	70 - 130

Notes:

LCS: Laboratory control sample; MS/MSD: Matrix spike/matrix spike duplicate; N/A: Not applicable; RPD: Relative percent difference

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Table 4: Target Reporting Limits

Constituent	Sub-Slab Soil Vapor Samples		Indoor Air and Ambient Air Samples	
	Target Reporting Limit [1,2] (ug/m^3)	Sub-Slab Soil Vapor SL for Unrestricted Land Use [3,4] (ug/m^3)	Target Reporting Limit [1] (ug/m^3)	Indoor Air SL for Unrestricted Land Use [3,4] (ug/m^3)
1,1,1-Trichloroethane	1.65	76,000	0.55	2,300
1,1,2,2-Tetrachloroethane	0.42	1.4	**0.14**	0.043
1,1,2-Trichloroethane	0.33	3	**0.11**	0.091
1,1-Dichloroethane	1.2	52	0.40	1.6
1,1-Dichloroethene	1.2	3,000	0.40	91
1,2,4-Trichlorobenzene	2.22	30	0.74	0.91
1,2,4-Trimethylbenzene	7.5	910	2.5	27
1,2-Dibromoethane	**0.231**	0.14	**0.077**	0.0042
1,2-Dichlorobenzene	1.8	3,000	0.60	91
1,2-Dichloroethane	0.12	3.2	0.040	0.096
1,2-Dichloropropane	0.69	23	0.23	0.68
1,3,5-Trimethylbenzene	7.5	No Value	2.5	27
1,3-Butadiene	0.066	2.8	0.022	0.083
1,3-Dichlorobenzene	1.8	No Value	0.60	No Value
1,4-Dichlorobenzene	0.72	7.6	**0.24**	0.23
1,4-Dioxane	1.08	No Value	0.36	0.5
2,2,4-Trimethylpentane	14.1	No Value	4.7	No Value
2-Chlorotoluene	15.6	No Value	5.2	No Value
2-Hexanone	12.3	No Value	4.1	14
2-Propanol	25.8	No Value	8.6	No Value
3-Chloropropene	4.8	No Value	**1.6**	0.42
4-Ethyltoluene	7.5	No Value	2.5	No Value
4-Methyl-2-pentanone	12.3	46,000	4.1	No Value
Acetone	14.4	No Value	4.8	14,000
Acrolein	**6.3**	0.3	**2.1**	0.0091
Benzene	0.96	11	0.32	0.32
Benzyl chloride	0.156	1.7	**0.052**	0.051
Bromodichloromethane	0.201	2.3	0.067	0.068
Bromoform	6.3	76	2.1	2.3
Bromomethane	4.8	76	1.6	2.3
Butane	7.2	No Value	2.4	No Value
Carbon disulfide	18.6	11,000	6.2	320
Carbon tetrachloride	1.89	14	**0.63**	0.42
CFC-113	2.31	76,000	0.77	2,300
Chlorobenzene	1.38	760	0.46	23
Chloroethane	7.8	150,000	2.6	4,600
Chloroform	0.147	3.6	0.049	0.11
Chloromethane	11.1	1,400	3.7	41
cis-1,2-Dichloroethene	1.2	No Value	0.40	No Value
cis-1,3-Dichloropropene	1.35	No Value	0.45	0.63
Cyclohexane	20.7	No Value	6.9	2,700
Dibromochloromethane	0.255	No Value	0.085	No Value
Dichlorodifluoromethane	1.47	1,500	0.49	46
Ethanol	22.5	No Value	7.5	No Value
Ethyl acetate	21.6	No Value	7.2	32
Ethylbenzene	1.29	15,000	0.43	460
F-114	2.1	No Value	0.70	No Value
Heptane	12.3	No Value	4.1	180
Hexachlorobutadiene	0.63	3.8	**0.21**	0.11
Hexane	10.5	11,000	3.5	320
Isopropylbenzene	7.5	6,100	2.5	180
m,p-Xylene	2.61	1,500	0.87	46

Table 4: Target Reporting Limits

Constituent	Sub-Slab Soil Vapor Samples		Indoor Air and Ambient Air Samples	
	Target Reporting Limit [1,2] (ug/m^3)	Sub-Slab Soil Vapor SL for Unrestricted Land Use [3,4] (ug/m^3)	Target Reporting Limit [1] (ug/m^3)	Indoor Air SL for Unrestricted Land Use [3,4] (ug/m^3)
Methyl ethyl ketone	8.7	76,000	2.9	2,300
Methyl methacrylate	12.3	11,000	4.1	320
Methyl t-butyl ether	5.4	320	1.8	9.6
Methylene chloride	261	2,200	**87**	66
Naphthalene	0.78	2.5	0.01[5]	0.074
Nonane	15.6	No Value	5.2	No Value
o-Xylene	1.29	1,500	0.43	46
Pentane	9	No Value	3.0	No Value
Propene	3.6	No Value	1.2	No Value
Propylbenzene	7.5	No Value	2.5	460
Styrene	2.55	15,000	0.85	460
t-Butyl alcohol (TBA)	36	No Value	12	No Value
Tetrachloroethene	20.4	320	6.8	9.6[6]
Tetrahydrofuran	0.87	No Value	0.29	910
Toluene	57	76,000	19	2,300
trans-1,2-Dichloroethene	60	No Value	20	No Value
trans-1,3-Dichloropropene	63	No Value	21	No Value
Trichloroethene	0.81	11	0.27	0.33[6]
Trichlorofluoromethane	6.6	11,000	2.2	320
Vinyl acetate	21	3,000	7.0	91
Vinyl bromide	1.32	No Value	0.44	No Value
Vinyl chloride	0.78	9.5	0.26	0.28

Notes:

No Value: No value exists for this constituent in the CLARC database (Ecology 2020)

Constituents in bold font were identified as COPCs for the purpose of this Work Plan.

Target reporting limits in bold font exceed a corresponding SL.

[1] It may not be possible to achieve these reporting limits in all samples (e.g., samples requiring extra dilution to achieve laboratory control limits, interferences).

[2] Sub-slab soil vapor samples are analyzed by the laboratory with a three fold dilution resulting in reporting limits that are three times higher than the indoor air and ambient air sample reporting limits, which are not diluted.

[3] Some SLs may need to be adjusted up to the practical quantitation limit or background per WAC 173-340-740(5)(c) or WAC 173-340-750(5)(c) if used as the basis for a cleanup level.

[4] Indoor air and sub-slab soil vapor SLs for unrestricted land use are used in this table for the sole purpose of evaluating target reporting limits. The SLs are the most stringent of the Method B carcinogenic and non-carcinogenic values from the CLARC database (Ecology 2020).

[5] To achieve the indoor air SL for unrestricted land use for naphthalene in indoor air and ambient air samples, naphthalene will be reported at the method detection limit of 0.01 ug/m^3, below the laboratory reporting limit of 0.26 ug/m^3.

[6] Indoor Air SLs for commercial/industrial land use for tetrachloroethene and trichloroethene are 40 and 2 ug/m^3, respectively.

Appendix A

Procedure for Sub-slab Soil Gas Sampling with a Vapor Pin

Purpose

The purpose of this procedure is to provide field personnel with an outline of the specific information needed to collect and document representative sub-slab soil gas samples using a Vapor Pin™ and an evacuated canister and leak testing using a water dam. The recommended sub-slab soil gas sampling technique, as presented in this procedure, is based on the assumption that soil gas samples should be representative of chemicals that may volatilize from the uppermost aquifer into the vadose zone or from soil contamination within the vadose zone.

References

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Cox-Colvin & Associates, Inc. 2016. Standard Operating Procedure Leak Testing Vapor Pin™. March 29.

Eurofins|Air Toxics. 2014. Guide to Air Sampling. Canisters and Bags. Revision June 27. https://www.eurofinsus.com/media/161448/guide-to-air-sampling-analysis-2014-06-27_revised-logos.pdf

United States Environmental Protection Agency. 2015. OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air. June.

Sampling Equipment and Materials

- Water
- Vapor Pin and silicon sleeve
- Hammer drill
- 5/8-inch diameter hammer bit (Hilti™ TEYX 5/8" x 22" #00206514 or equivalent)
- 3/8-inch diameter bottle brush
- Wet/dry vacuum with HEPA filter
- Vapor Pin installation/extraction tool
- Vapor Pin protective cap
- Dead-blow hammer
- VOC-free hole patching material (hydraulic cement) and putty knife or trowel
- Sikaflex or equivalent non-VOC sealant
- Vapor Pin water dam
- VOC-free modeling clay (like Play-Doh)
- Paper towels
- Turkey baster or large plastic syringe (for removing water from the water dam)
- Three-way sampling manifold consisting of Swagelok gas-tight fittings with three valves and one vacuum gauge to attach the probe to the vacuum pump/purge canister and the sample canister
- Teflon tubing, 0.25-inch outer diameter
- Flexible silicon tubing (3/8-inch inner diameter to connect Teflon tubing from Vapor Pin)

- 6-liter canister to purge the line
- Stainless-steel sample canister(s) certified clean and evacuated (canisters are cleaned, evacuated, and provided by the laboratory.)
- Flow controller(s) set at desired sampling rate.
- Analog pressure gauge dedicated to the canister may be permanently attached to either the canister or flow controller. This pressure gauge will be used to monitor the canister pressure during sampling.
- Digital pressure gauge with a -30 to 0 inch mercury (Hg) range, and 0.50 inch Hg accuracy, which should be verified annually. This pressure gauge should have a Swagelok 1/4-inch female connection because it will be used to measure the initial and final canister pressure. Digital gauges should not be shared between soil vapor samples and air samples (indoor, outdoor, or crawlspace) to prevent cross-contamination.
- Wrenches and screwdriver, various sizes as needed for connecting fittings. A 9/16-inch wrench fits the 0.25-inch Swagelok fittings, which most canisters and flow controllers have.
- Swagelok nut and ferrule set (part #SS-400-NFSET) to connect tubing to the sampling manifold
- T-connector (provided by the laboratory) for collecting simultaneous duplicate samples, if needed.
- Shipping container, suitable for protection of canister(s) during shipping. Typically, strong cardboard boxes are used for canister shipment. The canisters should be shipped to the laboratory in the same shipping container(s) in which they were received.
- Signs identifying the canisters as an air sample, saying “Do Not Disturb” and providing contact information. The sign should be laminated and attached to the canister with a zip tie. (These signs are for extended duration samples only because grab samples will not be left unattended.)

Procedures and Guidelines

Vapor Pin Installation:

1. Drill a 5/8-inch diameter hole through the slab, approximately 1-inch into the underlying soil
2. Remove the drill bit, brush the hole with the bottle brush, and remove the loose cuttings with the vacuum.
3. Place the lower end of Vapor Pin™ assembly into the drilled hole. Place the small hole located in the handle of the extraction/installation tool over the Vapor Pin™ to protect the barb fitting and cap, and tap the Vapor Pin™ into place using a dead-blow hammer.
4. Wait at least 2 hours after the probe is installed before collecting sub-slab soil vapor samples to allow the subsurface to equilibrate.
5. Optional: Place half an inch of Sikaflex around the base of the Vapor Pin™ where it comes in contact with the concrete slab.

Figure 1: Installing the Vapor Pin™



Figure 2: Installed Vapor Pin™



Figure 3: Vapor Pin™ Sample Connection



Photo Source: Cox-Colvin & Associates, Inc. Standard Operating Procedure: Installation and Removal of the Vapor Pin™

Water Dam Installation and Leak Testing:

1. Clean a 2-inch radius around the Vapor Pin to remove all dust on the slab using a vacuum or whisk broom. *Avoid wetting the concrete or wait until the concrete is dry before proceeding.*
2. Roll a 1-inch diameter ball of clay between your palms to form an approximately 7-inch long "snake" and press it against the end of the 2" pipe couple. Push the water dam against the slab to form a seal between the pipe and the concrete. *Some water soluble clays (e.g., Play-Doh) may absorb too much water to be suitable for tests lasting more than one hour.*
3. Attach the sample tubing to the top of the VAPOR PIN™ and pour enough distilled water into the water damn to immerse the base of the VAPOR PIN™, and if desired, the tubing connection at the top of the VAPOR PIN™.
4. Purge the sample point as required by the data quality objectives.
5. Observe the water level in the water dam for indications that water is entering the sub-slab (drop in water level or bubbles).
6. If water is lost to the sub-slab or bubbles are observed, stop, remove the water from the water dam, and reposition the VAPOR PIN™ to stop the leakage. Remove the Vapor Pin™.
7. Use one of the following corrective action options to stop leakage:
    a. Remove the Vapor Pin™, clean out the drilled hole thoroughly, replace the silicone sleeve with a new one, and reinstall.
    b. Fill in visible concrete cracks inside the drilled hole with quick-setting cement. After allowing the cement to cure, retest.
    c. Try fortifying the Vapor Pin™ seal by adding modeling clay to the base of the Vapor Pin™. This temporary repair is only acceptable if grab samples will be collected; permanent repairs must be made for extended duration samples (for example, 8- or 24-hour) because the clay may dry and crack.
    d. Add Teflon tape to the barbed connector and the Teflon tubing, reattach the flex tubing and the Teflon tubing, make sure that all the fittings are tight and repeat the purge and leak-check procedure.
    e. If the previous options fail, then the Vapor Pin™ should be abandoned.
8. The leak test must be performed until the Vapor Pin™ passes the leak test. *The water level might drop slightly because of absorption into the concrete.*
9. *Optional: Collect field readings of purged soil vapor for total VOCs with a Photoionization Detector (PID), and/or oxygen, carbon dioxide, and methane with a LandTec GEM Landfill Gas meter. Perform readings outside of the building so that soil vapor is not released into indoor air.*
10. Record the leak-testing information on the field sampling log.

Manifold Vacuum Leak Check:

The purpose of the manifold leak test is to make sure the connections in the sampling train are air tight.

1. For canister sampling, the connections on the sampling manifold through the flow controller to the valve on the canister will be leak tested; for duplicate samples the whole assembly with the T-connector should be vacuum leak tested. For alternative sampling methods, the connections on the sampling manifold will be leak tested.
2. Close the valve to the probe, open the valve to the pump. For canister sampling, open the sampling valve to the canister on the manifold (the valve on the canister is closed).

3. Turn the pump on and wait for the gauge on the manifold to reach approximately -10 inches Hg. Close the valve to the pump and turn the pump off. The sampling train is now a closed system.
4. Wait approximately 30 seconds to ensure that the vacuum is maintained and there are no leaks (as shown by the stability of the pressure gauge).
5. If there is a visible loss of vacuum, tighten the connections and redo the leak test until it passes.

Figure 4: Sampling Manifold Setup for Canister Sampling

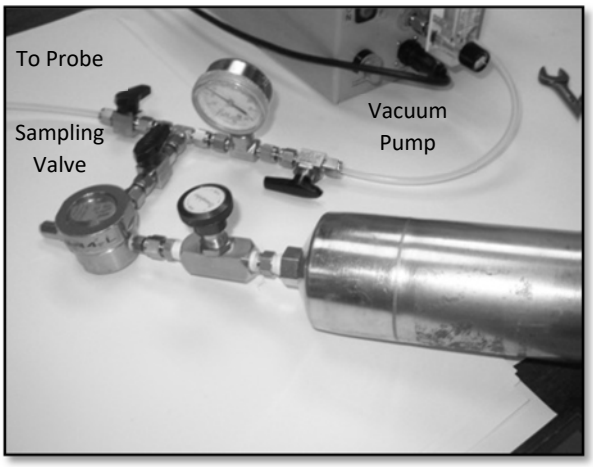


Photo Source:
United States Navy Field Operating Procedure Sub-Slab Vapor Sampling from Vapor Pins

Purging:

The purpose of purging is to remove ambient air from the sampling train and stagnant soil vapor around the probe. Purging and leak testing the soil vapor probe is required before sampling every time.

1. Remove the protective cap from the Vapor Pin™.
2. Attach a new piece of flex tubing, approximately 1 inch long, to the barbed fitting at the top of the Vapor Pin™. Attach the 0.25-inch Teflon tubing to the flex tubing.
3. If using a canister, attach the canister to the sampling manifold using Teflon tubing and Swagelok nut and ferrule sets. Purge at 200 mL/min to 300 mL/min.
4. If using a tedlar bag with a vacuum pump, use a rotameter to control flow to 200 mL/min to 300 mL/min. Open the valves to the pump and probe, and attach the Tedlar bag to the pump effluent. The sampling valve should be closed.
5. Purge each soil vapor port into the canister or tedlar bag at approximately 200 mL/min to 300 mL/min to ensure that the soil gas sample is representative of subsurface conditions. Three to five tubing volumes should be removed. Use the following equation to calculate how much volume to remove:

   Volume = $Volume = \pi \times r^2 \times$ length of tubing (inches)
   where r = the inner diameter radius (inches) of the tubing being used
   $\pi = 3.14$

   The result will be in inches^3. Convert to mL using 1 inch^3 = 16.387 mL to determine how long to purge
6. Monitor the purging vacuum on the sampling manifold pressure gauge. The purging vacuum should not exceed -7 inches Hg; if it does, turn the pump off, close the valve to the pump, and

wait to see if there is recovery. The probe may be clogged or there may be water or tight soils present beneath the slab that do not allow for soil vapor sampling.

a. Try unclogging the probe with a thin metal rod, or remove the probe and check for blockages.
b. If purging cannot be completed without creating a vacuum exceeding -7 inches Hg, then the probe cannot be sampled.

7. Record the purge information on the field notes.

Sampling Methodology

1. Verify the canister number engraved on the canister matches the canister number listed on the certified clean tag attached to the canister to insure proper decontamination of the canister was completed.
2. Set up the 6 L Summa canister in the desired sample location. Make sure the canister will be secure at the sampling location; place traffic cones around the probe and canister if necessary.
3. Verify that the canister valve is closed tightly, and then remove the threaded cap at the top of the canister.
4. Attach a pressure gauge at the top of the canister using a wrench to gently tighten.
5. Place a threaded cap on the gauge and tighten gently with a wrench to seal the canister.
6. Open the canister valve one full turn and record the pressure on the gauge as the initial pressure in the field notes, on the sample tag attached to the canister, and on any applicable field forms.
7. Close the valve tightly and remove the gauge from the canister.
8. Attach a flow controller to the top of the canister. If applicable, attach a sample filter to the top of the flow controller. In some cases, the filter and flow controller will be one integrated piece of equipment.
9. Completely fill out the sample tag attached to the canister.
10. Start the sample collection by opening the valve.
    a. Record all sample information in the field log or applicable field forms:
       Sample identification
    b. Sample start date
    c. Sample start time
    d. Sample location (distance from walls and floor shown on building evaluation floor plan)
    e. Initial pressure of canister
11. After sampling begins and the canister is verified to be operating correctly and filling at the correct speed, leave the canister to fill.
12. Monitor the canister pressure on the analog gauge (if present) several times during the course of the sample period to ensure the canister is filling at the desired rate and the final canister pressure does not fall to 0 inch Hg. The canisters must be checked prior to the end of the sampling period because the accuracy of the flow regulators can vary slightly, causing the canister to fill faster than expected. *For example, samples collected for eight to 10 hours (total) should be checked at six hours. Samples collected for 24 hours should be checked at 20 hours.* To check the progress of the sampling, perform the following steps:
    a. Close the valve on the canister
    b. Remove the filter and flow controller

c. Attach the pressure gauge to the top of the canister
d. Place a threaded cap on the gauge and tighten gently with a wrench to seal the canister
e. Open the valve and record the pressure on the gauge. The final pressure at the end of sampling should be approximately -5 to -6 inches mercury (Hg). If the canister has already reached this point, sampling is complete and this pressure should be recorded as the final pressure on the sample tag, the field log, and applicable field forms. If the pressure is not at this level yet, the valve should be closed, the gauge removed, the filter and flow controller reattached and the sample restarted.
f. Record all stop and start times of sample collection in the field log and the applicable field forms.
g. If the sample collection was continued after 20 hours and appears to be filling at the appropriate rate, sample collection will be considered complete after 24 hours have elapsed.
h. Record the exact pressure of the canister and time at the end of sampling on the sample tag for that canister, in the field book and on the applicable field forms.
i. Discard the sample tubing after all samples have been collected.
j. Abandon the boring and repair to original condition.

13. At the end of the sampling period, close the canister valve and record the sample end time. Detach the canister from the tubing.
14. Measure the final canister pressure with the digital pressure gauge. The final pressure should be between -10 to -2 inches Hg. If it is 0 inch Hg, do not submit the sample for analysis. If it is between -10 and -2 inches Hg, submit it to the laboratory for analysis but make sure it is received with some residual negative pressure.
15. Replace the protective cap on the canister.
16. Disassemble the sampling system and replace the white silicone cap on the Vapor Pin™.
17. Fill out all appropriate documentation (chain-of-custody and sample tags) and return samples and equipment to the laboratory in the same shipping container in which they were received. Do not place sticky labels or tape on surface of the canister.
18. Canisters should not be cooled during shipment. DO NOT put ice in the shipping container.

Appendix B

PIONEER TECHNOLOGIES CORPORATION (PTC)
FIELD CHECKLIST

Project/Task Name: _____ Site Location: _____

Requested By / Date: _____ Work Deadline: _____

SERVICES REQUESTED	COMPLETED
_____	☐ YES ☐ NO
_____	☐ YES ☐ NO
_____	☐ YES ☐ NO
_____	☐ YES ☐ NO
_____	☐ YES ☐ NO
_____	☐ YES ☐ NO
_____	☐ YES ☐ NO
_____	☐ YES ☐ NO
_____	☐ YES ☐ NO
_____	☐ YES ☐ NO
_____	☐ YES ☐ NO
_____	☐ YES ☐ NO

ADDITIONAL STANDARD INSTRUCTIONS	COMPLETED		COMPLETED
☐ Review Docs: _____	☐ YES ☐ NO	☐ Health & Safety Meeting	☐ YES ☐ NO
☐ Agency NOI / Utility Locate / Concrete Coring	☐ YES ☐ NO	☐ Call PM from Site	☐ YES ☐ NO
☐ Coordinate Access: _____	☐ YES ☐ NO	☐ Draw Site Map _____	☐ YES ☐ NO
☐ Coordinate Sub / Equip: _____	☐ YES ☐ NO	☐ Cuttings / Purge Water Characterization & Disposal	
☐ Purchase / Rent Equip: _____	☐ YES ☐ NO	☐ Potential HW _____	☐ YES ☐ NO
☐ Client/Agency Coordination: _____	☐ YES ☐ NO	☐ Non-Haz _____	☐ YES ☐ NO
☐ Calibrate Equipment: _____	☐ YES ☐ NO	☐ Background _____	☐ YES ☐ NO

_____

_____

SAMPLING REQUIREMENTS

☐ Field Testing: _____

☐ Lab Testing: _____ Laboratory: _____

☐ Lab Testing: _____ Laboratory: _____

☐ Lab Testing: _____ Laboratory: _____

FIELD SUPPLIES NEEDED

☐ Site Map ☐ Camera ☐ Survey Equip / GPS ☐ Vehicle

☐ Std Field Equip (keys, forms, SAP, HASP, PPE, decon, tools)

☐ Drilling Equip (PID, references, knife, baggies, tape)

☐ Soil Equip (SS bowls, spoon/shovel, hand auger, pick, sieves)

☐ GWM (pump, tubing, gen., compres., bailers, rope/string, PDB)

☐ Pump / Slug Test Equip (GWM Equip, slug, stopwatch)

☐ Water Level Indicator / Interface Probe

☐ Water Quality Meter _____ ☐ Field Test Kits _____

☐ Sample Kit / Cooler / COC / Ice _____

☐ IDW: ☐ Drums _____ ☐ 5-gal buckets _____

☐ Other: _____

☐ Other: _____

PIONEER TECHNOLOGIES CORPORATION (PTC)
DAILY FIELD REPORT

Date:_____ Site Location: _____ Site Arrival Time: _____ Site Departure Time :_____

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	Rain	Snow
To 32	32-50	50-70	70-85	85 Up
Calm	Med.	Strong	Severe	

PEOPLE PRESENT ON-SITE

NAME	ASSOCIATION	TIME ON-SITE AND OFF-SITE

NOTES ON WORK COMPLETED

SIGNATURE:_____ DATE:_____

Indoor Air Sampling - Building Survey Checklist

Preparer's Name:_____Date: _____

Site Name: _____

PTC Project #_____

Site Address: _____

Part I – Occupants

Address: (Lot # or apt. #)	Name (Age)	Sex (M/F)	Occupation	Years in Bldg.	Hours per Week in Bldg.

Part II - Building Characteristics

Building type: residential / multi-family residential / office / strip mall / commercial / industrial /other

Describe building:_____ Year constructed: _____

Sensitive population: day care / nursing home / hospital / school / other (specify): _____

Number of floors at or above grade: _____

Number of floors below grade:_____(full basement / crawl space / slab on grade)

Depth of basement below grade surface:_____ft.

Basement size:_____ft²

Basement floor construction: concrete / dirt / slab / stone / other (specify):_____

Foundation walls: poured concrete / cinder blocks / stone / other (specify): _____

Basement sump present? Yes / No Sump pump? Yes / No Water in sump? Yes / No

Significant cracks present in basement floor? Yes / No

Significant cracks present in basement walls? Yes / No

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? *Yes / No*

Is there a whole building fan or HVAC system? Yes / No

Septic system? Yes / Yes (but not used) / No

Irrigation / private well? Yes / Yes (but not used) / No

Type of ground cover outside of building: grass / concrete / asphalt / other (specify)

_____

Sub-slab vapor / moisture barrier in place? Yes / No / Don't know

If yes type of barrier: _____

Type of heating system (circle all that apply)

hot air circulation	hot air radiation	wood steam
radiation heat pump	hot water radiation	kerosene heater
electric baseboard	HVAC	other (specify): _____

Type of ventilation system (circle all that apply):

central air conditioning	mechanical fans	bathroom ventilation fans
kitchen range hood fan	outside air intake	individual air conditioning
other (specify): _____		

Type of fuel utilized (circle all that apply):

Natural gas	Electric	Fuel Oil	Wood	Coal	Solar
Kerosene	other (specify): _____				

Part III – Outside Contaminant Sources

Contaminated Site within 100-ft of building surveyed? _____

If yes: Site Name:_____ Site Number: _____

Other stationary sources nearby (gas stations, emissions stacks, etc.): _____

Heavy vehicular traffic nearby (or other mobile sources): _____

Part IV – Indoor Contaminant Sources

Identify all potential indoor sources found in the building (including attached garages), the location of the source (floor & room), and whether the item was removed from the building 48 hours prior to the indoor sampling event. Any ventilation implemented after removal of the items should be completed at 24 hours prior to the start of the indoor air sampling event.

Potential Sources	**Location(s)**	**Removed** (Yes / No / NA)
Gasoline storage can		
Gas-powered Equipment (mowers, etc)		
Kerosene storage cans		
Paints / thinners / strippers		
Cleaning solvents		
Oven Cleaners		
Carpet / upholstery cleaners		
Other house cleaning Products		
Moth balls		
Polishes / waxes		
Insecticides		
Furniture / floor remover		
Hairspray		
Cologne / perfume		
Air Fresheners		
Fuel tank (inside building)		
Wood stove or fireplace		
New Furniture / upholstery		
New Carpeting / flooring		
Hobbies – glues, paints, lacquers, photographic darkroom chemicals, etc.		
Scented trees, wreaths, potpourri, etc.		
Other (specify):		
Other (specify):		
Other (specify):		
Other (specify):		

Part V – Miscellaneous Items

Do any occupants of the building smoke? *Yes / No* How often?_____.

If yes, when was the last time someone smoked in the building?_____hours / days ago

Does the building have an attached garage directly connected to living space? *Yes / No*

If so, is a car usually parked in the garage? *Yes / No*

Are gas-powered equipment or cans of gasoline / fuels stored in the garage? *Yes / No*

Do the occupants of the building have their clothes dry cleaned which are stored in the building (generally residential)? *Yes / No* If yes, how often? Weekly / monthly / 3-4 times a year

When was the last dry-cleaned garment was stored in the building?_____

Do any of the occupants use solvents in work? *Yes / No*

If yes, what types of solvents are used? _____

If yes, are their clothes washed at work? *Yes / No*

Have any pesticides / herbicides been applied around the building or in the yard? *Yes / No*

If so, when and which chemicals? _____

Has there ever been a fire in the building? *Yes / No* If yes, when? _____

Has painting or staining been done in the building in the last 6 months? *Yes / No*

If yes, when?_____and where? _____

Part VI – Metrological Conditions

Was there significant precipitation within 24 hours prior to (or during) the sampling event? *Yes / No*

Describe the general weather conditions:

_____

Part VII – General Observations

Provide any information that may be pertinent to the sampling event and may assist in the data interpretation process.

_____

_____

_____

_____

_____

_____

Appendix C

Memo

PIONEER TECHNOLOGIES CORPORATION
5205 Corporate Ctr. Ct. SE, Ste. A
Olympia, WA 98503-5901
Phone: 360.570.1700
Fax: 360.570.1777
www.uspioneer.com

To: File

From: PIONEER

Date: July 13, 2016

Subject: PIONEER Technologies Corporation Sample Number Schema

All:

The following sample number schema should be used on all PIONEER Technologies Corporation (PTC) projects:

MediaCode-SiteID-DateCode-TopDepth-BotDepth-(PTCTypeCode) – Be sure to use Dashes and Not Underscores

- Media Code = 2 Letter Code for Media Sampled At Location (see Table 1)
- Site ID = 1 to 10 Letter/Number Code for Site ID (with Dash between Site ID and Site ID # (e.g., MW-01)
- DateCode = 6 Number Code for Date (no slashes between monthdayyear)
- TopDepth = Optional but must have 1 decimal point max.
- BotDepth = Optional but must have 1 decimal point max.
- PTCSampTypeCode = Optional (see below)
    - (01) – For Field Duplicate/Replicate #1/Test Case #1
    - (02) – Replicate #2 or Test Case #2
    - (03) – Replicate #3 or Test Case #3
    - (04) – Replicate #4 or Test Case #4
    - (05) – Replicate #5 or Test Case #5
    - (06) – Replicate #6 or Test Case #6
    - (07) – Replicate #7 or Test Case #7
    - (08) – Replicate #8 or Test Case #8
    - (09) – Replicate #9 or Test Case #9
    - (10) – Leachate Sample
    - (20) – Dissolved Sample (i.e., filtered in the field or by the lab)

Note: PTCSampTypeCodes can be combined. For example, a PTCSampTypeCode of "(11)" indicates that the sample is a field duplicate of a leachate sample and a PTCSampTypeCode of "(21)" indicates that the sample is a field duplicate of a dissolved/filtered sample.

Examples:

- EF-EF-01-100112 – No Depth Interval
- EF-EF-01-100112-(01) – No Depth Interval & Field Duplicate Sample of EF-EF01-100112
- GW-MW-01-100112-10.5-20.5 – With Depth Intervals (10.5 to 20.5 feet)

- SO-SS-01-100112-0-0.5 – With Depth Intervals (0 to 0.5 feet)

Note: Examples of leachate and dissolved samples that require field duplicates or replicates:

- SO-SS-01-100112-0-0.5-(11) – Field Duplicate of Leachate sample with depth Intervals (0 to 0.5 feet).
- SO-SS-01-100112-0-0.5-(14) – Replicate #4 of Leachate sample with depth Intervals (0 to 0.5 feet).
- GW-MW-01-100112-10.5-20.5-(21) – Field Duplicate of Dissolved/Filtered groundwater sample with depth intervals (10.5 to 20.5 feet)
- GW-MW-01-100112-10.5-20.5-(23) – Replicate #3 Triplicate of Dissolved/Filtered groundwater sample with depth Intervals (10.5 to 20.5 feet).

Table 1 – PTC Media Codes for Sample Numbers

Media	Media Code for Sample Number	Description
Ambient Air	AA	Ambient Air
Asphalt	AS	Asphalt
Bituminous Coating	BC	Bituminous Coating
Brick	BR	Brick
Concrete	CO	Concrete
Dust	DT	Dust
Equipment Blank	EB	Equipment Blank
Effluent	EF	Effluent
Field Blank	FB	Field Blank
Field Spike	FS	Field Spike Sample
Groundwater	GW	Groundwater
Indoor Air	IA	Indoor Air
Influent	IN	Influent
Midpoint Between IN and EF	MD	Midpoint Between Influent and Effluent Samples
Other Liquid	OL	Non-specified Liquid
Other Solid	OS	Non-specified Solid
Performance Evaluation	PE	Performance Evaluation Sample
Perched Water	PP	Perched Water
Paint	PT	Paint, Paint Chips, Paint Flakes
Pore Water	PW	Sediment Pore Water
Sierra-Crete	SC	Sierra-Crete
Sediment	SD	Sediment
Stack Sample (Emissions)	SE	Stack Sample (Emissions)
Soil Gas	SG	Soil Gas, Soil Vapors, Sub-Slab Soil Gas
Sludge	SL	Sludge
Soil	SO	Soil
Seep Water	SP	Seep Water from Bank Samples
Surfacewater	SW	Surfacewater

Table 1 – PTC Media Codes for Sample Numbers		
Media	**Media Code for Sample Number**	**Description**
Trip Blank	TB	Trip Blank
Tap Water	TW	Tap Water, Drinking Water
Wood	WD	Wood Debris, Wood Waste
Waste Solid	WS	Investigation Derived Waste Solid
Waste Water	WW	Investigation Derived Waste Liquid
Treated Water	XW	Treated Water from Pilot Test, Treatability Study

Sincerely,



Chris Waldron

Appendix B

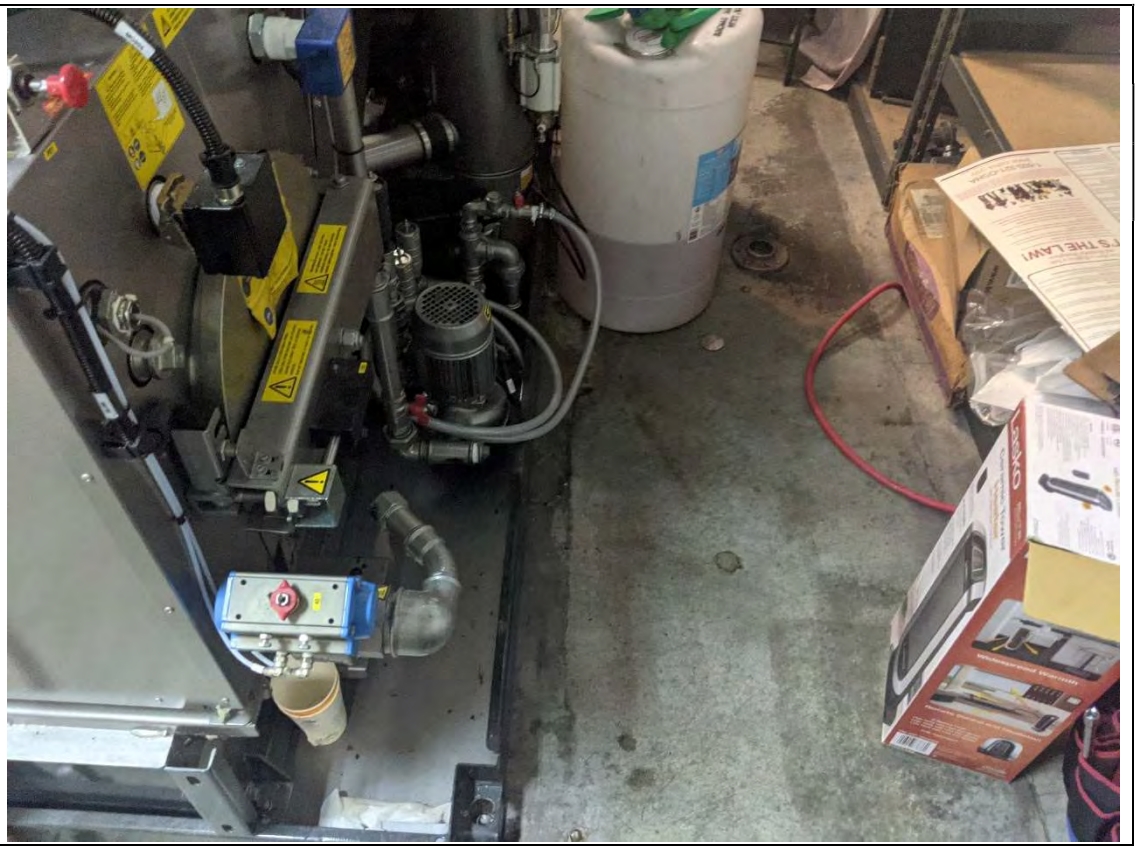
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Photo No. 31: Example jeweler chemicals and PID measurements #6 17

Photographic Log

Photo No. 1: PLC suite and topography	
Date: 8/5/2020	
Direction Photo Taken: Northeast	
Description: Western portion of Pine Lake Plaza building. Notice difference in elevation of PLC suite in the center of the photo and Plateau Jewelers suite on the right site of the photo.	

Photo No. 2: Northside of dry-cleaning machine	
Date: 2/22/21	
Location: PLC suite	
Description: N/A	

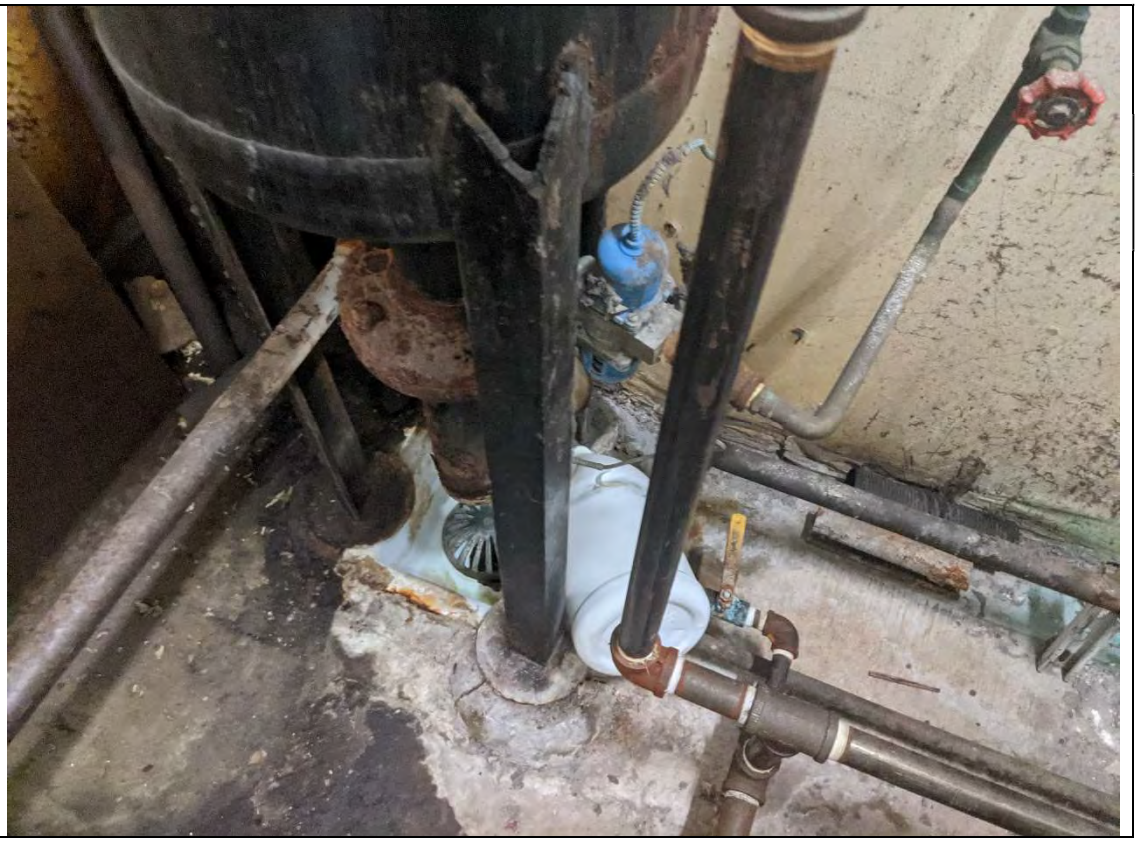
Photographic Log

Photo No. 3: Center of PLC suite **Date:** 2/22/21 **Location:** PLC suite **Description:** Spot cleaning area is in the center of the photo.	

Photo No. 4: Close-up of spot cleaning area **Date:** 1/22/20 **Location:** PLC suite **Description:** Chemicals in spot cleaning area were removed prior to sampling.	

Photographic Log

Photo No. 5: PLC boiler room **Date:** 1/20/21 **Location:** PLC suite **Description:** N/A	

Photo No. 6: Floor drain in PLC boiler room **Date:** 2/22/21 **Location:** PLC suite **Description:** N/A	

Photographic Log

Photo No. 7: Northwest portion of PLC **Date:** 1/20/21 **Location:** PLC suite **Description:** N/A	

Photo No. 8: Northeast portion of PLC **Date:** 1/20/21 **Location:** PLC suite **Description:** N/A	

Photographic Log

Photo No. 9: East portion of PLC **Date:** 1/20/21 **Location:** PLC suite **Description:** N/A	

Photo No. 10: Southeast portion of PLC **Date:** 1/20/21 **Location:** PLC suite **Description:** N/A	

Photographic Log

Photo No. 11: Southwest portion of PLC **Date:** 2/24/21 **Location:** PLC suite **Description:** N/A	

Photo No. 12: PLC bathroom **Date:** 2/24/21 **Location:** PLC suite **Description:** N/A	

Photographic Log

Photo No. 13: Example PLC chemicals #1	
Date: 2/22/21	
Location: PLC suite	
Description: Chemicals in spot cleaning area. These chemicals were removed prior to sampling.	

Photo No. 14: Example PLC chemicals #2	
Date: 2/22/21	
Location: PLC suite	
Description: Example solvents in spot cleaning area. These chemicals were removed prior to sampling. Picrin safety data sheet indicates product contains greater than 75% TCE.	

Photographic Log

Photo No. 15: Example PLC chemicals #3	
Date: 2/22/21	
Location: PLC suite	
Description: Hydrocarbon-based cleaning solution used in dry-cleaning machine (Pinnacle by Streets).	

Photo No. 16: Example PLC chemicals #4	
Date: 2/22/21	
Location: PLC suite	
Description: Example solvent in PLC suite. This chemical was removed prior to sampling.	

Photographic Log

Photo No. 17: Example PLC PID measurement #1	
Date: 2/24/21	
Location: PLC suite	
Description: PID measurement of 2.0 parts per million (ppm) on northern side of dry-cleaning machine.	

Photo No. 18: Example PLC PID measurement #2	
Date: 2/24/21	
Location: PLC suite	
Description: PID measurement of 1.2 ppm in PLC boiler room.	

Photographic Log

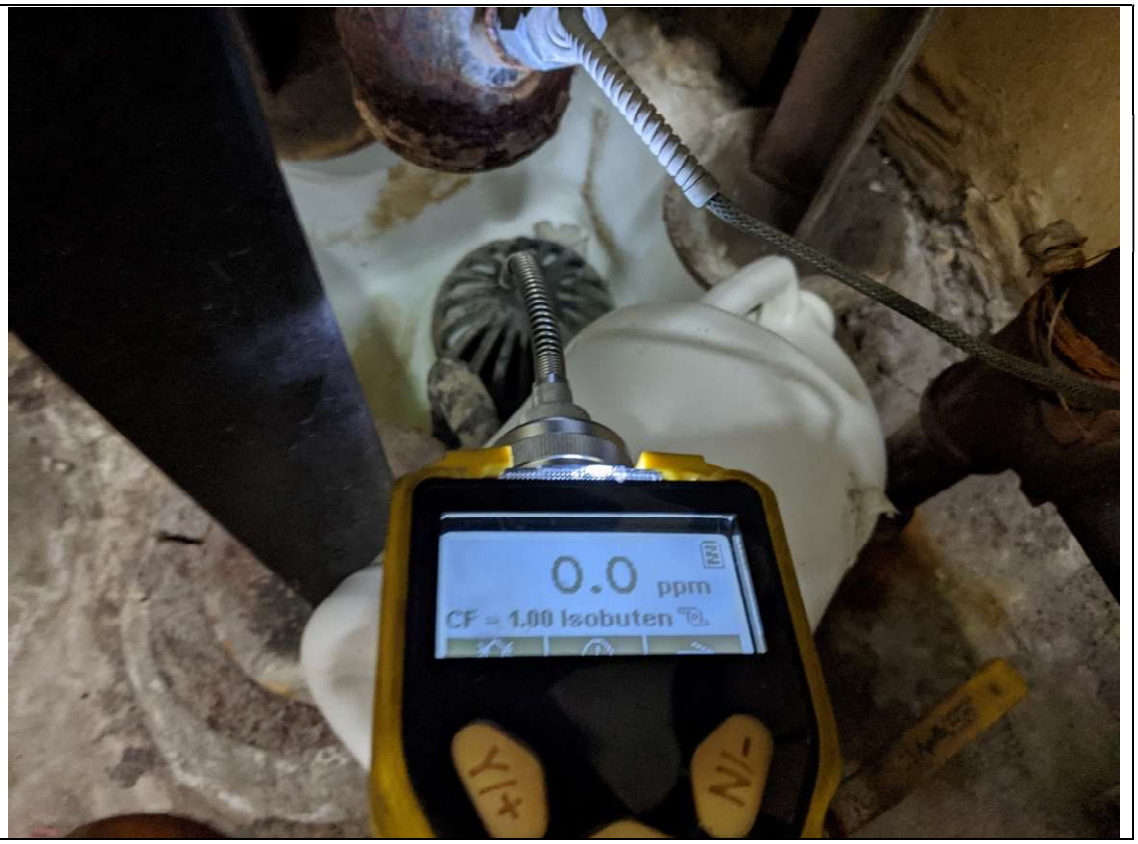
Photo No. 19: Example PLC PID measurement #3	
Date: 2/24/21	
Location: PLC suite	
Description: PID measurement of 0.0 ppm at floor drain in PLC boiler room.	

Photo No. 20: Example PLC PID measurement #4	
Date: 2/24/21	
Location: PLC suite	
Description: PID measurement of 2.0 ppm in PLC bathroom.	

Photographic Log

Photo No. 21: Sample locations IA-01 and SV-17 **Date:** 1/20/21 **Location:** PLC suite **Description:** N/A	

Photo No. 22: Sample locations IA-02 and SV-18 **Date:** 1/20/21 **Location:** PLC suite **Description:** N/A	

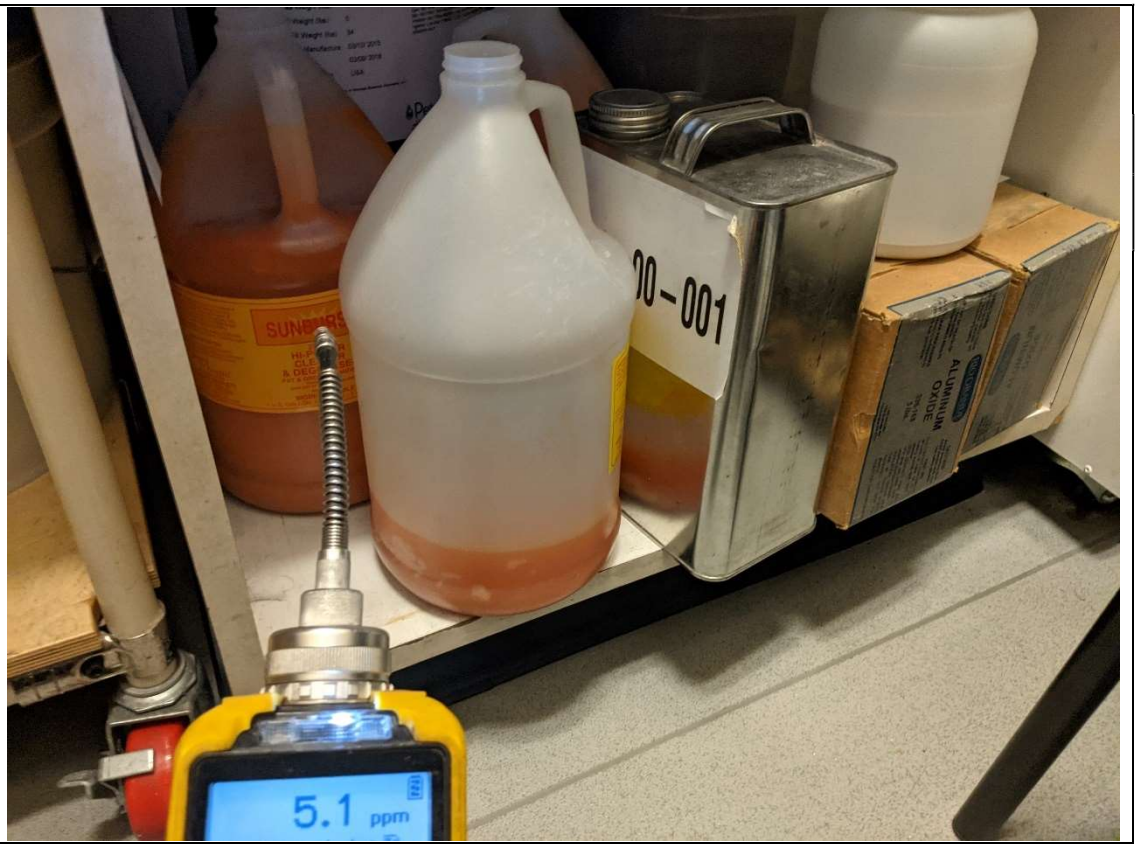
Photographic Log

Photo No. 23: Example of jeweler's shop #1 **Date:** 2/24/21 **Location:** Plateau Jewelers suite **Description:** N/A	

Photo No. 24: Example of jeweler's shop #2 **Date:** 2/24/21 **Location:** Plateau Jewelers suite **Description:** N/A	

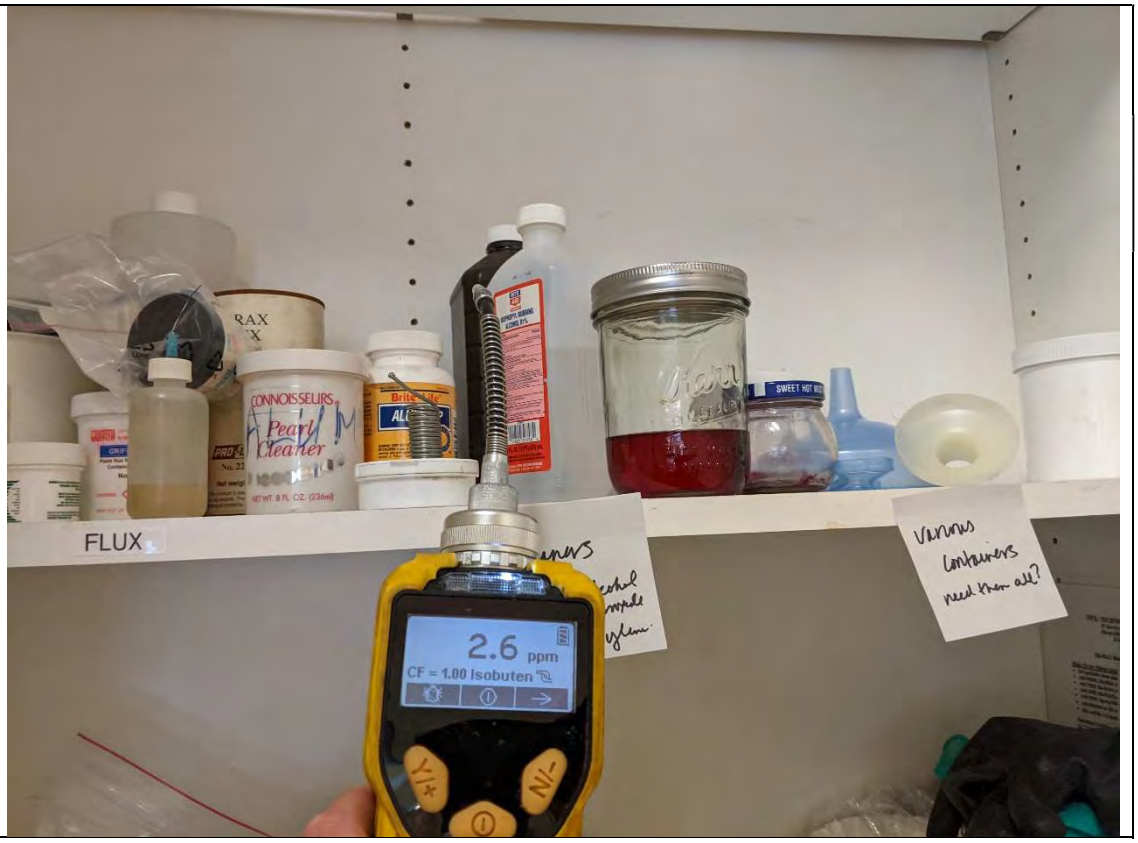
Photographic Log

Photo No. 25: Example of jeweler's shop #3	
Date: 1/20/21	
Location: Plateau Jewelers suite	
Description: N/A	

Photo No. 26: Example jeweler chemicals and PID measurements #1	
Date: 2/24/21	
Location: Plateau Jewelers suite	
Description: PID measurement of 5.1 ppm in chemical storage area within jeweler's shop. These chemicals were not removed prior to sampling.	

Photographic Log

Photo No. 27: Example jeweler chemicals and PID measurements #2	
Date: 2/24/21	
Location: Plateau Jewelers suite	
Description: PID measurement of 31.0 ppm in chemical storage area within jeweler's shop. These chemicals were not removed prior to sampling.	

Photo No. 28: Example jeweler chemicals and PID measurements #3	
Date: 2/24/21	
Location: Plateau Jewelers suite	
Description: PID measurement of 2.6 ppm in chemical storage area within jeweler's shop. These chemicals were not removed prior to sampling.	

Photographic Log

Photo No. 29: Example jeweler chemicals and PID measurements #4	
Date: 2/24/21	
Location: Plateau Jewelers suite	
Description: PID measurement of 24.8 ppm in chemical storage area within jeweler's shop. These chemicals were not removed prior to sampling.	

Photo No. 30: Example jeweler chemicals and PID measurements #5	
Date: 2/24/21	
Location: Plateau Jewelers suite	
Description: PID measurement of 9.0 ppm in chemical storage area within jeweler's shop. These chemicals were not removed prior to sampling.	

Photographic Log

Photo No. 31: Example jeweler chemicals and PID measurements #6	
Date: 2/24/21	
Location: Plateau Jewelers suite	
Description: PID measurement of 5.5 ppm in chemical storage area within jeweler's shop. These chemicals were not removed prior to sampling.	

PIONEER TECHNOLOGIES CORPORATION (PTC)
FIELD CHECKLIST

Project/Task Name: Pine Lake Cleaners- UEP Site Location: 2830 228th Ave SE A, Sammamish, WA 98075

Requested By / Date: UEP on 8/2/2020 Work Deadline: Fiwld Work 08/05/2020

SERVICES REQUESTED	COMPLETED
Support UEP with conducing sub-slab and indoor air sampling per WP that PIONEER developed	☒ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO

ADDITIONAL STANDARD INSTRUCTIONS	COMPLETED		COMPLETED
☐ Review Docs:	☐ YES ☐ NO	☐ Health & Safety Meeting	☐ YES ☐ NO
☐ Agency NOI / Utility Locate / Concrete Coring	☐ YES ☐ NO	☐ Call PM from Site	☐ YES ☐ NO
☐ Coordinate Access:	☐ YES ☐ NO	☒ Draw Site Map	☒ YES ☐ NO
☐ Coordinate Sub / Equip:	☐ YES ☐ NO	☐ Cuttings / Purge Water Characterization & Disposal	
☐ Purchase / Rent Equip:	☐ YES ☐ NO	☐ Potential HW	☐ YES ☐ NO
☐ Client/Agency Coordination:	☐ YES ☐ NO	☐ Non-Haz	☐ YES ☐ NO
☐ Calibrate Equipment:	☐ YES ☐ NO	☐ Background	☐ YES ☐ NO

SAMPLING REQUIREMENTS

☐ Field Testing:

☒ Lab Testing: UEP coordinating with lab Friedman and Bruya Laboratory:

☐ Lab Testing: Laboratory:

☐ Lab Testing: Laboratory:

FIELD SUPPLIES NEEDED

☒ Site Map ☒ Camera ☐ Survey Equip / GPS ☒ Vehicle

☐ Std Field Equip (keys, forms, SAP, HASP, PPE, decon, tools)

☐ Drilling Equip (PID, references, knife, baggies, tape)

☐ Soil Equip (SS bowls, spoon/shovel, hand auger, pick, sieves)

☐ GWM (pump, tubing, gen., compres., bailers, rope/string, PDB)

☐ Pump / Slug Test Equip (GWM Equip, slug, stopwatch)

☐ Water Level Indicator / Interface Probe

☐ Water Quality Meter ☐ Field Test Kits

☐ Sample Kit / Cooler / COC / Ice

☐ IDW: ☐ Drums ☐ 5-gal buckets

☒ Other: Vapor pin installation and sampling equipment

☐ Other:

PIONEER TECHNOLOGIES CORPORATION (PTC)
DAILY FIELD REPORT

Date: 8/5/2020 Site Location: Pine Lake Cleaners Site Arrival Time: 0630 Site Departure Time : 1130

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	Rain	Snow
To 32	32-50	50-70	70-85	85 Up
Calm	Med.	Strong	Severe	

PEOPLE PRESENT ON-SITE

NAME	ASSOCIATION	TIME ON-SITE AND OFF-SITE
Nathan Starr	PIONEER	0630-1130
Mathew Grunwald	UEP	0700-??? (NS left site prior
PLC and Jewlers employees and customers were not monitored		

NOTES ON WORK COMPLETED

UEP asked for PIONEER to support UEP in the pre-sample walk through hand sampling, but were the sampling lead.

PIONNER completed the field checklist and set up all of the sample locations on 8/5.

UEP had a sub clear the soil vapor locations and drill the vapor pin holes and installed the vapor pins on 8/4.

UEP collected the samples at the end of the day and recovered the vapor pins and filled the vapor pin holes with a removable epoxy for the winter sampling event.

SIGNATURE:  DATE: 8/5/2020

Indoor Air Sampling - Building Survey Checklist

Preparer's Name: Nathan Starr Date: 8/3/20 and 8/5/20

Site Name: Pine Lake Cleaners

PTC Project # 001075.000101.00101.0101

Site Address: 2830 228th Ave SE A, Sammamish, WA 98075

Part I – Occupants

Address: (Lot # or apt. #)	Name (Age)	Sex (M/F)	Occupation	Years in Bldg.	Hours per Week in Bldg.
PLC and Jewlers employees and customers were not monitored					

Part II - Building Characteristics

Building type: residential / multi-family residential / office / strip mall / commercial / industrial /other

Describe building: Single story with slab on grade Year constructed: 1990 - vintag

Sensitive population: day care / nursing home / hospital / school / other (specify): N/A

Number of floors at or above grade: 1

Number of floors below grade: N/A (full basement / crawl space / slab on grade)

Depth of basement below grade surface: N/A ft.

Basement size: N/A ft^2

Basement floor construction: concrete / dirt / slab / stone / other (specify): N/A

Foundation walls: poured concrete / cinder blocks / stone / other (specify): N/A

~~Basement sump present? Yes / No Sump pump? Yes / No Water in sump? Yes / No~~

~~Significant cracks present in basement floor? Yes / No~~

~~Significant cracks present in basement walls? Yes / No~~

~~Are the basement walls or floor sealed with waterproof paint or epoxy coatings? *Yes / No*~~

Is there a whole building fan or HVAC system? Yes / No

Septic system? Yes / Yes (but not used) / No

Irrigation / private well? Yes / Yes (but not used) / No

Type of ground cover outside of building: grass / concrete / asphalt / other (specify)

Sub-slab vapor / moisture barrier in place? Yes / No / Don't know

If yes type of barrier: _____

Type of heating system (circle all that apply)

hot air circulation hot air radiation wood steam

radiation heat pump hot water radiation kerosene heater

electric baseboard HVAC other (specify): _____

Hot air radiation in PLC; HVAC in Jewelers

Type of ventilation system (circle all that apply):

central air conditioning mechanical fans bathroom ventilation fans

kitchen range hood fan outside air intake individual air conditioning

other (specify): _____

Mechanical fans and open windows in PLC; HVAC in Jewelers

Type of fuel utilized (circle all that apply):

Natural gas Electric Fuel Oil Wood Coal Solar

Kerosene other (specify): _____

Part III – Outside Contaminant Sources

Contaminated Site within 100-ft of building surveyed? None

If yes: Site Name:_____ Site Number: _____

Other stationary sources nearby (gas stations, emissions stacks, etc.): _____

Heavy vehicular traffic nearby (or other mobile sources): _____

Part IV – Indoor Contaminant Sources

Identify all potential indoor sources found in the building (including attached garages), the location of the source (floor & room), and whether the item was removed from the building 48 hours prior to the indoor sampling event. Any ventilation implemented after removal of the items should be completed at 24 hours prior to the start of the indoor air sampling event.

See attached sheet

Potential Sources	**Location(s)**	**Removed** (Yes / No / NA)
Gasoline storage can		
Gas-powered Equipment (mowers, etc)		
Kerosene storage cans		
Paints / thinners / strippers		
Cleaning solvents		
Oven Cleaners		
Carpet / upholstery cleaners		
Other house cleaning Products		
Moth balls		
Polishes / waxes		
Insecticides		
Furniture / floor remover		
Hairspray		
Cologne / perfume		
Air Fresheners		
Fuel tank (inside building)		
Wood stove or fireplace		
New Furniture / upholstery		
New Carpeting / flooring		
Hobbies – glues, paints, lacquers, photographic darkroom chemicals, etc.		
Scented trees, wreaths, potpourri, etc.		
Other (specify):		
Other (specify):		
Other (specify):		
Other (specify):		

Substance Observed	Unit	Removed prior to sampling
streepro cleaner 16 oz	PLC	Yes
Seitz Blutol cleaner 16 oz	PLC	Yes
Seitz Cavesol cleaner 16 oz	PLC	Yes
Seitz Colorsol cleaner 16 oz	PLC	Yes
Seitz Frankosol cleaner 16 oz	PLC	Yes
KTEX 2014 cleaner 16 oz	PLC	Yes
Lacol cleaner 16 oz	PLC	Yes
Purasol cleaner 16 oz	PLC	Yes
Seitz Quickol cleaner 16 oz	PLC	Yes
Hydrospot cleaner 16 oz	PLC	Yes
Glass cleaner aerosol can	PLC	Yes
Maxx Spray (5 kg)	PLC	Yes
Slick Rail Cleaner & Wax less than 1 gal	PLC	Yes
SPOTLess cleaner	PLC	Yes
Niagara starch spray aerosol can	PLC	No
Pyrate 16 oz	PLC	Yes
Picrin 16 oz	PLC	Yes
RustGo Cleaner 16 oz	PLC	Yes
Click Rail Cleaner and Wax 32 oz	PLC	Yes
Paint thinner less than 1 gal	PLC	Yes
Contact/Control cleaner and Lubricant spray bottle	PLC	Yes
Aqua Ammonia 28% 1 gal	PLC	Yes
Fresh hydrocarbon cleaner (PINNACLE) one 10 gallon drum	PLC	No
one 15 gallon DOT drum and one 15 gallon poly drum, which were previously used to hold spent PCE were observed in the boiler room	PLC	Yes
Steam Dragon 1 gallon	PLC	No
Air Compressor Oil 1 gallon	PLC	No
Viva Care 1 gallon	PLC	No
Spray and Go enamel 2 spray cans	PLC	Yes
Glass cleaner aerosol can	PLC	Yes
Engine Degreaser Gunk aerosol can	PLC	Yes
1000F HiTemp Spray Paint	PLC	Yes
Motor Oil 1 qtr.	PLC	Yes
Hydraulic Jack Oil 1 qtr.	PLC	Yes
2 gallon gas can with gas	PLC	Yes
1 gallon paint can	PLC	Yes
Restroom cleaners	PLC	No
Permatex All Purpose Spray Adhesive 10.5 oz	J	No
Poly Chem AcraStrip 600 B/G 1 gallon	J	No
BIOACT VSO 0.5 gallon and 2 gallon	J	No
SUNBURST HI Power Cleaner and Degreaser four 1 gallon	J	No
Silver electroplating solution 1 qtr.	J	No
Pure copper platting solution 3 qtr.	J	No
Black Rhodium Plating Solution 1 qtr.	J	No

Substance Observed	Unit	Removed prior to sampling
Rhodium plating solution 1 qtr.	J	No
Super Sunsheen Burnining Compound 2 qtr.	J	No
Bright Nickel Plating Solution 1 qtr.	J	No
WAXOLVENT less than 12 oz	J	No
MIDAS Black Max 4 oz	J	No
MIDAS 14K Bright Aci Gold Plating Solution 1 qtr.	J	No
Boric Acid 16 oz	J	No
Isopropanol Alcohol 16 oz	J	No
Acetone 2 gallon	J	Yes
Denatured Alcohol 1 gallon	J	No
Graphite Dry Lubricant aerosol spray	J	No
Vacuum Pump Oil 32 oz	J	No
Compressor Oil 16 oz	J	No
Easy Off Oven Cleaner aerosol spray	J	No
Argon compressed gas cylinder	J	No
Goof Off aerosol spray	J	No

Part V – Miscellaneous Items

Do any occupants of the building smoke? *Yes / No* How often?_____.

If yes, when was the last time someone smoked in the building?_____hours / days ago

Does the building have an attached garage directly connected to living space? *Yes / No*

If so, is a car usually parked in the garage? *Yes / No*

Are gas-powered equipment or cans of gasoline / fuels stored in the garage? *Yes / No*

Do the occupants of the building have their clothes dry cleaned which are stored in the building (generally residential)? *Yes / No* If yes, how often? Weekly / monthly / 3-4 times a year

When was the last dry-cleaned garment was stored in the building? PLC is active dry cleaners; non-PCE

Do any of the occupants use solvents in work? *Yes / No*

If yes, what types of solvents are used? See attached list

If yes, are their clothes washed at work? *Yes / No* PLC

Have any pesticides / herbicides been applied around the building or in the yard? *Yes / No*

If so, when and which chemicals? _____

Has there ever been a fire in the building? *Yes / No* If yes, when? _____

Has painting or staining been done in the building in the last 6 months? *Yes / No*

If yes, when?_____and where? _____

Part VI – Metrological Conditions

Was there significant precipitation within 24 hours prior to (or during) the sampling event? *Yes / No*

Describe the general weather conditions:

sunny 70-85 calm wind

Part VII – General Observations

Provide any information that may be pertinent to the sampling event and may assist in the data interpretation process.

one 15-gallon DOT drum and one 15-gallon poly drum, which were previously used to hold spent PCE were observed in the boiler room. The drums were open and had residue on their bottoms and sides. Roy and I helped the owner move the drums to the walkway on the backside of the building and suggested he dispose of the drums.

PIONEER TECHNOLOGIES CORPORATION (PTC)
FIELD CHECKLIST

Project/Task Name: Pine Lake Cleaners- UEP Site Location: 2830 228th Ave SE A, Sammamish, WA 98075

Requested By / Date: UEP on 1/20/2021 Work Deadline: Field Work 01/20/2021

SERVICES REQUESTED	COMPLETED
Support UEP with conducing sub-slab and indoor air sampling per WP that PIONEER developed	☒ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO

ADDITIONAL STANDARD INSTRUCTIONS	COMPLETED		COMPLETED
☐ Review Docs:	☐ YES ☐ NO	☐ Health & Safety Meeting	☐ YES ☐ NO
☐ Agency NOI / Utility Locate / Concrete Coring	☐ YES ☐ NO	☐ Call PM from Site	☐ YES ☐ NO
☐ Coordinate Access:	☐ YES ☐ NO	☒ Draw Site Map	☒ YES ☐ NO
☐ Coordinate Sub / Equip:	☐ YES ☐ NO	☐ Cuttings / Purge Water Characterization & Disposal	
☐ Purchase / Rent Equip:	☐ YES ☐ NO	☐ Potential HW	☐ YES ☐ NO
☐ Client/Agency Coordination:	☐ YES ☐ NO	☐ Non-Haz	☐ YES ☐ NO
☐ Calibrate Equipment:	☐ YES ☐ NO	☐ Background	☐ YES ☐ NO

SAMPLING REQUIREMENTS

☐ Field Testing:

☒ Lab Testing: UEP coordinating with lab Friedman and Bruya Laboratory:

☐ Lab Testing: Laboratory:

☐ Lab Testing: Laboratory:

FIELD SUPPLIES NEEDED

☒ Site Map ☒ Camera ☐ Survey Equip / GPS ☒ Vehicle

☐ Std Field Equip (keys, forms, SAP, HASP, PPE, decon, tools)

☐ Drilling Equip (PID, references, knife, baggies, tape)

☐ Soil Equip (SS bowls, spoon/shovel, hand auger, pick, sieves)

☐ GWM (pump, tubing, gen., compres., bailers, rope/string, PDB)

☐ Pump / Slug Test Equip (GWM Equip, slug, stopwatch)

☐ Water Level Indicator / Interface Probe

☐ Water Quality Meter ☐ Field Test Kits

☐ Sample Kit / Cooler / COC / Ice

☐ IDW: ☐ Drums ☐ 5-gal buckets

☒ Other: Vapor pin installation and sampling equipment

☐ Other:

PIONEER TECHNOLOGIES CORPORATION (PTC)
DAILY FIELD REPORT

Date: 1/20/2021 Site Location: Pine Lake Cleaners Site Arrival Time: 0730 Site Departure Time : 1020

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	Rain	Snow
To 32	32-50	50-70	70-85	85 Up
Calm	Med.	Strong	Severe	

PEOPLE PRESENT ON-SITE

NAME	ASSOCIATION	TIME ON-SITE AND OFF-SITE
Nathan Starr	PIONEER	0720-1020
Mathew Grunwald	UEP	0700-??? (NS left site prior
PLC and Jewlers employees and customers were not monitored		

NOTES ON WORK COMPLETED

UEP asked for PIONEER to support UEP in the pre-sample walk through hand sampling, but were the sampling lead.

PIONNER completed the field checklist and set up all of the sample locations and vapor pins on 1/6.

UEP had a sub clear the soil vapor locations and drill the vapor pin holes on 8/4/20. UEP drilled hole for SV-21 on 1/6/21.

UEP collected the samples at the end of the day and recovered the vapor pins and filled the vapor pin holes with quick-crete or similar.

SIGNATURE: _____ DATE: 1/20/2021

Indoor Air Sampling - Building Survey Checklist

Preparer's Name: Nathan Starr Date: 1/20/21

Site Name: Pine Lake Cleaners

PTC Project # 001075.000101.00101.0101

Site Address: 2830 228th Ave SE A, Sammamish, WA 98075

Part I – Occupants

Address: (Lot # or apt. #)	Name (Age)	Sex (M/F)	Occupation	Years in Bldg.	Hours per Week in Bldg.
PLC and Jewlers employees and customers were not monitored					

Part II - Building Characteristics

Building type: residential / multi-family residential / office / strip mall / commercial / industrial /other

Describe building: Single story with slab on grade Year constructed: 1990 - vintage

Sensitive population: day care / nursing home / hospital / school / other (specify): N/A

Number of floors at or above grade: 1

Number of floors below grade: N/A (full basement / crawl space / slab on grade)

Depth of basement below grade surface: N/A ft.

Basement size: N/A ft^2

Basement floor construction: concrete / dirt / slab / stone / other (specify): N/A

Foundation walls: poured concrete / cinder blocks / stone / other (specify): N/A

~~Basement sump present? Yes / No Sump pump? Yes / No Water in sump? Yes / No~~

~~Significant cracks present in basement floor? Yes / No~~

~~Significant cracks present in basement walls? Yes / No~~

~~Are the basement walls or floor sealed with waterproof paint or epoxy coatings? *Yes / No*~~

Is there a whole building fan or HVAC system? Yes / No

Septic system? Yes / Yes (but not used) / No

Irrigation / private well? Yes / Yes (but not used) / No

Type of ground cover outside of building: grass / concrete / asphalt / other (specify)

Sub-slab vapor / moisture barrier in place? Yes / No / Don't know

If yes type of barrier: _____

Type of heating system (circle all that apply)

hot air circulation hot air radiation wood steam

radiation heat pump hot water radiation kerosene heater

electric baseboard HVAC other (specify): _____

Hot air radiation in PLC; HVAC in Jewelers
Heaters were on during sampling event

Type of ventilation system (circle all that apply):

central air conditioning mechanical fans bathroom ventilation fans

kitchen range hood fan outside air intake individual air conditioning

other (specify): _____

Mechanical fans and open windows in PLC; HVAC in Jewelers
Windows and doors remained closed during sampling event

Type of fuel utilized (circle all that apply):

Natural gas Electric Fuel Oil Wood Coal Solar

Kerosene other (specify): _____

Part III – Outside Contaminant Sources

Contaminated Site within 100-ft of building surveyed? None

If yes: Site Name:_____ Site Number: _____

Other stationary sources nearby (gas stations, emissions stacks, etc.): _____

Heavy vehicular traffic nearby (or other mobile sources): _____

Part IV – Indoor Contaminant Sources

Identify all potential indoor sources found in the building (including attached garages), the location of the source (floor & room), and whether the item was removed from the building 48 hours prior to the indoor sampling event. Any ventilation implemented after removal of the items should be completed at 24 hours prior to the start of the indoor air sampling event.

See attached sheet

Potential Sources	**Location(s)**	**Removed** (Yes / No / NA)
Gasoline storage can		
Gas-powered Equipment (mowers, etc)		
Kerosene storage cans		
Paints / thinners / strippers		
Cleaning solvents		
Oven Cleaners		
Carpet / upholstery cleaners		
Other house cleaning Products		
Moth balls		
Polishes / waxes		
Insecticides		
Furniture / floor remover		
Hairspray		
Cologne / perfume		
Air Fresheners		
Fuel tank (inside building)		
Wood stove or fireplace		
New Furniture / upholstery		
New Carpeting / flooring		
Hobbies – glues, paints, lacquers, photographic darkroom chemicals, etc.		
Scented trees, wreaths, potpourri, etc.		
Other (specify):		
Other (specify):		
Other (specify):		
Other (specify):		

Substance Observed	Unit	Removed prior to sampling
streepro cleaner 16 oz	PLC	Yes
Seitz Blutol cleaner 16 oz	PLC	Yes
Seitz Cavesol cleaner 16 oz	PLC	Yes
Seitz Colorsol cleaner 16 oz	PLC	Yes
Seitz Frankosol cleaner 16 oz	PLC	Yes
KTEX 2014 cleaner 16 oz	PLC	Yes
Lacol cleaner 16 oz	PLC	Yes
Purasol cleaner 16 oz	PLC	Yes
Seitz Quickol cleaner 16 oz	PLC	Yes
Hydrospot cleaner 16 oz	PLC	Yes
Glass cleaner aerosol can	PLC	Yes
Maxx Spray (5 kg)	PLC	Yes
Slick Rail Cleaner & Wax less than 1 gal	PLC	Yes
SPOTLess cleaner	PLC	Yes
Niagara starch spray aerosol can	PLC	No
Pyrate 16 oz	PLC	Yes
Picrin 16 oz	PLC	Yes
RustGo Cleaner 16 oz	PLC	Yes
Click Rail Cleaner and Wax 32 oz	PLC	Yes
Paint thinner less than 1 gal	PLC	Yes
Contact/Control cleaner and Lubricant spray bottle	PLC	Yes
Aqua Ammonia 28% 1 gal	PLC	Yes
Fresh hydrocarbon cleaner (PINNACLE) one 10 gallon drum	PLC	No
Steam Dragon 1 gallon	PLC	No
Air Compressor Oil 1 gallon	PLC	No
Viva Care 1 gallon	PLC	No
Restroom cleaners	PLC	No
Permatex All Purpose Spray Adhesive 10.5 oz	J	No
Poly Chem AcraStrip 600 B/G 1 gallon	J	No
BIOACT VSO 0.5 gallon and 2 gallon	J	No
SUNBURST HI Power Cleaner and Degreaser four 1 gallon	J	No
Silver electroplating solution 1 qtr.	J	No
Pure copper platting solution 3 qtr.	J	No
Black Rhodium Plating Solution 1 qtr.	J	No
Rhodium plating solution 1 qtr.	J	No
Super Sunsheen Burnining Compound 2 qtr.	J	No
Bright Nickel Plating Solution 1 qtr.	J	No
WAXOLVENT less than 12 oz	J	No
MIDAS Black Max 4 oz	J	No
MIDAS 14K Bright Aci Gold Plating Solution 1 qtr.	J	No
Boric Acid 16 oz	J	No
Isopropanol Alcohol 16 oz	J	No
Acetone 2 gallon	J	Yes
Denatured Alcohol 1 gallon	J	No
Graphite Dry Lubricant aerosol spray	J	No

Substance Observed	Unit	Removed prior to sampling
Vacuum Pump Oil 32 oz	J	No
Compressor Oil 16 oz	J	No
Easy Off Oven Cleaner aerosol spray	J	No
Argon compressed gas cylinder	J	No
Goof Off aerosol spray	J	No

Part V – Miscellaneous Items

Do any occupants of the building smoke? *Yes / No* How often?_____.

If yes, when was the last time someone smoked in the building?_____hours / days ago

Does the building have an attached garage directly connected to living space? *Yes / No*

If so, is a car usually parked in the garage? *Yes / No*

Are gas-powered equipment or cans of gasoline / fuels stored in the garage? *Yes / No*

Do the occupants of the building have their clothes dry cleaned which are stored in the building (generally residential)? *Yes / No* If yes, how often? Weekly / monthly / 3-4 times a year

When was the last dry-cleaned garment was stored in the building? PLC is active dry cleaners; non-PCE

Do any of the occupants use solvents in work? *Yes / No*

If yes, what types of solvents are used? See attached list

If yes, are their clothes washed at work? *Yes / No* PLC

Have any pesticides / herbicides been applied around the building or in the yard? *Yes / No*

If so, when and which chemicals? _____

Has there ever been a fire in the building? *Yes / No* If yes, when? _____

Has painting or staining been done in the building in the last 6 months? *Yes / No*

If yes, when?_____and where? _____

Part VI – Metrological Conditions

Was there significant precipitation within 24 hours prior to (or during) the sampling event? *Yes / No*

Describe the general weather conditions:

Clear skies with 0-5 mph wind 40 degrees

Part VII – General Observations

Provide any information that may be pertinent to the sampling event and may assist in the data interpretation process.

PIONEER TECHNOLOGIES CORPORATION (PTC)
FIELD CHECKLIST

Project/Task Name: Pine Lake Cleaners- UEP Site Location: 2830 228th Ave SE A, Sammamish, WA 98075

Requested By / Date: UEP on 2/24/2021 Work Deadline: Field Work 2/24/2021

SERVICES REQUESTED	COMPLETED
Conducing sub-slab and indoor air sampling per WP that PIONEER	☒ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO
	☐ YES ☐ NO

ADDITIONAL STANDARD INSTRUCTIONS	COMPLETED		COMPLETED
☐ Review Docs:	☐ YES ☐ NO	☐ Health & Safety Meeting	☐ YES ☐ NO
☐ Agency NOI / Utility Locate / Concrete Coring	☐ YES ☐ NO	☐ Call PM from Site	☐ YES ☐ NO
☐ Coordinate Access:	☐ YES ☐ NO	☒ Draw Site Map	☒ YES ☐ NO
☐ Coordinate Sub / Equip:	☐ YES ☐ NO	☐ Cuttings / Purge Water Characterization & Disposal	
☐ Purchase / Rent Equip:	☐ YES ☐ NO	☐ Potential HW	☐ YES ☐ NO
☐ Client/Agency Coordination:	☐ YES ☐ NO	☐ Non-Haz	☐ YES ☐ NO
☐ Calibrate Equipment:	☐ YES ☐ NO	☐ Background	☐ YES ☐ NO

SAMPLING REQUIREMENTS

☐ Field Testing:

☒ Lab Testing: Coordinated with lab Friedman and Bruya Laboratory:

☐ Lab Testing: Laboratory:

☐ Lab Testing: Laboratory:

FIELD SUPPLIES NEEDED

☒ Site Map ☒ Camera ☐ Survey Equip / GPS ☒ Vehicle

☐ Std Field Equip (keys, forms, SAP, HASP, PPE, decon, tools)

☐ Drilling Equip (PID, references, knife, baggies, tape)

☐ Soil Equip (SS bowls, spoon/shovel, hand auger, pick, sieves)

☐ GWM (pump, tubing, gen., compres., bailers, rope/string, PDB)

☐ Pump / Slug Test Equip (GWM Equip, slug, stopwatch)

☐ Water Level Indicator / Interface Probe

☐ Water Quality Meter ☐ Field Test Kits

☐ Sample Kit / Cooler / COC / Ice

☐ IDW: ☐ Drums ☐ 5-gal buckets

☒ Other: Vapor pin installation and sampling equipment

☒ Other: PID

PIONEER TECHNOLOGIES CORPORATION (PTC)
DAILY FIELD REPORT

Date: 2/24/2021 Site Location: Pine Lake Cleaners Site Arrival Time: 0645 Site Departure Time : 1800

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	Rain	Snow
To 32	32-50	50-70	70-85	85 Up
Calm	Med.	Strong	Severe	

PEOPLE PRESENT ON-SITE

NAME	ASSOCIATION	TIME ON-SITE AND OFF-SITE
Nathan Starr	PIONEER	0640-1020
PLC and Jewlers employees and customers were not monitored		

NOTES ON WORK COMPLETED

PIONEER completed the field checklist and set up all of the sample locations and vapor pins on 2/22, with the exception of SV-21 which was set-up on 2/24.

UEP had a sub clear the soil vapor locations and drill the vapor pin holes on 8/4/20. UEP drilled hole for SV-21 on 1/6/21.

PIONEER conducted all sampling per WP on 2/24.

Operator of PLC stated that spot cleaning has taken place on the small ironing board located 4-feet west of SV-17 for 20+ years.

SIGNATURE:  DATE: 2/24/2021

Indoor Air Sampling - Building Survey Checklist

Preparer's Name: Nathan Starr Date: 2/24/21

Site Name: Pine Lake Cleaners

PTC Project # 001075.000101.00101.0101

Site Address: 2830 228th Ave SE A, Sammamish, WA 98075

Part I – Occupants

Address: (Lot # or apt. #)	Name (Age)	Sex (M/F)	Occupation	Years in Bldg.	Hours per Week in Bldg.
PLC and Jewlers employees and customers were not monitored					

Part II - Building Characteristics

Building type: residential / multi-family residential / office / strip mall / commercial / industrial /other

Describe building: Single story with slab on grade Year constructed: 1990 - vintage

Sensitive population: day care / nursing home / hospital / school / other (specify): N/A

Number of floors at or above grade: 1

Number of floors below grade: N/A (full basement / crawl space / slab on grade)

Depth of basement below grade surface: N/A ft.

Basement size: N/A ft^2

Basement floor construction: concrete / dirt / slab / stone / other (specify): N/A

Foundation walls: poured concrete / cinder blocks / stone / other (specify): N/A

~~Basement sump present? Yes / No Sump pump? Yes / No Water in sump? Yes / No~~

~~Significant cracks present in basement floor? Yes / No~~

~~Significant cracks present in basement walls? Yes / No~~

~~Are the basement walls or floor sealed with waterproof paint or epoxy coatings? *Yes / No*~~

Is there a whole building fan or HVAC system? Yes / No

Septic system? Yes / Yes (but not used) / No

Irrigation / private well? Yes / Yes (but not used) / No

Type of ground cover outside of building: grass / concrete / asphalt / other (specify)

Sub-slab vapor / moisture barrier in place? Yes / No / Don't know

If yes type of barrier: _____

Type of heating system (circle all that apply)

hot air circulation hot air radiation wood steam

radiation heat pump hot water radiation kerosene heater

electric baseboard HVAC other (specify): _____

Hot air radiation in PLC; HVAC in Jewelers
Heaters were on during sampling event

Type of ventilation system (circle all that apply):

central air conditioning mechanical fans bathroom ventilation fans

kitchen range hood fan outside air intake individual air conditioning

other (specify): _____

Mechanical fans and open windows in PLC; HVAC in Jewelers
Windows and doors remained closed during sampling event

Type of fuel utilized (circle all that apply):

Natural gas Electric Fuel Oil Wood Coal Solar

Kerosene other (specify): _____

Part III – Outside Contaminant Sources

Contaminated Site within 100-ft of building surveyed? None

If yes: Site Name:_____ Site Number: _____

Other stationary sources nearby (gas stations, emissions stacks, etc.): _____

Heavy vehicular traffic nearby (or other mobile sources): _____

Part IV – Indoor Contaminant Sources

Identify all potential indoor sources found in the building (including attached garages), the location of the source (floor & room), and whether the item was removed from the building 48 hours prior to the indoor sampling event. Any ventilation implemented after removal of the items should be completed at 24 hours prior to the start of the indoor air sampling event.

See attached sheet

Potential Sources	**Location(s)**	**Removed** (Yes / No / NA)
Gasoline storage can		
Gas-powered Equipment (mowers, etc)		
Kerosene storage cans		
Paints / thinners / strippers		
Cleaning solvents		
Oven Cleaners		
Carpet / upholstery cleaners		
Other house cleaning Products		
Moth balls		
Polishes / waxes		
Insecticides		
Furniture / floor remover		
Hairspray		
Cologne / perfume		
Air Fresheners		
Fuel tank (inside building)		
Wood stove or fireplace		
New Furniture / upholstery		
New Carpeting / flooring		
Hobbies – glues, paints, lacquers, photographic darkroom chemicals, etc.		
Scented trees, wreaths, potpourri, etc.		
Other (specify):		
Other (specify):		
Other (specify):		
Other (specify):		

Substance Observed	Unit	Removed prior to sampling
streepro cleaner 16 oz	PLC	Yes
Seitz Blutol cleaner 16 oz	PLC	Yes
Seitz Cavesol cleaner 16 oz	PLC	Yes
Seitz Colorsol cleaner 16 oz	PLC	Yes
Seitz Frankosol cleaner 16 oz	PLC	Yes
KTEX 2014 cleaner 16 oz	PLC	Yes
Lacol cleaner 16 oz	PLC	Yes
Purasol cleaner 16 oz	PLC	Yes
Seitz Quickol cleaner 16 oz	PLC	Yes
Hydrospot cleaner 16 oz	PLC	Yes
Glass cleaner aerosol can	PLC	Yes
Maxx Spray (5 kg)	PLC	Yes
Slick Rail Cleaner & Wax less than 1 gal	PLC	Yes
SPOTLess cleaner	PLC	Yes
Niagara starch spray aerosol can	PLC	No
Pyrate 16 oz	PLC	Yes
Picrin 16 oz	PLC	Yes
RustGo Cleaner 16 oz	PLC	Yes
Click Rail Cleaner and Wax 32 oz	PLC	Yes
Paint thinner less than 1 gal	PLC	Yes
Contact/Control cleaner and Lubricant spray bottle	PLC	Yes
Aqua Ammonia 28% 1 gal	PLC	Yes
Fresh hydrocarbon cleaner (PINNACLE) one 10 gallon drum	PLC	No
Steam Dragon 1 gallon	PLC	No
Air Compressor Oil 1 gallon	PLC	No
Viva Care 1 gallon	PLC	No
Restroom cleaners	PLC	No
Permatex All Purpose Spray Adhesive 10.5 oz	J	No
Poly Chem AcraStrip 600 B/G 1 gallon	J	No
BIOACT VSO 0.5 gallon and 2 gallon	J	No
SUNBURST HI Power Cleaner and Degreaser four 1 gallon	J	No
Silver electroplating solution 1 qtr.	J	No
Pure copper platting solution 3 qtr.	J	No
Black Rhodium Plating Solution 1 qtr.	J	No
Rhodium plating solution 1 qtr.	J	No
Super Sunsheen Burnining Compound 2 qtr.	J	No
Bright Nickel Plating Solution 1 qtr.	J	No
WAXOLVENT less than 12 oz	J	No
MIDAS Black Max 4 oz	J	No
MIDAS 14K Bright Aci Gold Plating Solution 1 qtr.	J	No
Boric Acid 16 oz	J	No
Isopropanol Alcohol 16 oz	J	No
Denatured Alcohol 1 gallon	J	No
Graphite Dry Lubricant aerosol spray	J	No
Vacuum Pump Oil 32 oz	J	No

Substance Observed	Unit	Removed prior to sampling
Compressor Oil 16 oz	J	No
Easy Off Oven Cleaner aerosol spray	J	No
Argon compressed gas cylinder	J	No
Goof Off aerosol spray	J	No

Part V – Miscellaneous Items

Do any occupants of the building smoke? *Yes / No* How often?_____.

If yes, when was the last time someone smoked in the building?_____hours / days ago

Does the building have an attached garage directly connected to living space? *Yes / No*

If so, is a car usually parked in the garage? *Yes / No*

Are gas-powered equipment or cans of gasoline / fuels stored in the garage? *Yes / No*

Do the occupants of the building have their clothes dry cleaned which are stored in the building (generally residential)? *Yes / No* If yes, how often? Weekly / monthly / 3-4 times a year

When was the last dry-cleaned garment was stored in the building? PLC is active dry cleaners; non-PCE

Do any of the occupants use solvents in work? *Yes / No*

If yes, what types of solvents are used? See attached list

If yes, are their clothes washed at work? *Yes / No* PLC

Have any pesticides / herbicides been applied around the building or in the yard? *Yes / No*

If so, when and which chemicals? _____

Has there ever been a fire in the building? *Yes / No* If yes, when? _____

Has painting or staining been done in the building in the last 6 months? *Yes / No*

If yes, when?_____and where? _____

Part VI – Metrological Conditions

Was there significant precipitation within 24 hours prior to (or during) the sampling event? *Yes / No*

Describe the general weather conditions:

Clear skies with 0-5 mph wind 40 degrees

Part VII – General Observations

Provide any information that may be pertinent to the sampling event and may assist in the data interpretation process.

Appendix C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

September 10, 2020

John Funderburk, Project Manager
Urban Environmental Partners
2324 1st Ave, Suite 203
Seattle, WA 98121

Dear Mr Funderburk:

Included are the amended results from the testing of material submitted on August 6, 2020 from the Pine Lake Cleaners, F&BI 008092 project. Naphthalene and methylene chloride were reported to the MDL in the soil gas samples.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Matthew Grunwald, Roy Kuriowa
UEP0824R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
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Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

August 24, 2020

John Funderburk, Project Manager
Urban Environmental Partners
2324 1st Ave, Suite 203
Seattle, WA 98121

Dear Mr Funderburk:

Included are the results from the testing of material submitted on August 6, 2020 from the Pine Lake Cleaners, F&BI 008092 project. There are 18 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Matthew Grunwald, Roy Kuriowa
UEP0824R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 6, 2020 by Friedman & Bruya, Inc. from the Urban Environmental Partners Pine Lake Cleaners, F&BI 008092 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Urban Environmental Partners
008092 -01	SG-SV-18-01-080520
008092 -02	AA-AA-01-080520
008092 -03	SG-SV-17-0-1-080520-(01)
008092 -04	IA-IA-01-080520-(01)
008092 -05	SG-SV-07-0-1-080520
008092 -06	IA-IA-01-080520
008092 -07	SG-SV-19-0-1-080520
008092 -08	IA-IA-04-080520
008092 -09	IA-IA-03-080520
008092 -10	SG-SV-20-0-1-080520
008092 -11	IA-IA-02-080520

The TO-15 tetrachloroethene concentration in several samples exceeded the calibration range of the instrument. The data were flagged accoridngly.

Naphthalene was detected in the TO-15 method blank at a level greater than one tenth the concentration detected in several of the samples. The data were flagged accordingly.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-18-01-080520	Client:	Urban Environmental Partners
Date Received:	08/06/20	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	08/05/20	Lab ID:	008092-01 1/47
Date Analyzed:	08/20/20	Data File:	082020.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	106	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<57	<33	1,2-Dichloropropane	<11	<2.3
Dichlorodifluoromethane	3,500	710	1,4-Dioxane	<17	<4.7
Chloromethane	<170	<85	2,2,4-Trimethylpentane	<220	<47
F-114	<33	<4.7	Methyl methacrylate	<190	<47
Vinyl chloride	<12	<4.7	Heptane	<190	<47
1,3-Butadiene	<1	<0.47	Bromodichloromethane	<3.1	<0.47
Butane	<110	<47	Trichloroethene	<13	<2.3
Bromomethane	<73	<19	cis-1,3-Dichloropropene	<21	<4.7
Chloroethane	<120	<47	4-Methyl-2-pentanone	<190	<47
Vinyl bromide	<21	<4.7	trans-1,3-Dichloropropene	<21	<4.7
Ethanol	1,300	710	Toluene	<890	<230
Acrolein	<97	<42	1,1,2-Trichloroethane	<5.1	<0.94
Pentane	<140	<47	2-Hexanone	<190	<47
Trichlorofluoromethane	<110	<19	Tetrachloroethene	15,000 ve	2,300 ve
Acetone	<220	<94	Dibromochloromethane	<4	<0.47
2-Propanol	<400	<160	1,2-Dibromoethane (EDB)	<3.6	<0.47
1,1-Dichloroethene	<19	<4.7	Chlorobenzene	<22	<4.7
trans-1,2-Dichloroethene	<19	<4.7	Ethylbenzene	<20	<4.7
Methylene chloride	<1,600 j	<470 j	1,1,2,2-Tetrachloroethane	<6.5	<0.94
t-Butyl alcohol (TBA)	<570	<190	Nonane	<250	<47
3-Chloropropene	<74	<23	Isopropylbenzene	<120	<23
CFC-113	<36	<4.7	2-Chlorotoluene	<240	<47
Carbon disulfide	<290	<94	Propylbenzene	<120	<23
Methyl t-butyl ether (MTBE)	<85	<23	4-Ethyltoluene	<120	<23
Vinyl acetate	<330	<94	m,p-Xylene	<41	<9.4
1,1-Dichloroethane	<19	<4.7	o-Xylene	<20	<4.7
cis-1,2-Dichloroethene	<19	<4.7	Styrene	<40	<9.4
Hexane	<170	<47	Bromoform	<97	<9.4
Chloroform	<2.3	<0.47	Benzyl chloride	<2.4	<0.47
Ethyl acetate	<340	<94	1,3,5-Trimethylbenzene	<120	<23
Tetrahydrofuran	<14	<4.7	1,2,4-Trimethylbenzene	<120	<23
2-Butanone (MEK)	<140	<47	1,3-Dichlorobenzene	<28	<4.7
1,2-Dichloroethane (EDC)	<1.9	<0.47	1,4-Dichlorobenzene	<11	<1.9
1,1,1-Trichloroethane	<26	<4.7	1,2-Dichlorobenzene	<28	<4.7
Carbon tetrachloride	<30	<4.7	1,2,4-Trichlorobenzene	<35	<4.7
Benzene	<15	<4.7	Naphthalene	4.7 j fb	0.89 j fb
Cyclohexane	<320	<94	Hexachlorobutadiene	<10	<0.94

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	AA-AA-01-080520	Client:	Urban Environmental Partners
Date Received:	08/06/20	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	08/05/20	Lab ID:	008092-02
Date Analyzed:	08/21/20	Data File:	082025.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	111	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	3.0	0.60	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.022	<0.01	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.27	<0.05
Bromomethane	<1.6	<0.4	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.11	<0.02
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	7.3	1.1
Acetone	11	4.7	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<87	<25	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.10	0.021	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.053	0.013	1,4-Dichlorobenzene	<0.24	<0.04
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.63	<0.1	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	0.21 fb	0.04 fb
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-17-0-1-080520-(01)	Client:	Urban Environmental Partners
Date Received:	08/06/20	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	08/05/20	Lab ID:	008092-03 1/43
Date Analyzed:	08/21/20	Data File:	082022.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	104	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<52	<30	1,2-Dichloropropane	<9.9	<2.1
Dichlorodifluoromethane	1,800	360	1,4-Dioxane	<15	<4.3
Chloromethane	<160	<77	2,2,4-Trimethylpentane	<200	<43
F-114	<30	<4.3	Methyl methacrylate	<180	<43
Vinyl chloride	<11	<4.3	Heptane	<180	<43
1,3-Butadiene	<0.95	<0.43	Bromodichloromethane	<2.9	<0.43
Butane	<100	<43	Trichloroethene	46	8.6
Bromomethane	<67	<17	cis-1,3-Dichloropropene	<20	<4.3
Chloroethane	<110	<43	4-Methyl-2-pentanone	<180	<43
Vinyl bromide	<19	<4.3	trans-1,3-Dichloropropene	<20	<4.3
Ethanol	<320	<170	Toluene	<810	<210
Acrolein	<89	<39	1,1,2-Trichloroethane	<4.7	<0.86
Pentane	<130	<43	2-Hexanone	<180	<43
Trichlorofluoromethane	<97	<17	Tetrachloroethene	30,000 ve	4,500 ve
Acetone	<200	<86	Dibromochloromethane	<3.7	<0.43
2-Propanol	<370	<150	1,2-Dibromoethane (EDB)	<3.3	<0.43
1,1-Dichloroethene	<17	<4.3	Chlorobenzene	<20	<4.3
trans-1,2-Dichloroethene	<17	<4.3	Ethylbenzene	<19	<4.3
Methylene chloride	<1,500 j	<430 j	1,1,2,2-Tetrachloroethane	<5.9	<0.86
t-Butyl alcohol (TBA)	<520	<170	Nonane	<230	<43
3-Chloropropene	<67	<21	Isopropylbenzene	<110	<21
CFC-113	<33	<4.3	2-Chlorotoluene	<220	<43
Carbon disulfide	<270	<86	Propylbenzene	<110	<21
Methyl t-butyl ether (MTBE)	<78	<21	4-Ethyltoluene	<110	<21
Vinyl acetate	<300	<86	m,p-Xylene	<37	<8.6
1,1-Dichloroethane	<17	<4.3	o-Xylene	<19	<4.3
cis-1,2-Dichloroethene	<17	<4.3	Styrene	<37	<8.6
Hexane	<150	<43	Bromoform	<89	<8.6
Chloroform	15	3.1	Benzyl chloride	<2.2	<0.43
Ethyl acetate	<310	<86	1,3,5-Trimethylbenzene	<110	<21
Tetrahydrofuran	<13	<4.3	1,2,4-Trimethylbenzene	<110	<21
2-Butanone (MEK)	<130	<43	1,3-Dichlorobenzene	<26	<4.3
1,2-Dichloroethane (EDC)	<1.7	<0.43	1,4-Dichlorobenzene	<10	<1.7
1,1,1-Trichloroethane	<23	<4.3	1,2-Dichlorobenzene	<26	<4.3
Carbon tetrachloride	<27	<4.3	1,2,4-Trichlorobenzene	<32	<4.3
Benzene	<14	<4.3	Naphthalene	4.7 j fb	0.9 j fb
Cyclohexane	<300	<86	Hexachlorobutadiene	<9.2	<0.86

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-01-080520-(01)	Client:	Urban Environmental Partners
Date Received:	08/06/20	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	08/05/20	Lab ID:	008092-04
Date Analyzed:	08/21/20	Data File:	082026.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	108	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	3.5	0.70	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.022	<0.01	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	0.41	0.076
Bromomethane	<1.6	<0.4	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	140 ve	75 ve	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.11	<0.02
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	18	7.6	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	180 ve	53 ve	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.1	0.24
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.58	0.13
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	9.1	2.6	Bromoform	<2.1	<0.2
Chloroform	0.16	0.033	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.097	0.024	1,4-Dichlorobenzene	<0.24	<0.04
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.63	<0.1	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	0.29 fb	0.056 fb
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-07-0-1-080520	Client:	Urban Environmental Partners
Date Received:	08/06/20	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	08/05/20	Lab ID:	008092-05 1/45
Date Analyzed:	08/20/20	Data File:	082021.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	105	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<54	<31	1,2-Dichloropropane	<10	<2.2
Dichlorodifluoromethane	1,700	340	1,4-Dioxane	<16	<4.5
Chloromethane	<170	<81	2,2,4-Trimethylpentane	<210	<45
F-114	<31	<4.5	Methyl methacrylate	<180	<45
Vinyl chloride	<12	<4.5	Heptane	<180	<45
1,3-Butadiene	<1	<0.45	Bromodichloromethane	<3	<0.45
Butane	<110	<45	Trichloroethene	42	7.8
Bromomethane	<70	<18	cis-1,3-Dichloropropene	<20	<4.5
Chloroethane	<120	<45	4-Methyl-2-pentanone	<180	<45
Vinyl bromide	<20	<4.5	trans-1,3-Dichloropropene	<20	<4.5
Ethanol	<340	<180	Toluene	<850	<220
Acrolein	<93	<40	1,1,2-Trichloroethane	<4.9	<0.9
Pentane	<130	<45	2-Hexanone	<180	<45
Trichlorofluoromethane	<100	<18	Tetrachloroethene	27,000 ve	3,900 ve
Acetone	<210	<90	Dibromochloromethane	<3.8	<0.45
2-Propanol	<390	<160	1,2-Dibromoethane (EDB)	<3.5	<0.45
1,1-Dichloroethene	<18	<4.5	Chlorobenzene	<21	<4.5
trans-1,2-Dichloroethene	<18	<4.5	Ethylbenzene	<20	<4.5
Methylene chloride	<1,600	<450	1,1,2,2-Tetrachloroethane	<6.2	<0.9
t-Butyl alcohol (TBA)	<550	<180	Nonane	<240	<45
3-Chloropropene	<70	<22	Isopropylbenzene	<110	<22
CFC-113	<34	<4.5	2-Chlorotoluene	<230	<45
Carbon disulfide	<280	<90	Propylbenzene	<110	<22
Methyl t-butyl ether (MTBE)	<81	<22	4-Ethyltoluene	<110	<22
Vinyl acetate	<320	<90	m,p-Xylene	<39	<9
1,1-Dichloroethane	<18	<4.5	o-Xylene	<20	<4.5
cis-1,2-Dichloroethene	<18	<4.5	Styrene	<38	<9
Hexane	<160	<45	Bromoform	<93	<9
Chloroform	14	2.8	Benzyl chloride	<2.3	<0.45
Ethyl acetate	<320	<90	1,3,5-Trimethylbenzene	<110	<22
Tetrahydrofuran	<13	<4.5	1,2,4-Trimethylbenzene	<110	<22
2-Butanone (MEK)	<130	<45	1,3-Dichlorobenzene	<27	<4.5
1,2-Dichloroethane (EDC)	<1.8	<0.45	1,4-Dichlorobenzene	<11	<1.8
1,1,1-Trichloroethane	<25	<4.5	1,2-Dichlorobenzene	<27	<4.5
Carbon tetrachloride	<28	<4.5	1,2,4-Trichlorobenzene	<33	<4.5
Benzene	<14	<4.5	Naphthalene	7.8 j fb	1.5 j fb
Cyclohexane	<310	<90	Hexachlorobutadiene	<9.6	<0.9

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-01-080520	Client:	Urban Environmental Partners
Date Received:	08/06/20	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	08/05/20	Lab ID:	008092-06
Date Analyzed:	08/21/20	Data File:	082027.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	110	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	3.5	0.71	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.022	<0.01	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.27	<0.05
Bromomethane	<1.6	<0.4	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	140 ve	77 ve	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.11	<0.02
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	14	6.0	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<87	<25	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.0	0.24
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.58	0.13
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.16	0.033	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.089	0.022	1,4-Dichlorobenzene	<0.24	<0.04
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.63	<0.1	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	0.29 fb	0.055 fb
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-19-0-1-080520	Client:	Urban Environmental Partners
Date Received:	08/06/20	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	08/05/20	Lab ID:	008092-07 1/5.4
Date Analyzed:	08/20/20	Data File:	082019.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	109	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<6.5	<3.8	1,2-Dichloropropane	<1.2	<0.27
Dichlorodifluoromethane	1,900 ve	380 ve	1,4-Dioxane	<1.9	<0.54
Chloromethane	<20	<9.7	2,2,4-Trimethylpentane	<25	<5.4
F-114	<3.8	<0.54	Methyl methacrylate	<22	<5.4
Vinyl chloride	<1.4	<0.54	Heptane	<22	<5.4
1,3-Butadiene	<0.12	<0.054	Bromodichloromethane	<0.36	<0.054
Butane	<13	<5.4	Trichloroethene	<1.5	<0.27
Bromomethane	<8.4	<2.2	cis-1,3-Dichloropropene	<2.5	<0.54
Chloroethane	<14	<5.4	4-Methyl-2-pentanone	<22	<5.4
Vinyl bromide	<2.4	<0.54	trans-1,3-Dichloropropene	<2.5	<0.54
Ethanol	210	110	Toluene	<100	<27
Acrolein	<11	<4.9	1,1,2-Trichloroethane	<0.59	<0.11
Pentane	<16	<5.4	2-Hexanone	<22	<5.4
Trichlorofluoromethane	<12	<2.2	Tetrachloroethene	480	70
Acetone	94	39	Dibromochloromethane	<0.46	<0.054
2-Propanol	<46	<19	1,2-Dibromoethane (EDB)	<0.41	<0.054
1,1-Dichloroethene	<2.1	<0.54	Chlorobenzene	<2.5	<0.54
trans-1,2-Dichloroethene	<2.1	<0.54	Ethylbenzene	5.2	1.2
Methylene chloride	<470	<130	1,1,2,2-Tetrachloroethane	<0.74	<0.11
t-Butyl alcohol (TBA)	<65	<22	Nonane	<28	<5.4
3-Chloropropene	<8.5	<2.7	Isopropylbenzene	<13	<2.7
CFC-113	<4.1	<0.54	2-Chlorotoluene	<28	<5.4
Carbon disulfide	<34	<11	Propylbenzene	<13	<2.7
Methyl t-butyl ether (MTBE)	<9.7	<2.7	4-Ethyltoluene	<13	<2.7
Vinyl acetate	<38	<11	m,p-Xylene	28	6.3
1,1-Dichloroethane	<2.2	<0.54	o-Xylene	11	2.4
cis-1,2-Dichloroethene	<2.1	<0.54	Styrene	<4.6	<1.1
Hexane	<19	<5.4	Bromoform	<11	<1.1
Chloroform	0.32	0.065	Benzyl chloride	<0.28	<0.054
Ethyl acetate	<39	<11	1,3,5-Trimethylbenzene	<13	<2.7
Tetrahydrofuran	<1.6	<0.54	1,2,4-Trimethylbenzene	<13	<2.7
2-Butanone (MEK)	<16	<5.4	1,3-Dichlorobenzene	<3.2	<0.54
1,2-Dichloroethane (EDC)	<0.22	<0.054	1,4-Dichlorobenzene	<1.3	<0.22
1,1,1-Trichloroethane	<2.9	<0.54	1,2-Dichlorobenzene	<3.2	<0.54
Carbon tetrachloride	<3.4	<0.54	1,2,4-Trichlorobenzene	<4	<0.54
Benzene	<1.7	<0.54	Naphthalene	<1.4	<0.27
Cyclohexane	<37	<11	Hexachlorobutadiene	<1.2	<0.11

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-04-080520	Client:	Urban Environmental Partners
Date Received:	08/06/20	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	08/05/20	Lab ID:	008092-08
Date Analyzed:	08/21/20	Data File:	082028.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	108	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	9.2	1.9	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	4.6	1.1
1,3-Butadiene	<0.022	<0.01	Bromodichloromethane	<0.067	<0.01
Butane	4.3	1.8	Trichloroethene	<0.27	<0.05
Bromomethane	<1.6	<0.4	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	20	4.9
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	800 ve	430 ve	Toluene	<19	<5
Acrolein	2.1	0.92	1,1,2-Trichloroethane	<0.11	<0.02
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	110 ve	47 ve	Dibromochloromethane	<0.085	<0.01
2-Propanol	430 ve	180 ve	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	10	2.4
Methylene chloride	110 ve	31 ve	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	54	13
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	19	4.4
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	1.0	0.24
Hexane	8.0	2.3	Bromoform	<2.1	<0.2
Chloroform	0.47	0.097	Benzyl chloride	<0.052	<0.01
Ethyl acetate	26	7.3	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	3.1	1.0	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.66	0.16	1,4-Dichlorobenzene	<0.24	<0.04
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.63	<0.1	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	0.31 fb	0.059 fb
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-03-080520	Client:	Urban Environmental Partners
Date Received:	08/06/20	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	08/05/20	Lab ID:	008092-09
Date Analyzed:	08/21/20	Data File:	082029.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	95	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	9.5	1.9	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	4.9	1.2
1,3-Butadiene	<0.022	<0.01	Bromodichloromethane	<0.067	<0.01
Butane	4.7	2.0	Trichloroethene	<0.27	<0.05
Bromomethane	<1.6	<0.4	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	21	5.2
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	850 ve	450 ve	Toluene	<19	<5
Acrolein	2.2	0.96	1,1,2-Trichloroethane	<0.11	<0.02
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	120 ve	49 ve	Dibromochloromethane	<0.085	<0.01
2-Propanol	480 ve	190 ve	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	9.2	2.1
Methylene chloride	130 ve	38 ve	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	48	11
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	17	4.0
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	0.94	0.22
Hexane	6.0	1.7	Bromoform	<2.1	<0.2
Chloroform	0.50	0.10	Benzyl chloride	<0.052	<0.01
Ethyl acetate	27	7.5	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	0.32	0.11	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	3.4	1.1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.64	0.16	1,4-Dichlorobenzene	<0.24	<0.04
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.63	<0.1	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.35	0.11	Naphthalene	0.18 fb	0.034 fb
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-20-0-1-080520	Client:	Urban Environmental Partners
Date Received:	08/06/20	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	08/05/20	Lab ID:	008092-10 1/3.5
Date Analyzed:	08/20/20	Data File:	082017.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	107	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<4.2	<2.4	1,2-Dichloropropane	<0.81	<0.17
Dichlorodifluoromethane	3,700 ve	740 ve	1,4-Dioxane	<1.3	<0.35
Chloromethane	<13	<6.3	2,2,4-Trimethylpentane	<16	<3.5
F-114	<2.4	<0.35	Methyl methacrylate	<14	<3.5
Vinyl chloride	<0.89	<0.35	Heptane	<14	<3.5
1,3-Butadiene	<0.077	<0.035	Bromodichloromethane	<0.23	<0.035
Butane	<8.3	<3.5	Trichloroethene	<0.94	<0.17
Bromomethane	<5.4	<1.4	cis-1,3-Dichloropropene	<1.6	<0.35
Chloroethane	<9.2	<3.5	4-Methyl-2-pentanone	<14	<3.5
Vinyl bromide	<1.5	<0.35	trans-1,3-Dichloropropene	<1.6	<0.35
Ethanol	210 ve	110 ve	Toluene	<66	<17
Acrolein	<7.2	<3.1	1,1,2-Trichloroethane	<0.38	<0.07
Pentane	<10	<3.5	2-Hexanone	<14	<3.5
Trichlorofluoromethane	<7.9	<1.4	Tetrachloroethene	33	4.8
Acetone	43	18	Dibromochloromethane	<0.3	<0.035
2-Propanol	<30	<12	1,2-Dibromoethane (EDB)	<0.27	<0.035
1,1-Dichloroethene	<1.4	<0.35	Chlorobenzene	<1.6	<0.35
trans-1,2-Dichloroethene	<1.4	<0.35	Ethylbenzene	5.7	1.3
Methylene chloride	<300	<87	1,1,2,2-Tetrachloroethane	<0.48	<0.07
t-Butyl alcohol (TBA)	<42	<14	Nonane	<18	<3.5
3-Chloropropene	<5.5	<1.7	Isopropylbenzene	<8.6	<1.7
CFC-113	<2.7	<0.35	2-Chlorotoluene	<18	<3.5
Carbon disulfide	<22	<7	Propylbenzene	<8.6	<1.7
Methyl t-butyl ether (MTBE)	<6.3	<1.7	4-Ethyltoluene	<8.6	<1.7
Vinyl acetate	<25	<7	m,p-Xylene	30	6.8
1,1-Dichloroethane	<1.4	<0.35	o-Xylene	11	2.5
cis-1,2-Dichloroethene	<1.4	<0.35	Styrene	<3	<0.7
Hexane	<12	<3.5	Bromoform	<7.2	<0.7
Chloroform	0.46	0.094	Benzyl chloride	<0.18	<0.035
Ethyl acetate	<25	<7	1,3,5-Trimethylbenzene	<8.6	<1.7
Tetrahydrofuran	<1	<0.35	1,2,4-Trimethylbenzene	<8.6	<1.7
2-Butanone (MEK)	<10	<3.5	1,3-Dichlorobenzene	<2.1	<0.35
1,2-Dichloroethane (EDC)	0.21	0.052	1,4-Dichlorobenzene	<0.84	<0.14
1,1,1-Trichloroethane	<1.9	<0.35	1,2-Dichlorobenzene	<2.1	<0.35
Carbon tetrachloride	<2.2	<0.35	1,2,4-Trichlorobenzene	<2.6	<0.35
Benzene	<1.1	<0.35	Naphthalene	<0.92	<0.17
Cyclohexane	<24	<7	Hexachlorobutadiene	<0.75	<0.07

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-02-080520	Client:	Urban Environmental Partners
Date Received:	08/06/20	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	08/05/20	Lab ID:	008092-11
Date Analyzed:	08/21/20	Data File:	082030.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	108	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	3.2	0.65	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.022	<0.01	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.27	<0.05
Bromomethane	<1.6	<0.4	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	160 ve	83 ve	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.11	<0.02
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	27	11	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	330 ve	96 ve	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.1	0.24
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.55	0.13
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	21	6.0	Bromoform	<2.1	<0.2
Chloroform	0.15	0.030	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.081	0.020	1,4-Dichlorobenzene	<0.24	<0.04
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.63	<0.1	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	0.20 fb	0.039 fb
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Urban Environmental Partners
Date Received:	Not Applicable	Project:	Pine Lake Cleaners, F&BI 008092
Date Collected:	Not Applicable	Lab ID:	00-1851 mb
Date Analyzed:	08/20/20	Data File:	082010.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	105	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	<0.49	<0.1	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.022	<0.01	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.27	<0.05
Bromomethane	<1.6	<0.4	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.11	<0.02
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<87	<25	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	1,4-Dichlorobenzene	<0.24	<0.04
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.63	<0.1	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	0.078 lc	0.015 lc
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Date of Report: 08/24/20
Date Received: 08/06/20
Project: Pine Lake Cleaners, F&BI 008092

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 008092-10 1/3.5 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	<4.2	<4.2	nm
Dichlorodifluoromethane	ug/m3	3,700	3,600	3
Chloromethane	ug/m3	<13	<13	nm
F-114	ug/m3	<2.4	<2.4	nm
Vinyl chloride	ug/m3	<0.89	<0.89	nm
1,3-Butadiene	ug/m3	<0.077	<0.077	nm
Butane	ug/m3	<8.3	<8.3	nm
Bromomethane	ug/m3	<5.4	<5.4	nm
Chloroethane	ug/m3	<9.2	<9.2	nm
Vinyl bromide	ug/m3	<1.5	<1.5	nm
Ethanol	ug/m3	210	210	0
Acrolein	ug/m3	<7.2	<7.2	nm
Pentane	ug/m3	<10	<10	nm
Trichlorofluoromethane	ug/m3	<7.9	<7.9	nm
Acetone	ug/m3	43	46	7
2-Propanol	ug/m3	<30	<30	nm
1,1-Dichloroethene	ug/m3	<1.4	<1.4	nm
trans-1,2-Dichloroethene	ug/m3	<1.4	<1.4	nm
Methylene chloride	ug/m3	<300	<300	nm
t-Butyl alcohol (TBA)	ug/m3	<42	<42	nm
3-Chloropropene	ug/m3	<5.5	<5.5	nm
CFC-113	ug/m3	<2.7	<2.7	nm
Carbon disulfide	ug/m3	<22	<22	nm
Methyl t-butyl ether (MTBE)	ug/m3	<6.3	<6.3	nm
Vinyl acetate	ug/m3	<25	<25	nm
1,1-Dichloroethane	ug/m3	<1.4	<1.4	nm
cis-1,2-Dichloroethene	ug/m3	<1.4	<1.4	nm
Hexane	ug/m3	<12	<12	nm
Chloroform	ug/m3	0.46	0.46	0
Ethyl acetate	ug/m3	<25	<25	nm
Tetrahydrofuran	ug/m3	<1	<1	nm
2-Butanone (MEK)	ug/m3	<10	<10	nm
1,2-Dichloroethane (EDC)	ug/m3	0.21	0.20	5
1,1,1-Trichloroethane	ug/m3	<1.9	<1.9	nm
Carbon tetrachloride	ug/m3	<2.2	<2.2	nm
Benzene	ug/m3	<1.1	<1.1	nm
Cyclohexane	ug/m3	<24	<24	nm
1,2-Dichloropropane	ug/m3	<0.81	<0.81	nm
1,4-Dioxane	ug/m3	<1.3	<1.3	nm
2,2,4-Trimethylpentane	ug/m3	<16	<16	nm

Date of Report: 08/24/20
Date Received: 08/06/20
Project: Pine Lake Cleaners, F&BI 008092

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 008092-10 1/3.5 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<14	<14	nm
Heptane	ug/m3	<14	<14	nm
Bromodichloromethane	ug/m3	<0.23	<0.23	nm
Trichloroethene	ug/m3	<0.94	<0.94	nm
cis-1,3-Dichloropropene	ug/m3	<1.6	<1.6	nm
4-Methyl-2-pentanone	ug/m3	<14	<14	nm
trans-1,3-Dichloropropene	ug/m3	<1.6	<1.6	nm
Toluene	ug/m3	<66	<66	nm
1,1,2-Trichloroethane	ug/m3	<0.38	<0.38	nm
2-Hexanone	ug/m3	<14	<14	nm
Tetrachloroethene	ug/m3	33	33	0
Dibromochloromethane	ug/m3	<0.3	<0.3	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.27	<0.27	nm
Chlorobenzene	ug/m3	<1.6	<1.6	nm
Ethylbenzene	ug/m3	5.7	5.5	4
1,1,2,2-Tetrachloroethane	ug/m3	<0.48	<0.48	nm
Nonane	ug/m3	<18	<18	nm
Isopropylbenzene	ug/m3	<8.6	<8.6	nm
2-Chlorotoluene	ug/m3	<18	<18	nm
Propylbenzene	ug/m3	<8.6	<8.6	nm
4-Ethyltoluene	ug/m3	<8.6	<8.6	nm
m,p-Xylene	ug/m3	30	29	3
o-Xylene	ug/m3	11	10	10
Styrene	ug/m3	<3	<3	nm
Bromoform	ug/m3	<7.2	<7.2	nm
Benzyl chloride	ug/m3	<0.18	<0.18	nm
1,3,5-Trimethylbenzene	ug/m3	<8.6	<8.6	nm
1,2,4-Trimethylbenzene	ug/m3	<8.6	<8.6	nm
1,3-Dichlorobenzene	ug/m3	<2.1	<2.1	nm
1,4-Dichlorobenzene	ug/m3	<0.84	<0.84	nm
1,2-Dichlorobenzene	ug/m3	<2.1	<2.1	nm
1,2,4-Trichlorobenzene	ug/m3	<2.6	<2.6	nm
Naphthalene	ug/m3	<0.92	<0.92	nm
Hexachlorobutadiene	ug/m3	<0.75	<0.75	nm

Date of Report: 08/24/20
Date Received: 08/06/20
Project: Pine Lake Cleaners, F&BI 008092

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Propene	ug/m3	23	83	70-130
Dichlorodifluoromethane	ug/m3	67	88	70-130
Chloromethane	ug/m3	28	85	70-130
F-114	ug/m3	94	90	70-130
Vinyl chloride	ug/m3	35	88	70-130
1,3-Butadiene	ug/m3	30	90	70-130
Butane	ug/m3	32	85	70-130
Bromomethane	ug/m3	52	93	70-130
Chloroethane	ug/m3	36	88	70-130
Vinyl bromide	ug/m3	59	88	70-130
Ethanol	ug/m3	25	87	70-130
Acrolein	ug/m3	31	93	70-130
Pentane	ug/m3	40	87	70-130
Trichlorofluoromethane	ug/m3	76	86	70-130
Acetone	ug/m3	32	83	70-130
2-Propanol	ug/m3	33	80	70-130
1,1-Dichloroethene	ug/m3	54	88	70-130
trans-1,2-Dichloroethene	ug/m3	54	91	70-130
Methylene chloride	ug/m3	94	105	70-130
t-Butyl alcohol (TBA)	ug/m3	41	80	70-130
3-Chloropropene	ug/m3	42	86	70-130
CFC-113	ug/m3	100	88	70-130
Carbon disulfide	ug/m3	42	81	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	88	70-130
Vinyl acetate	ug/m3	48	82	70-130
1,1-Dichloroethane	ug/m3	55	91	70-130
cis-1,2-Dichloroethene	ug/m3	54	91	70-130
Hexane	ug/m3	48	86	70-130
Chloroform	ug/m3	66	90	70-130
Ethyl acetate	ug/m3	49	96	70-130
Tetrahydrofuran	ug/m3	40	83	70-130
2-Butanone (MEK)	ug/m3	40	89	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	92	70-130
1,1,1-Trichloroethane	ug/m3	74	85	70-130
Carbon tetrachloride	ug/m3	85	79	70-130
Benzene	ug/m3	43	85	70-130
Cyclohexane	ug/m3	46	87	70-130
1,2-Dichloropropane	ug/m3	62	97	70-130
1,4-Dioxane	ug/m3	49	94	70-130
2,2,4-Trimethylpentane	ug/m3	63	95	70-130

Date of Report: 08/24/20
Date Received: 08/06/20
Project: Pine Lake Cleaners, F&BI 008092

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Methyl methacrylate	ug/m3	55	99	70-130
Heptane	ug/m3	55	96	70-130
Bromodichloromethane	ug/m3	90	93	70-130
Trichloroethene	ug/m3	73	98	70-130
cis-1,3-Dichloropropene	ug/m3	61	103	70-130
4-Methyl-2-pentanone	ug/m3	55	92	70-130
trans-1,3-Dichloropropene	ug/m3	61	107	70-130
Toluene	ug/m3	51	96	70-130
1,1,2-Trichloroethane	ug/m3	74	102	70-130
2-Hexanone	ug/m3	55	105	70-130
Tetrachloroethene	ug/m3	92	94	70-130
Dibromochloromethane	ug/m3	120	89	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	105	70-130
Chlorobenzene	ug/m3	62	85	70-130
Ethylbenzene	ug/m3	59	97	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	100	70-130
Nonane	ug/m3	71	97	70-130
Isopropylbenzene	ug/m3	66	96	70-130
2-Chlorotoluene	ug/m3	70	107	70-130
Propylbenzene	ug/m3	66	102	70-130
4-Ethyltoluene	ug/m3	66	109	70-130
m,p-Xylene	ug/m3	120	105	70-130
o-Xylene	ug/m3	59	107	70-130
Styrene	ug/m3	58	99	70-130
Bromoform	ug/m3	140	84	70-130
Benzyl chloride	ug/m3	70	101	70-130
1,3,5-Trimethylbenzene	ug/m3	66	100	70-130
1,2,4-Trimethylbenzene	ug/m3	66	103	70-130
1,3-Dichlorobenzene	ug/m3	81	109	70-130
1,4-Dichlorobenzene	ug/m3	81	102	70-130
1,2-Dichlorobenzene	ug/m3	81	98	70-130
1,2,4-Trichlorobenzene	ug/m3	100	95	70-130
Naphthalene	ug/m3	71	109	70-130
Hexachlorobutadiene	ug/m3	140	101	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

SAMPLE CHAIN OF CUSTODY ME 8/6/20

008092

Page # 1 of 2

Report To [redacted]@uepconsulting.com
Company Urban Environmental Partners llc
Address 2324 First Ave Ste 203
City, State, ZIP Seattle, Wa 98121
Phone (425)9 Email

SAMPLERS (signature) Matthew W Gronwald	
PROJECT NAME & ADDRESS: Pine Lake Cleaners	PO #
NOTES:	INVOICE TO: UEP

TURNAROUND TIME
☐ Standard
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Default: Clean after 3 days
☐ Archive (Fee may apply)

SAMPLE INFORMATION										ANALYSIS REQUESTED						
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium		Notes
SG-SV-18-0-1-080520	-01 01	20552	31	IA / (SG)	8/5/20	30+	0827	7	1427	X						X-per RK
AA-AA-01-080520	02	35331	078 52	Ambient IA / SG	8/5/20	30+	0727	7	1527	X						8/6/20 ME
SG-SV-17-0-1-080520-(01)	03	21453	12	IA / (SG)	8/5/20	30	0840	6	1600	X						
IA-IA-01-080520-(01)	04	20541	078 SL	(IA) / SG	8/5/20	30+	0840	9	1600	X						
SG-SV-17-0-1-080520	05	20546	88	IA / (SG)	8/5/20	28	0840	6	1600	X						
IA-IA-01-080520	06	18566	053 SL	(IA) / SG	8/5/20	29	0840	7	1600	X						
SG-SV-19-0-1-080520	07	20551	15	IA / (SG)	8/5/20	30+	1004	5	1725	X						
IA-IA-04-080520	08	18572	07850	(IA) / SG	8/5/20	30+	0950	8.5	1725	X						

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COCTO-15.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Matthew W Gronwald	Matthew W Gronwald	UEP llc	8/5/20	1900
Received by:	Roy	Roy KUROIWA	—	8/5/20	1902
Relinquished by:		Roy KUROIWA	—	8/6/20	1407
Received by:	HONG	HONG NGUYEN	FBI	8/6/20	14:07

Samples received at 22 °C

008092

SAMPLE CHAIN OF CUSTODY ME 8/6/20

Page # 2 of 2

~~Report To~~ jonathan@uepconsulting.com

Company Urban Environmental Partners llc

Address 2324 First Ave Ste 203

City, State, ZIP Seattle, Wa 98121

Phone (425) 922-9922 Email

SAMPLERS (signature)	
PROJECT NAME & ADDRESS: Pine Lake Cleaners	PO #
NOTES:	INVOICE TO: UEP llc

TURNAROUND TIME
- ☐ Standard
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Default: Clean after 3 days
- ☐ Archive (Fee may apply)

SAMPLE INFORMATION										ANALYSIS REQUESTED						
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium		Notes
IA-IA-03-080520	-09	23231	00604	(IA) / SG	8/5/20	30+	0954	8	1725	X						
SG-SV-20-01-080520	-10	23231	17	IA / (SG)	8/5/20	30	1060	5	1725	X						
~~IA-IA-01-080520~~		1856		IA / SG												
IA-IA-02-080520	11	20545	00605	(IA) / SG	8/5/20	30	1021	10	1745	X						
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												

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Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COCTO-15.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Matthew W. Grunwald	Matthew W. Grunwald	UEP llc	8/25/20	1900
Received by:	Roy Kuroiwa	—	8/5	1902
Relinquished by:	Roy Kuroiwa	—	8/6	1907
Received by:	HOOG NGUYEN	FBI	8/6/20	14:07

Samples received at 22°C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

February 1, 2021

Roy Kuroiwa, Project Manager
Urban Environmental Partners
2324 1st Ave, Suite 203
Seattle, WA 98121

Dear Mr Kuroiwa:

Included are the results from the testing of material submitted on January 20, 2021 from the Pine Lake Cleaners 2830 228th Ave SE Sammamish WA, F&BI 101270 project. There are 19 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Nathan Starr
UEP0201R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on January 20, 2021 by Friedman & Bruya, Inc. from the Urban Environmental Partners Pine Lake Cleaners 2830 228th Ave SE Sammamish WA, F&BI 101270 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Urban Environmental Partners
101270 -01	AA-AA-01-012021
101270 -02	SG-SV-17-0-1-012021
101270 -03	SG-SV-17-0-4-012021-(01)
101270 -04	IA-IA-01-012021
101270 -05	IA-IA-01-012021-(01)
101270 -06	SG-SV-18-0-1-012021
101270 -07	IA-IA-02-012021
101270 -08	SG-SV-19-0-1-012021
101270 -09	IA-IA-03-012021
101270 -10	SG-SV-20-0-1-012021
101270 -11	IA-IA-04-012021
101270 -12	SG-SV-21-0-1-012021

Methylene chloride was detected in several samples. The data were flagged as due to laboratory contamination.

The concentration of several TO-15 analytes exceeded the calibration range of the instrument. The data were flagged accordingly.

The TO-15 methylene chloride laboratory control sample failed the acceptance criteria. The data were flagged accordingly.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	AA-AA-01-012021	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-01
Date Analyzed:	01/26/21	Data File:	012610a.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	96	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.1	0.43	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	0.10	0.045	Bromodichloromethane	<0.067	<0.01
Butane	2.4	1.0	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	15	8.0	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	35 jl lc	10 jl lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	0.88	0.20
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.10	0.021	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.057	0.014	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.45	0.071	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.74	0.23	Naphthalene	0.13	0.025
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-17-0-1-012021	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-02 1/3.3
Date Analyzed:	01/26/21	Data File:	012618.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	102	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<4	<2.3	1,2-Dichloropropane	<0.76	<0.16
Dichlorodifluoromethane	4.0	0.81	1,4-Dioxane	<1.2	<0.33
Chloromethane	<12	<5.9	2,2,4-Trimethylpentane	<15	<3.3
F-114	<2.3	<0.33	Methyl methacrylate	<14	<3.3
Vinyl chloride	<0.84	<0.33	Heptane	<14	<3.3
1,3-Butadiene	<0.15	<0.066	Bromodichloromethane	<0.22	<0.033
Butane	<7.8	<3.3	Trichloroethene	<0.35	<0.066
Bromomethane	<7.7	<2	cis-1,3-Dichloropropene	<1.5	<0.33
Chloroethane	<8.7	<3.3	4-Methyl-2-pentanone	<14	<3.3
Vinyl bromide	<1.4	<0.33	trans-1,3-Dichloropropene	<1.5	<0.33
Ethanol	370 ve	200 ve	Toluene	<62	<16
Acrolein	<6.8	<3	1,1,2-Trichloroethane	<0.18	<0.033
Pentane	<9.7	<3.3	2-Hexanone	<14	<3.3
Trichlorofluoromethane	<7.4	<1.3	Tetrachloroethene	<22	<3.3
Acetone	<16	<6.6	Dibromochloromethane	<0.28	<0.033
2-Propanol	<28	<12	1,2-Dibromoethane (EDB)	<0.25	<0.033
1,1-Dichloroethene	<1.3	<0.33	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	<1.4	<0.33
Methylene chloride	<110 jl	<33 jl	1,1,2,2-Tetrachloroethane	<0.45	<0.066
t-Butyl alcohol (TBA)	<40	<13	Nonane	<17	<3.3
3-Chloropropene	<5.2	<1.6	Isopropylbenzene	<8.1	<1.6
CFC-113	<2.5	<0.33	2-Chlorotoluene	<17	<3.3
Carbon disulfide	<21	<6.6	Propylbenzene	<8.1	<1.6
Methyl t-butyl ether (MTBE)	<5.9	<1.6	4-Ethyltoluene	<8.1	<1.6
Vinyl acetate	<23	<6.6	m,p-Xylene	3.5	0.81
1,1-Dichloroethane	<1.3	<0.33	o-Xylene	1.6	0.37
cis-1,2-Dichloroethene	<1.3	<0.33	Styrene	<2.8	<0.66
Hexane	<12	<3.3	Bromoform	<6.8	<0.66
Chloroform	<0.16	<0.033	Benzyl chloride	<0.17	<0.033
Ethyl acetate	<24	<6.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Tetrahydrofuran	<0.97	<0.33	1,2,4-Trimethylbenzene	<8.1	<1.6
2-Butanone (MEK)	<9.7	<3.3	1,3-Dichlorobenzene	<2	<0.33
1,2-Dichloroethane (EDC)	<0.13	<0.033	1,4-Dichlorobenzene	<0.75	<0.13
1,1,1-Trichloroethane	<1.8	<0.33	1,2-Dichlorobenzene	<2	<0.33
Carbon tetrachloride	<1	<0.16	1,2,4-Trichlorobenzene	<2.4	<0.33
Benzene	<1.1	<0.33	Naphthalene	<0.86	<0.16
Cyclohexane	<23	<6.6	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-17-0-4-012021-(01)	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-03 1/3.6
Date Analyzed:	01/27/21	Data File:	012619.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	93	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<4.3	<2.5	1,2-Dichloropropane	<0.83	<0.18
Dichlorodifluoromethane	4.1	0.83	1,4-Dioxane	<1.3	<0.36
Chloromethane	<13	<6.5	2,2,4-Trimethylpentane	<17	<3.6
F-114	<2.5	<0.36	Methyl methacrylate	<15	<3.6
Vinyl chloride	<0.92	<0.36	Heptane	<15	<3.6
1,3-Butadiene	<0.16	<0.072	Bromodichloromethane	<0.24	<0.036
Butane	<8.6	<3.6	Trichloroethene	<0.39	<0.072
Bromomethane	<8.4	<2.2	cis-1,3-Dichloropropene	<1.6	<0.36
Chloroethane	<9.5	<3.6	4-Methyl-2-pentanone	<15	<3.6
Vinyl bromide	<1.6	<0.36	trans-1,3-Dichloropropene	<1.6	<0.36
Ethanol	640 ve	340 ve	Toluene	<68	<18
Acrolein	<7.4	<3.2	1,1,2-Trichloroethane	<0.2	<0.036
Pentane	<11	<3.6	2-Hexanone	<15	<3.6
Trichlorofluoromethane	<8.1	<1.4	Tetrachloroethene	<24	<3.6
Acetone	18	7.7	Dibromochloromethane	<0.31	<0.036
2-Propanol	<31	<13	1,2-Dibromoethane (EDB)	<0.28	<0.036
1,1-Dichloroethene	<1.4	<0.36	Chlorobenzene	<1.7	<0.36
trans-1,2-Dichloroethene	<1.4	<0.36	Ethylbenzene	<1.6	<0.36
Methylene chloride	<130 jl	<36 jl	1,1,2,2-Tetrachloroethane	<0.49	<0.072
t-Butyl alcohol (TBA)	<44	<14	Nonane	<19	<3.6
3-Chloropropene	<5.6	<1.8	Isopropylbenzene	<8.8	<1.8
CFC-113	<2.8	<0.36	2-Chlorotoluene	<19	<3.6
Carbon disulfide	<22	<7.2	Propylbenzene	<8.8	<1.8
Methyl t-butyl ether (MTBE)	<6.5	<1.8	4-Ethyltoluene	<8.8	<1.8
Vinyl acetate	<25	<7.2	m,p-Xylene	3.9	0.89
1,1-Dichloroethane	<1.5	<0.36	o-Xylene	1.8	0.41
cis-1,2-Dichloroethene	<1.4	<0.36	Styrene	<3.1	<0.72
Hexane	<13	<3.6	Bromoform	<7.4	<0.72
Chloroform	<0.18	<0.036	Benzyl chloride	<0.19	<0.036
Ethyl acetate	<26	<7.2	1,3,5-Trimethylbenzene	<8.8	<1.8
Tetrahydrofuran	<1.1	<0.36	1,2,4-Trimethylbenzene	<8.8	<1.8
2-Butanone (MEK)	<11	<3.6	1,3-Dichlorobenzene	<2.2	<0.36
1,2-Dichloroethane (EDC)	<0.15	<0.036	1,4-Dichlorobenzene	<0.82	<0.14
1,1,1-Trichloroethane	<2	<0.36	1,2-Dichlorobenzene	<2.2	<0.36
Carbon tetrachloride	<1.1	<0.18	1,2,4-Trichlorobenzene	<2.7	<0.36
Benzene	<1.2	<0.36	Naphthalene	<0.94	<0.18
Cyclohexane	<25	<7.2	Hexachlorobutadiene	<0.77	<0.072

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-01-012021	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-04
Date Analyzed:	01/26/21	Data File:	012611.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	99	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	3.8	0.76	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	0.091	0.041	Bromodichloromethane	<0.067	<0.01
Butane	3.6	1.5	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	720 ve	380 ve	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	7.4	1.1
Acetone	11	4.6	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.89	0.21
Methylene chloride	52 jl lc	15 jl lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	3.2	0.73
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	1.5	0.35
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.13	0.027	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	4.1	0.83
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.085	0.021	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.42	0.067	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.71	0.22	Naphthalene	0.47	0.089
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-01-012021-(01)	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-05
Date Analyzed:	01/26/21	Data File:	012612.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	97	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	3.9	0.80	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	0.086	0.039	Bromodichloromethane	<0.067	<0.01
Butane	3.8	1.6	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	720 ve	380 ve	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	7.2	1.1
Acetone	10	4.4	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.88	0.20
Methylene chloride	55 jl lc	16 jl lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	3.2	0.73
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	1.5	0.35
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.15	0.030	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	4.2	0.85
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.073	0.018	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.43	0.069	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.73	0.23	Naphthalene	0.45	0.085
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-18-0-1-012021	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-06 1/3.4
Date Analyzed:	01/27/21	Data File:	012620.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	100	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<4.1	<2.4	1,2-Dichloropropane	<0.79	<0.17
Dichlorodifluoromethane	4.5	0.91	1,4-Dioxane	<1.2	<0.34
Chloromethane	<13	<6.1	2,2,4-Trimethylpentane	<16	<3.4
F-114	<2.4	<0.34	Methyl methacrylate	<14	<3.4
Vinyl chloride	<0.87	<0.34	Heptane	<14	<3.4
1,3-Butadiene	<0.15	<0.068	Bromodichloromethane	<0.23	<0.034
Butane	<8.1	<3.4	Trichloroethene	<0.37	<0.068
Bromomethane	<7.9	<2	cis-1,3-Dichloropropene	<1.5	<0.34
Chloroethane	<9	<3.4	4-Methyl-2-pentanone	<14	<3.4
Vinyl bromide	<1.5	<0.34	trans-1,3-Dichloropropene	<1.5	<0.34
Ethanol	790 ve	420 ve	Toluene	<64	<17
Acrolein	<7	<3.1	1,1,2-Trichloroethane	<0.19	<0.034
Pentane	<10	<3.4	2-Hexanone	<14	<3.4
Trichlorofluoromethane	<7.6	<1.4	Tetrachloroethene	<23	<3.4
Acetone	22	9.2	Dibromochloromethane	<0.29	<0.034
2-Propanol	33	13	1,2-Dibromoethane (EDB)	<0.26	<0.034
1,1-Dichloroethene	<1.3	<0.34	Chlorobenzene	<1.6	<0.34
trans-1,2-Dichloroethene	<1.3	<0.34	Ethylbenzene	<1.5	<0.34
Methylene chloride	<120 jl	<34 jl	1,1,2,2-Tetrachloroethane	<0.47	<0.068
t-Butyl alcohol (TBA)	<41	<14	Nonane	<18	<3.4
3-Chloropropene	<5.3	<1.7	Isopropylbenzene	<8.4	<1.7
CFC-113	<2.6	<0.34	2-Chlorotoluene	<18	<3.4
Carbon disulfide	<21	<6.8	Propylbenzene	<8.4	<1.7
Methyl t-butyl ether (MTBE)	<6.1	<1.7	4-Ethyltoluene	<8.4	<1.7
Vinyl acetate	<24	<6.8	m,p-Xylene	<3	<0.68
1,1-Dichloroethane	<1.4	<0.34	o-Xylene	<1.5	<0.34
cis-1,2-Dichloroethene	<1.3	<0.34	Styrene	<2.9	<0.68
Hexane	<12	<3.4	Bromoform	<7	<0.68
Chloroform	<0.17	<0.034	Benzyl chloride	<0.18	<0.034
Ethyl acetate	<25	<6.8	1,3,5-Trimethylbenzene	<8.4	<1.7
Tetrahydrofuran	<1	<0.34	1,2,4-Trimethylbenzene	<8.4	<1.7
2-Butanone (MEK)	<10	<3.4	1,3-Dichlorobenzene	<2	<0.34
1,2-Dichloroethane (EDC)	<0.14	<0.034	1,4-Dichlorobenzene	<0.78	<0.13
1,1,1-Trichloroethane	<1.9	<0.34	1,2-Dichlorobenzene	<2	<0.34
Carbon tetrachloride	<1.1	<0.17	1,2,4-Trichlorobenzene	<2.5	<0.34
Benzene	<1.1	<0.34	Naphthalene	<0.89	<0.17
Cyclohexane	<23	<6.8	Hexachlorobutadiene	<0.73	<0.068

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-02-012021	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-07
Date Analyzed:	01/26/21	Data File:	012613.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	97	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	3.7	0.74	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	0.15	0.066	Bromodichloromethane	<0.067	<0.01
Butane	4.3	1.8	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	1,500 ve	770 ve	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	37	16	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.81	0.19
Methylene chloride	490 ve jl lc	140 ve jl lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	2.9	0.67
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	1.3	0.30
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	9.9	2.8	Bromoform	<2.1	<0.2
Chloroform	0.14	0.029	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	3.1	0.63
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.085	0.021	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.45	0.071	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.87	0.27	Naphthalene	0.33	0.063
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-19-0-1-012021	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-08 1/3.3
Date Analyzed:	01/27/21	Data File:	012621.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	99	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<4	<2.3	1,2-Dichloropropane	<0.76	<0.16
Dichlorodifluoromethane	5.7	1.2	1,4-Dioxane	<1.2	<0.33
Chloromethane	<12	<5.9	2,2,4-Trimethylpentane	<15	<3.3
F-114	<2.3	<0.33	Methyl methacrylate	<14	<3.3
Vinyl chloride	<0.84	<0.33	Heptane	<14	<3.3
1,3-Butadiene	<0.15	<0.066	Bromodichloromethane	<0.22	<0.033
Butane	<7.8	<3.3	Trichloroethene	<0.35	<0.066
Bromomethane	<7.7	<2	cis-1,3-Dichloropropene	<1.5	<0.33
Chloroethane	<8.7	<3.3	4-Methyl-2-pentanone	<14	<3.3
Vinyl bromide	<1.4	<0.33	trans-1,3-Dichloropropene	<1.5	<0.33
Ethanol	2,400 ve	1,300 ve	Toluene	<62	<16
Acrolein	<6.8	<3	1,1,2-Trichloroethane	<0.18	<0.033
Pentane	<9.7	<3.3	2-Hexanone	<14	<3.3
Trichlorofluoromethane	<7.4	<1.3	Tetrachloroethene	<22	<3.3
Acetone	43	18	Dibromochloromethane	<0.28	<0.033
2-Propanol	250 ve	100 ve	1,2-Dibromoethane (EDB)	<0.25	<0.033
1,1-Dichloroethene	<1.3	<0.33	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	<1.4	<0.33
Methylene chloride	<110 jl	<33 jl	1,1,2,2-Tetrachloroethane	<0.45	<0.066
t-Butyl alcohol (TBA)	<40	<13	Nonane	<17	<3.3
3-Chloropropene	<5.2	<1.6	Isopropylbenzene	<8.1	<1.6
CFC-113	<2.5	<0.33	2-Chlorotoluene	<17	<3.3
Carbon disulfide	<21	<6.6	Propylbenzene	<8.1	<1.6
Methyl t-butyl ether (MTBE)	<5.9	<1.6	4-Ethyltoluene	<8.1	<1.6
Vinyl acetate	<23	<6.6	m,p-Xylene	<2.9	<0.66
1,1-Dichloroethane	<1.3	<0.33	o-Xylene	<1.4	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	Styrene	<2.8	<0.66
Hexane	<12	<3.3	Bromoform	<6.8	<0.66
Chloroform	0.39	0.079	Benzyl chloride	<0.17	<0.033
Ethyl acetate	<24	<6.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Tetrahydrofuran	<0.97	<0.33	1,2,4-Trimethylbenzene	<8.1	<1.6
2-Butanone (MEK)	<9.7	<3.3	1,3-Dichlorobenzene	<2	<0.33
1,2-Dichloroethane (EDC)	0.17	0.043	1,4-Dichlorobenzene	<0.75	<0.13
1,1,1-Trichloroethane	<1.8	<0.33	1,2-Dichlorobenzene	<2	<0.33
Carbon tetrachloride	<1	<0.16	1,2,4-Trichlorobenzene	<2.4	<0.33
Benzene	<1.1	<0.33	Naphthalene	<0.86	<0.16
Cyclohexane	<23	<6.6	Hexachlorobutadiene	<0.7	<0.066

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-03-012021	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-09
Date Analyzed:	01/26/21	Data File:	012614.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	97	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	4.9	1.0	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	0.095	0.043	Bromodichloromethane	<0.067	<0.01
Butane	3.6	1.5	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	5.3	1.3
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	2,300 ve	1,200 ve	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	38	16	Dibromochloromethane	<0.085	<0.01
2-Propanol	280 ve	110 ve	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.49	0.11
Methylene chloride	93 ve jl lc	27 ve jl lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.8	0.41
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.79	0.18
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	1.0	0.24
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.32	0.065	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.17	0.043	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.43	0.069	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.64	0.20	Naphthalene	0.25	0.047
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-20-0-1-012021	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-10 1/3.4
Date Analyzed:	01/27/21	Data File:	012622.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	99	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<4.1	<2.4	1,2-Dichloropropane	<0.79	<0.17
Dichlorodifluoromethane	7.5	1.5	1,4-Dioxane	<1.2	<0.34
Chloromethane	<13	<6.1	2,2,4-Trimethylpentane	<16	<3.4
F-114	<2.4	<0.34	Methyl methacrylate	<14	<3.4
Vinyl chloride	<0.87	<0.34	Heptane	<14	<3.4
1,3-Butadiene	<0.15	<0.068	Bromodichloromethane	<0.23	<0.034
Butane	<8.1	<3.4	Trichloroethene	<0.37	<0.068
Bromomethane	<7.9	<2	cis-1,3-Dichloropropene	<1.5	<0.34
Chloroethane	<9	<3.4	4-Methyl-2-pentanone	<14	<3.4
Vinyl bromide	<1.5	<0.34	trans-1,3-Dichloropropene	<1.5	<0.34
Ethanol	1,600 ve	840 ve	Toluene	<64	<17
Acrolein	<7	<3.1	1,1,2-Trichloroethane	<0.19	<0.034
Pentane	<10	<3.4	2-Hexanone	<14	<3.4
Trichlorofluoromethane	<7.6	<1.4	Tetrachloroethene	<23	<3.4
Acetone	46	19	Dibromochloromethane	<0.29	<0.034
2-Propanol	170	71	1,2-Dibromoethane (EDB)	<0.26	<0.034
1,1-Dichloroethene	<1.3	<0.34	Chlorobenzene	<1.6	<0.34
trans-1,2-Dichloroethene	<1.3	<0.34	Ethylbenzene	<1.5	<0.34
Methylene chloride	<120 jl	<34 jl	1,1,2,2-Tetrachloroethane	<0.47	<0.068
t-Butyl alcohol (TBA)	<41	<14	Nonane	<18	<3.4
3-Chloropropene	<5.3	<1.7	Isopropylbenzene	<8.4	<1.7
CFC-113	<2.6	<0.34	2-Chlorotoluene	<18	<3.4
Carbon disulfide	<21	<6.8	Propylbenzene	<8.4	<1.7
Methyl t-butyl ether (MTBE)	<6.1	<1.7	4-Ethyltoluene	<8.4	<1.7
Vinyl acetate	<24	<6.8	m,p-Xylene	<3	<0.68
1,1-Dichloroethane	<1.4	<0.34	o-Xylene	<1.5	<0.34
cis-1,2-Dichloroethene	<1.3	<0.34	Styrene	<2.9	<0.68
Hexane	<12	<3.4	Bromoform	<7	<0.68
Chloroform	0.32	0.065	Benzyl chloride	<0.18	<0.034
Ethyl acetate	<25	<6.8	1,3,5-Trimethylbenzene	<8.4	<1.7
Tetrahydrofuran	<1	<0.34	1,2,4-Trimethylbenzene	<8.4	<1.7
2-Butanone (MEK)	<10	<3.4	1,3-Dichlorobenzene	<2	<0.34
1,2-Dichloroethane (EDC)	0.22	0.054	1,4-Dichlorobenzene	<0.78	<0.13
1,1,1-Trichloroethane	<1.9	<0.34	1,2-Dichlorobenzene	<2	<0.34
Carbon tetrachloride	<1.1	<0.17	1,2,4-Trichlorobenzene	<2.5	<0.34
Benzene	<1.1	<0.34	Naphthalene	<0.89	<0.17
Cyclohexane	<23	<6.8	Hexachlorobutadiene	<0.73	<0.068

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-04-012021	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-11
Date Analyzed:	01/26/21	Data File:	012615.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	99	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	4.8	0.97	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	0.084	0.038	Bromodichloromethane	<0.067	<0.01
Butane	3.2	1.3	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	4.5	1.1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	1,200 ve	630 ve	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	35	15	Dibromochloromethane	<0.085	<0.01
2-Propanol	200 ve	81 ve	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.43	0.10
Methylene chloride	190 ve jl lc	54 ve jl lc	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.6	0.37
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.69	0.16
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	5.3	1.5	Bromoform	<2.1	<0.2
Chloroform	0.26	0.053	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.20	0.050	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.42	0.067	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.61	0.19	Naphthalene	0.18	0.034
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-21-0-1-012021	Client:	Urban Environmental Partners
Date Received:	01/20/21	Project:	Pine Lake Cleaners
Date Collected:	01/20/21	Lab ID:	101270-12 1/3.3
Date Analyzed:	01/26/21	Data File:	012616.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	102	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<4	<2.3	1,2-Dichloropropane	<0.76	<0.16
Dichlorodifluoromethane	2.2	0.44	1,4-Dioxane	<1.2	<0.33
Chloromethane	<12	<5.9	2,2,4-Trimethylpentane	<15	<3.3
F-114	<2.3	<0.33	Methyl methacrylate	<14	<3.3
Vinyl chloride	<0.84	<0.33	Heptane	<14	<3.3
1,3-Butadiene	<0.15	<0.066	Bromodichloromethane	<0.22	<0.033
Butane	<7.8	<3.3	Trichloroethene	<0.35	<0.066
Bromomethane	<7.7	<2	cis-1,3-Dichloropropene	<1.5	<0.33
Chloroethane	<8.7	<3.3	4-Methyl-2-pentanone	<14	<3.3
Vinyl bromide	<1.4	<0.33	trans-1,3-Dichloropropene	<1.5	<0.33
Ethanol	<25	<13	Toluene	<62	<16
Acrolein	<6.8	<3	1,1,2-Trichloroethane	<0.18	<0.033
Pentane	<9.7	<3.3	2-Hexanone	<14	<3.3
Trichlorofluoromethane	<7.4	<1.3	Tetrachloroethene	<22	<3.3
Acetone	<16	<6.6	Dibromochloromethane	<0.28	<0.033
2-Propanol	<28	<12	1,2-Dibromoethane (EDB)	<0.25	<0.033
1,1-Dichloroethene	<1.3	<0.33	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	<1.4	<0.33
Methylene chloride	<110 jl	<33 jl	1,1,2,2-Tetrachloroethane	<0.45	<0.066
t-Butyl alcohol (TBA)	<40	<13	Nonane	<17	<3.3
3-Chloropropene	<5.2	<1.6	Isopropylbenzene	<8.1	<1.6
CFC-113	<2.5	<0.33	2-Chlorotoluene	<17	<3.3
Carbon disulfide	<21	<6.6	Propylbenzene	<8.1	<1.6
Methyl t-butyl ether (MTBE)	<5.9	<1.6	4-Ethyltoluene	<8.1	<1.6
Vinyl acetate	<23	<6.6	m,p-Xylene	<2.9	<0.66
1,1-Dichloroethane	<1.3	<0.33	o-Xylene	<1.4	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	Styrene	<2.8	<0.66
Hexane	<12	<3.3	Bromoform	<6.8	<0.66
Chloroform	<0.16	<0.033	Benzyl chloride	<0.17	<0.033
Ethyl acetate	<24	<6.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Tetrahydrofuran	<0.97	<0.33	1,2,4-Trimethylbenzene	<8.1	<1.6
2-Butanone (MEK)	<9.7	<3.3	1,3-Dichlorobenzene	<2	<0.33
1,2-Dichloroethane (EDC)	<0.13	<0.033	1,4-Dichlorobenzene	<0.75	<0.13
1,1,1-Trichloroethane	<1.8	<0.33	1,2-Dichlorobenzene	<2	<0.33
Carbon tetrachloride	<1	<0.16	1,2,4-Trichlorobenzene	<2.4	<0.33
Benzene	<1.1	<0.33	Naphthalene	<0.86	<0.16
Cyclohexane	<23	<6.6	Hexachlorobutadiene	<0.7	<0.066

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Urban Environmental Partners
Date Received:	Not Applicable	Project:	Pine Lake Cleaners
Date Collected:	Not Applicable	Lab ID:	01-206 MB
Date Analyzed:	01/26/21	Data File:	012609.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	103	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	<0.49	<0.1	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35 jl	<10 jl	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.31	<0.05	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	<0.1	<0.02
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Date of Report: 02/01/21
Date Received: 01/20/21
Project: Pine Lake Cleaners 2830 228th Ave SE Sammamish WA, F&BI 101270

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 101270-12 1/3.3 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	<4	<4	nm
Dichlorodifluoromethane	ug/m3	2.2	2.2	0
Chloromethane	ug/m3	<12	<12	nm
F-114	ug/m3	<2.3	<2.3	nm
Vinyl chloride	ug/m3	<0.84	<0.84	nm
1,3-Butadiene	ug/m3	<0.15	<0.15	nm
Butane	ug/m3	<7.8	<7.8	nm
Bromomethane	ug/m3	<7.7	<7.7	nm
Chloroethane	ug/m3	<8.7	<8.7	nm
Vinyl bromide	ug/m3	<1.4	<1.4	nm
Ethanol	ug/m3	<25	<25	nm
Acrolein	ug/m3	<6.8	<6.8	nm
Pentane	ug/m3	<9.7	<9.7	nm
Trichlorofluoromethane	ug/m3	<7.4	<7.4	nm
Acetone	ug/m3	<16	<16	nm
2-Propanol	ug/m3	<28	<28	nm
1,1-Dichloroethene	ug/m3	<1.3	<1.3	nm
trans-1,2-Dichloroethene	ug/m3	<1.3	<1.3	nm
Methylene chloride	ug/m3	<110	<110	nm
t-Butyl alcohol (TBA)	ug/m3	<40	<40	nm
3-Chloropropene	ug/m3	<5.2	<5.2	nm
CFC-113	ug/m3	<2.5	<2.5	nm
Carbon disulfide	ug/m3	<21	<21	nm
Methyl t-butyl ether (MTBE)	ug/m3	<5.9	<5.9	nm
Vinyl acetate	ug/m3	<23	<23	nm
1,1-Dichloroethane	ug/m3	<1.3	<1.3	nm
cis-1,2-Dichloroethene	ug/m3	<1.3	<1.3	nm
Hexane	ug/m3	<12	<12	nm
Chloroform	ug/m3	<0.16	<0.16	nm
Ethyl acetate	ug/m3	<24	<24	nm
Tetrahydrofuran	ug/m3	<0.97	<0.97	nm
2-Butanone (MEK)	ug/m3	<9.7	<9.7	nm
1,2-Dichloroethane (EDC)	ug/m3	<0.13	<0.13	nm
1,1,1-Trichloroethane	ug/m3	<1.8	<1.8	nm
Carbon tetrachloride	ug/m3	<1	<1	nm
Benzene	ug/m3	<1.1	<1.1	nm
Cyclohexane	ug/m3	<23	<23	nm
1,2-Dichloropropane	ug/m3	<0.76	<0.76	nm
1,4-Dioxane	ug/m3	<1.2	<1.2	nm
2,2,4-Trimethylpentane	ug/m3	<15	<15	nm

Date of Report: 02/01/21
Date Received: 01/20/21
Project: Pine Lake Cleaners 2830 228th Ave SE Sammamish WA, F&BI 101270

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 101270-12 1/3.3 (Duplicate, continued)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<14	<14	nm
Heptane	ug/m3	<14	<14	nm
Bromodichloromethane	ug/m3	<0.22	<0.22	nm
Trichloroethene	ug/m3	<0.35	<0.35	nm
cis-1,3-Dichloropropene	ug/m3	<1.5	<1.5	nm
4-Methyl-2-pentanone	ug/m3	<14	<14	nm
trans-1,3-Dichloropropene	ug/m3	<1.5	<1.5	nm
Toluene	ug/m3	<62	<62	nm
1,1,2-Trichloroethane	ug/m3	<0.18	<0.18	nm
2-Hexanone	ug/m3	<14	<14	nm
Tetrachloroethene	ug/m3	<22	<22	nm
Dibromochloromethane	ug/m3	<0.28	<0.28	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.25	<0.25	nm
Chlorobenzene	ug/m3	<1.5	<1.5	nm
Ethylbenzene	ug/m3	<1.4	<1.4	nm
1,1,2,2-Tetrachloroethane	ug/m3	<0.45	<0.45	nm
Nonane	ug/m3	<17	<17	nm
Isopropylbenzene	ug/m3	<8.1	<8.1	nm
2-Chlorotoluene	ug/m3	<17	<17	nm
Propylbenzene	ug/m3	<8.1	<8.1	nm
4-Ethyltoluene	ug/m3	<8.1	<8.1	nm
m,p-Xylene	ug/m3	<2.9	<2.9	nm
o-Xylene	ug/m3	<1.4	<1.4	nm
Styrene	ug/m3	<2.8	<2.8	nm
Bromoform	ug/m3	<6.8	<6.8	nm
Benzyl chloride	ug/m3	<0.17	<0.17	nm
1,3,5-Trimethylbenzene	ug/m3	<8.1	<8.1	nm
1,2,4-Trimethylbenzene	ug/m3	<8.1	<8.1	nm
1,3-Dichlorobenzene	ug/m3	<2	<2	nm
1,4-Dichlorobenzene	ug/m3	<0.75	<0.75	nm
1,2-Dichlorobenzene	ug/m3	<2	<2	nm
1,2,4-Trichlorobenzene	ug/m3	<2.4	<2.4	nm
Naphthalene	ug/m3	<0.86	<0.86	nm
Hexachlorobutadiene	ug/m3	<0.7	<0.7	nm

Date of Report: 02/01/21
Date Received: 01/20/21
Project: Pine Lake Cleaners 2830 228th Ave SE Sammamish WA, F&BI 101270

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Propene	ug/m3	23	77	70-130
Dichlorodifluoromethane	ug/m3	67	98	70-130
Chloromethane	ug/m3	28	94	70-130
F-114	ug/m3	94	101	70-130
Vinyl chloride	ug/m3	35	94	70-130
1,3-Butadiene	ug/m3	30	91	70-130
Butane	ug/m3	32	81	70-130
Bromomethane	ug/m3	52	116	70-130
Chloroethane	ug/m3	36	104	70-130
Vinyl bromide	ug/m3	59	108	70-130
Ethanol	ug/m3	25	86	70-130
Acrolein	ug/m3	31	90	70-130
Pentane	ug/m3	40	86	70-130
Trichlorofluoromethane	ug/m3	76	89	70-130
Acetone	ug/m3	32	86	70-130
2-Propanol	ug/m3	33	94	70-130
1,1-Dichloroethene	ug/m3	54	107	70-130
trans-1,2-Dichloroethene	ug/m3	54	108	70-130
Methylene chloride	ug/m3	94	22 vo	70-130
t-Butyl alcohol (TBA)	ug/m3	41	100	70-130
3-Chloropropene	ug/m3	42	91	70-130
CFC-113	ug/m3	100	106	70-130
Carbon disulfide	ug/m3	42	91	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	101	70-130
Vinyl acetate	ug/m3	48	92	70-130
1,1-Dichloroethane	ug/m3	55	98	70-130
cis-1,2-Dichloroethene	ug/m3	54	107	70-130
Hexane	ug/m3	48	89	70-130
Chloroform	ug/m3	66	106	70-130
Ethyl acetate	ug/m3	49	101	70-130
Tetrahydrofuran	ug/m3	40	101	70-130
2-Butanone (MEK)	ug/m3	40	107	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	101	70-130
1,1,1-Trichloroethane	ug/m3	74	108	70-130
Carbon tetrachloride	ug/m3	85	111	70-130
Benzene	ug/m3	43	103	70-130
Cyclohexane	ug/m3	46	101	70-130
1,2-Dichloropropane	ug/m3	62	99	70-130
1,4-Dioxane	ug/m3	49	104	70-130
2,2,4-Trimethylpentane	ug/m3	63	89	70-130

Date of Report: 02/01/21
Date Received: 01/20/21
Project: Pine Lake Cleaners 2830 228th Ave SE Sammamish WA, F&BI 101270

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample (Continued)

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Methyl methacrylate	ug/m3	55	94	70-130
Heptane	ug/m3	55	76	70-130
Bromodichloromethane	ug/m3	90	104	70-130
Trichloroethene	ug/m3	73	105	70-130
cis-1,3-Dichloropropene	ug/m3	61	106	70-130
4-Methyl-2-pentanone	ug/m3	55	109	70-130
trans-1,3-Dichloropropene	ug/m3	61	107	70-130
Toluene	ug/m3	51	104	70-130
1,1,2-Trichloroethane	ug/m3	74	104	70-130
2-Hexanone	ug/m3	55	93	70-130
Tetrachloroethene	ug/m3	92	112	70-130
Dibromochloromethane	ug/m3	120	112	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	108	70-130
Chlorobenzene	ug/m3	62	108	70-130
Ethylbenzene	ug/m3	59	107	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	109	70-130
Nonane	ug/m3	71	91	70-130
Isopropylbenzene	ug/m3	66	114	70-130
2-Chlorotoluene	ug/m3	70	116	70-130
Propylbenzene	ug/m3	66	108	70-130
4-Ethyltoluene	ug/m3	66	107	70-130
m,p-Xylene	ug/m3	120	111	70-130
o-Xylene	ug/m3	59	114	70-130
Styrene	ug/m3	58	110	70-130
Bromoform	ug/m3	140	106	70-130
Benzyl chloride	ug/m3	70	124	70-130
1,3,5-Trimethylbenzene	ug/m3	66	107	70-130
1,2,4-Trimethylbenzene	ug/m3	66	114	70-130
1,3-Dichlorobenzene	ug/m3	81	120	70-130
1,4-Dichlorobenzene	ug/m3	81	118	70-130
1,2-Dichlorobenzene	ug/m3	81	121	70-130
1,2,4-Trichlorobenzene	ug/m3	100	134 vo	70-130
Naphthalene	ug/m3	71	129	70-130
Hexachlorobutadiene	ug/m3	140	122	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

101270

SAMPLE CHAIN OF CUSTODY ME

01-20-21

Page # 1 of 2

Report To Nathan Stern ; Roy Kuroiwa
Company Urban Environmental Partners llc
Address 2324 1st Ave Ste 203
City, State, ZIP Seattle, Wa 98121
Phone (206) 229-6804 Email sternne@usplopeer.com rkkpe@comcast.net

SAMPLERS (signature) Matthew W. Grunwald

PROJECT NAME & ADDRESS 2830 228th Ave SE Pine Lake Cleaners Sammamish, Wa

PO #

NOTES:

INVOICE TO UEP llc

TURNAROUND TIME
X Standard
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Default: Clean after 3 days
☐ Archive (Fee may apply)

SAMPLE INFORMATION										ANALYSIS REQUESTED						
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 ETEXN	TO15 cVOCs	APH	Helium		Notes
AA-AA-01-012021	01	18565	07870	(IA) / SG	1/20/21	30"	0744	05"	1615	X						
SG-SV-17-0-1-012021	02	21453	31	IA / (SG)	1/20/21	30"+	0855	04"	1440	X						
SG-SV-17-0-1-012021-(01)	03	18572	08	IA / (SG)	1/20/21	29"	0855	06"	1655	X						
IA-IA-01-012021	04	20554	07850	(IA) / SG	1/20/21	30"+	0850	08"	1650	X						
IA-IA-01-012021-(01)	OK	18576	05354	(IA) / SG	1/20/21	29"	0850	08"	1656	X						
SG-SV-18-0-1-012021	06	23230	111	IA / (SG)	1/20/21	30"	0902	05"	1640	X						
IA-IA-02-012021	07	23234	06608	(IA) / SG	1/20/21	29"	0858	07"	1702	X						valve open cap off B
SG-SV-19-0-1-012021	08	23231		IA / (SG)	1/20/21	30"+	0947	03"	1715	X						

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COCTO-15.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Matthew W. Grunwald	Matthew W. Grunwald	UEP, llc	1/20/21	1810
Received by:	JOE MONTANO	FB&F	1/20/21	1860
Relinquished by:				
Received by:				

Samples received at 18 °C

SAMPLE CHAIN OF CUSTODY

101270

01-20-21

Page # 2 of 2

Report To Nathan Starr ; Roy Kuroiwa
Company Urban Environmental Partners llc
Address 2324 1st Ave Ste. 203
City, State, ZIP Seattle, Wa 98121
Phone (206) 229-6804 Email starn@uspioneer.com rkkpe@comcast.net

SAMPLERS (signature) Matthew W. Grunwald

PROJECT NAME & ADDRESS Pine Lake Commons 2830 228th Ave SE Sammamish, Wa

PO #

NOTES:

INVOICE TO UEP llc

TURNAROUND TIME
X Standard
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Default: Clean after 3 days
☐ Archive (Fee may apply)

SAMPLE INFORMATION / ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium		Notes
IA-IA-03-012021	09	20544	05348	(IA) / SG	1/20/21	30"	0942	08	1715	X						
SG-SV-20-0-1-012021	10	20543		IA / (SG)	1/20/21	30"	0953	05	1625	X						
IA-IA-04-012021	11	21484	06602	(IA) / SG	1/20/21	29"	0949	08	1716	X						
SG-SV-21-0-1-012021	12	18566	17	IA / (SG)	1/20/21	30"	0915	04"	1600	X						
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Matthew W. Grunwald	Matthew W. Grunwald	UEP llc	1/20/21	1810
Received by:	Joe Mohammed	FBSI	1/20/21	1810
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COCTO-15.DOC

Samples received at 18 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
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(206) 285-8282
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www.friedmanandbruya.com

March 5, 2021

Nathan Starr, Project Manager
Pioneer Technologies Corp
5205 Corporate Center Ct, Suite A
Lacey, WA 98503

Dear Mr Starr:

Included are the results from the testing of material submitted on February 24, 2021 from the PLC, F&BI 102398 project. There are 23 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
PTC0305R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 24, 2021 by Friedman & Bruya, Inc. from the Pioneer Technologies Corp PLC, F&BI 102398 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Pioneer Technologies Corp
102398 -01	AA-AA-01-022421
102398 -02	SG-SV-17-0-1-022421
102398 -03	SG-SV-17-0-1-022421-(01)
102398 -04	IA-IA-01-022421
102398 -05	IA-IA-01-022421-(01)
102398 -06	SG-SV-18-0-1-022421
102398 -07	IA-IA-02-022421
102398 -08	SG-SV-21-0-1-022421
102398 -09	SG-SV-19-0-1-022421
102398 -10	IA-IA-03-022421
102398 -11	SG-SV-20-0-1-022421
102398 -12	IA-IA-04-022421

Several TO-15 analytes exceeded the calibration range. In addition, an internal standard failed the acceptance criteria for samples IA-IA-01-022421, IA-IA-01-022421-(01), IA-IA-02-022421, and IA-IA-03-022421. The samples were diluted and reanalyzed with acceptable results. Both data sets were reported for affected analytes.

Ethanol in the TO-15 laboratory control sample exceeded the acceptance criteria. The data were flagged accordingly.

The TO-15 acrolein, EDB and naphthalene concentrations were reported below standard laboratory reporting limits in several samples. The data were qualified accordingly.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	AA-AA-01-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-01
Date Analyzed:	02/26/21	Data File:	022611.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	92	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	2.1	0.43	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.078	0.016	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.069	0.017	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.45	0.071	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.37	0.12	Naphthalene	0.089 j	0.017 j
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-17-0-1-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-02 1/17
Date Analyzed:	02/26/21	Data File:	022623.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	86	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<20	<12	1,2-Dichloropropane	<3.9	<0.85
Dichlorodifluoromethane	290	58	1,4-Dioxane	<6.1	<1.7
Chloromethane	<63	<31	2,2,4-Trimethylpentane	<79	<17
F-114	<12	<1.7	Methyl methacrylate	<70	<17
Vinyl chloride	<4.3	<1.7	Heptane	<70	<17
1,3-Butadiene	<0.75	<0.34	Bromodichloromethane	<1.1	<0.17
Butane	<40	<17	Trichloroethene	18	3.3
Bromomethane	<40	<10	cis-1,3-Dichloropropene	<7.7	<1.7
Chloroethane	<45	<17	4-Methyl-2-pentanone	<70	<17
Vinyl bromide	<7.4	<1.7	trans-1,3-Dichloropropene	<7.7	<1.7
Ethanol	<130	<68	Toluene	<320	<85
Acrolein	<33 j	<14 j	1,1,2-Trichloroethane	<0.93	<0.17
Pentane	<50	<17	2-Hexanone	<70	<17
Trichlorofluoromethane	<38	<6.8	Tetrachloroethene	20,000 ve	2,900 ve
Acetone	<81	<34	Dibromochloromethane	<1.4	<0.17
2-Propanol	<150	<59	1,2-Dibromoethane (EDB)	<0.65 j	<0.085 j
1,1-Dichloroethene	<6.7	<1.7	Chlorobenzene	<7.8	<1.7
trans-1,2-Dichloroethene	<6.7	<1.7	Ethylbenzene	<7.4	<1.7
Methylene chloride	<590	<170	1,1,2,2-Tetrachloroethane	<2.3	<0.34
t-Butyl alcohol (TBA)	<210	<68	Nonane	<89	<17
3-Chloropropene	<27	<8.5	Isopropylbenzene	<42	<8.5
CFC-113	<13	<1.7	2-Chlorotoluene	<88	<17
Carbon disulfide	<110	<34	Propylbenzene	<42	<8.5
Methyl t-butyl ether (MTBE)	<31	<8.5	4-Ethyltoluene	<42	<8.5
Vinyl acetate	<120	<34	m,p-Xylene	<15	<3.4
1,1-Dichloroethane	<6.9	<1.7	o-Xylene	<7.4	<1.7
cis-1,2-Dichloroethene	<6.7	<1.7	Styrene	<14	<3.4
Hexane	<60	<17	Bromoform	<35	<3.4
Chloroform	6.1	1.2	Benzyl chloride	<0.88	<0.17
Ethyl acetate	<120	<34	1,3,5-Trimethylbenzene	<42	<8.5
Tetrahydrofuran	<5	<1.7	1,2,4-Trimethylbenzene	<42	<8.5
2-Butanone (MEK)	<50	<17	1,3-Dichlorobenzene	<10	<1.7
1,2-Dichloroethane (EDC)	<0.69	<0.17	1,4-Dichlorobenzene	<4.0	<0.65
1,1,1-Trichloroethane	<9.3	<1.7	1,2-Dichlorobenzene	<10	<1.7
Carbon tetrachloride	<5.3	<0.85	1,2,4-Trichlorobenzene	<13	<1.7
Benzene	<5.4	<1.7	Naphthalene	<0.98 j	<0.19 j
Cyclohexane	<120	<34	Hexachlorobutadiene	<3.6	<0.34

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-17-0-1-022421-(01)	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-03 1/16
Date Analyzed:	02/26/21	Data File:	022622.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	84	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<19	<11	1,2-Dichloropropane	<3.7	<0.8
Dichlorodifluoromethane	270	55	1,4-Dioxane	<5.8	<1.6
Chloromethane	<59	<29	2,2,4-Trimethylpentane	<75	<16
F-114	<11	<1.6	Methyl methacrylate	<66	<16
Vinyl chloride	<4.1	<1.6	Heptane	<66	<16
1,3-Butadiene	<0.71	<0.32	Bromodichloromethane	<1.1	<0.16
Butane	<38	<16	Trichloroethene	18	3.4
Bromomethane	<37	<9.6	cis-1,3-Dichloropropene	<7.3	<1.6
Chloroethane	<42	<16	4-Methyl-2-pentanone	<66	<16
Vinyl bromide	<7	<1.6	trans-1,3-Dichloropropene	<7.3	<1.6
Ethanol	<120	<64	Toluene	<300	<80
Acrolein	<31 j	<13 j	1,1,2-Trichloroethane	<0.87	<0.16
Pentane	<47	<16	2-Hexanone	<66	<16
Trichlorofluoromethane	<36	<6.4	Tetrachloroethene	23,000 ve	3,400 ve
Acetone	<76	<32	Dibromochloromethane	<1.4	<0.16
2-Propanol	<140	<56	1,2-Dibromoethane (EDB)	<0.62 j	<0.08 j
1,1-Dichloroethene	<6.3	<1.6	Chlorobenzene	<7.4	<1.6
trans-1,2-Dichloroethene	<6.3	<1.6	Ethylbenzene	<6.9	<1.6
Methylene chloride	<560	<160	1,1,2,2-Tetrachloroethane	<2.2	<0.32
t-Butyl alcohol (TBA)	<190	<64	Nonane	<84	<16
3-Chloropropene	<25	<8	Isopropylbenzene	<39	<8
CFC-113	<12	<1.6	2-Chlorotoluene	<83	<16
Carbon disulfide	<100	<32	Propylbenzene	<39	<8
Methyl t-butyl ether (MTBE)	<29	<8	4-Ethyltoluene	<39	<8
Vinyl acetate	<110	<32	m,p-Xylene	<14	<3.2
1,1-Dichloroethane	<6.5	<1.6	o-Xylene	<6.9	<1.6
cis-1,2-Dichloroethene	<6.3	<1.6	Styrene	<14	<3.2
Hexane	<56	<16	Bromoform	<33	<3.2
Chloroform	5.9	1.2	Benzyl chloride	<0.83	<0.16
Ethyl acetate	<120	<32	1,3,5-Trimethylbenzene	<39	<8
Tetrahydrofuran	<4.7	<1.6	1,2,4-Trimethylbenzene	<39	<8
2-Butanone (MEK)	<47	<16	1,3-Dichlorobenzene	<9.6	<1.6
1,2-Dichloroethane (EDC)	<0.65	<0.16	1,4-Dichlorobenzene	<3.7	<0.61
1,1,1-Trichloroethane	<8.7	<1.6	1,2-Dichlorobenzene	<9.6	<1.6
Carbon tetrachloride	<5	<0.8	1,2,4-Trichlorobenzene	<12	<1.6
Benzene	<5.1	<1.6	Naphthalene	<0.92 j	<0.18 j
Cyclohexane	<110	<32	Hexachlorobutadiene	<3.4	<0.32

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-01-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-04
Date Analyzed:	02/26/21	Data File:	022612.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	94	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23 J	<0.05 J
Dichlorodifluoromethane	4.1	0.83	1,4-Dioxane	<0.36 J	<0.1 J
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7 J	<1 J
F-114	<0.7	<0.1	Methyl methacrylate	<4.1 J	<1 J
Vinyl chloride	<0.26	<0.1	Heptane	<4.1 J	<1 J
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067 J	<0.01 J
Butane	3.4	1.5	Trichloroethene	<0.11 J	<0.02 J
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45 J	<0.1 J
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1 J	<1 J
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45 J	<0.1 J
Ethanol	540 ve ca	290 ve ca	Toluene	<19 J	<5 J
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055 J	<0.01 J
Pentane	<3	<1	2-Hexanone	<4.1 J	<1 J
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	7.9 J	1.2 J
Acetone	9.6	4.1	Dibromochloromethane	<0.085 J	<0.01 J
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077 J	<0.01 J
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.63	0.14
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	2.0	0.46
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.92	0.21
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.14	0.029	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.11	0.028	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.42	0.067	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.44	0.14	Naphthalene	0.48	0.092
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-01-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-04 1/2
Date Analyzed:	03/02/21	Data File:	030126.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

Compounds:	Concentration ug/m3	ppbv
1,2-Dichloropropane	<0.46	<0.1
1,4-Dioxane	<0.72	<0.2
2,2,4-Trimethylpentane	<9.3	<2
Methyl methacrylate	<8.2	<2
Heptane	<8.2	<2
Bromodichloromethane	<0.13	<0.02
Trichloroethene	<0.21	<0.04
cis-1,3-Dichloropropene	<0.91	<0.2
4-Methyl-2-pentanone	<8.2	<2
trans-1,3-Dichloropropene	<0.91	<0.2
Toluene	<38	<10
1,1,2-Trichloroethane	<0.11	<0.02
2-Hexanone	<8.2	<2
Tetrachloroethene	<14	<2
Dibromochloromethane	<0.17	<0.02
1,2-Dibromoethane (EDB)	<0.15	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-01-022421-(01)	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-05
Date Analyzed:	02/26/21	Data File:	022613.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	95	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23 J	<0.05 J
Dichlorodifluoromethane	4.2	0.85	1,4-Dioxane	<0.36 J	<0.1 J
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7 J	<1 J
F-114	<0.7	<0.1	Methyl methacrylate	<4.1 J	<1 J
Vinyl chloride	<0.26	<0.1	Heptane	<4.1 J	<1 J
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067 J	<0.01 J
Butane	3.8	1.6	Trichloroethene	<0.11 J	<0.02 J
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45 J	<0.1 J
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1 J	<1 J
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45 J	<0.1 J
Ethanol	580 ve ca	310 ve ca	Toluene	<19 J	<5 J
Acrolein	<2.0 j	<0.85 j	1,1,2-Trichloroethane	<0.055 J	<0.01 J
Pentane	<3	<1	2-Hexanone	<4.1 J	<1 J
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	8.3 J	1.2 J
Acetone	10	4.4	Dibromochloromethane	<0.085 J	<0.01 J
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077 J	<0.01 J
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.65	0.15
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	2.1	0.48
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.96	0.22
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.15	0.030	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.11	0.028	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.44	0.070	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.47	0.15	Naphthalene	0.57	0.11
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-01-022421-(01)	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-05 1/2
Date Analyzed:	03/02/21	Data File:	030125.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

Compounds:	Concentration ug/m3	ppbv
1,2-Dichloropropane	<0.46	<0.1
1,4-Dioxane	<0.72	<0.2
2,2,4-Trimethylpentane	<9.3	<2
Methyl methacrylate	<8.2	<2
Heptane	<8.2	<2
Bromodichloromethane	<0.13	<0.02
Trichloroethene	<0.21	<0.04
cis-1,3-Dichloropropene	<0.91	<0.2
4-Methyl-2-pentanone	<8.2	<2
trans-1,3-Dichloropropene	<0.91	<0.2
Toluene	<38	<10
1,1,2-Trichloroethane	<0.11	<0.02
2-Hexanone	<8.2	<2
Tetrachloroethene	<14	<2
Dibromochloromethane	<0.17	<0.02
1,2-Dibromoethane (EDB)	<0.15	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-18-0-1-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-06 1/8.2
Date Analyzed:	02/26/21	Data File:	022621.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	87	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<9.9	<5.7	1,2-Dichloropropane	<1.9	<0.41
Dichlorodifluoromethane	330	67	1,4-Dioxane	<3	<0.82
Chloromethane	<30	<15	2,2,4-Trimethylpentane	<38	<8.2
F-114	<5.7	<0.82	Methyl methacrylate	<34	<8.2
Vinyl chloride	<2.1	<0.82	Heptane	<34	<8.2
1,3-Butadiene	<0.36	<0.16	Bromodichloromethane	<0.55	<0.082
Butane	<19	<8.2	Trichloroethene	<0.88	<0.16
Bromomethane	<19	<4.9	cis-1,3-Dichloropropene	<3.7	<0.82
Chloroethane	<22	<8.2	4-Methyl-2-pentanone	<34	<8.2
Vinyl bromide	<3.6	<0.82	trans-1,3-Dichloropropene	<3.7	<0.82
Ethanol	92 ve ca	49 ve ca	Toluene	<150	<41
Acrolein	<16 j	<7.0 j	1,1,2-Trichloroethane	<0.45	<0.082
Pentane	<24	<8.2	2-Hexanone	<34	<8.2
Trichlorofluoromethane	<18	<3.3	Tetrachloroethene	7,800 ve	1,200 ve
Acetone	<39	<16	Dibromochloromethane	<0.7	<0.082
2-Propanol	<71	<29	1,2-Dibromoethane (EDB)	<0.32 j	<0.041 j
1,1-Dichloroethene	<3.3	<0.82	Chlorobenzene	<3.8	<0.82
trans-1,2-Dichloroethene	<3.3	<0.82	Ethylbenzene	<3.6	<0.82
Methylene chloride	<280	<82	1,1,2,2-Tetrachloroethane	<1.1	<0.16
t-Butyl alcohol (TBA)	<99	<33	Nonane	<43	<8.2
3-Chloropropene	<13	<4.1	Isopropylbenzene	<20	<4.1
CFC-113	<6.3	<0.82	2-Chlorotoluene	<42	<8.2
Carbon disulfide	<51	<16	Propylbenzene	<20	<4.1
Methyl t-butyl ether (MTBE)	<15	<4.1	4-Ethyltoluene	<20	<4.1
Vinyl acetate	<58	<16	m,p-Xylene	<7.1	<1.6
1,1-Dichloroethane	<3.3	<0.82	o-Xylene	<3.6	<0.82
cis-1,2-Dichloroethene	<3.3	<0.82	Styrene	<7	<1.6
Hexane	<29	<8.2	Bromoform	<17	<1.6
Chloroform	<0.4	<0.082	Benzyl chloride	<0.42	<0.082
Ethyl acetate	<59	<16	1,3,5-Trimethylbenzene	<20	<4.1
Tetrahydrofuran	<2.4	<0.82	1,2,4-Trimethylbenzene	<20	<4.1
2-Butanone (MEK)	<24	<8.2	1,3-Dichlorobenzene	<4.9	<0.82
1,2-Dichloroethane (EDC)	<0.33	<0.082	1,4-Dichlorobenzene	<1.9	<0.31
1,1,1-Trichloroethane	<4.5	<0.82	1,2-Dichlorobenzene	<4.9	<0.82
Carbon tetrachloride	<2.6	<0.41	1,2,4-Trichlorobenzene	<6.1	<0.82
Benzene	<2.6	<0.82	Naphthalene	<2.1	<0.41
Cyclohexane	<56	<16	Hexachlorobutadiene	<1.7	<0.16

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-02-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-07
Date Analyzed:	02/26/21	Data File:	022614.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23 J	<0.05 J
Dichlorodifluoromethane	4.3	0.87	1,4-Dioxane	<0.36 J	<0.1 J
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7 J	<1 J
F-114	<0.7	<0.1	Methyl methacrylate	<4.1 J	<1 J
Vinyl chloride	<0.26	<0.1	Heptane	<4.1 J	<1 J
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067 J	<0.01 J
Butane	4.0	1.7	Trichloroethene	<0.11 J	<0.02 J
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45 J	<0.1 J
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1 J	<1 J
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45 J	<0.1 J
Ethanol	730 ve ca	390 ve ca	Toluene	<19 J	<5 J
Acrolein	<2.0 j	<0.85 j	1,1,2-Trichloroethane	<0.055 J	<0.01 J
Pentane	<3	<1	2-Hexanone	<4.1 J	<1 J
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	7.5 J	1.1 J
Acetone	9.1	3.8	Dibromochloromethane	<0.085 J	<0.01 J
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077 J	<0.01 J
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	0.61	0.14
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.9	0.45
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.91	0.21
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.15	0.030	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.10	0.025	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.44	0.070	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.48	0.15	Naphthalene	0.47	0.089
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-02-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-07 1/2
Date Analyzed:	03/01/21	Data File:	030124.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	91	70	130

Compounds:	Concentration ug/m3	ppbv
1,2-Dichloropropane	<0.46	<0.1
1,4-Dioxane	<0.72	<0.2
2,2,4-Trimethylpentane	<9.3	<2
Methyl methacrylate	<8.2	<2
Heptane	<8.2	<2
Bromodichloromethane	<0.13	<0.02
Trichloroethene	<0.21	<0.04
cis-1,3-Dichloropropene	<0.91	<0.2
4-Methyl-2-pentanone	<8.2	<2
trans-1,3-Dichloropropene	<0.91	<0.2
Toluene	<38	<10
1,1,2-Trichloroethane	<0.11	<0.02
2-Hexanone	<8.2	<2
Tetrachloroethene	<14	<2
Dibromochloromethane	<0.17	<0.02
1,2-Dibromoethane (EDB)	<0.15	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-21-0-1-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-08 1/5.5
Date Analyzed:	02/26/21	Data File:	022620.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	115	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<6.6	<3.8	1,2-Dichloropropane	<1.3	<0.28
Dichlorodifluoromethane	<2.7	<0.55	1,4-Dioxane	<2	<0.55
Chloromethane	<20	<9.9	2,2,4-Trimethylpentane	<26	<5.5
F-114	<3.8	<0.55	Methyl methacrylate	<23	<5.5
Vinyl chloride	<1.4	<0.55	Heptane	<23	<5.5
1,3-Butadiene	1.5	0.68	Bromodichloromethane	<0.37	<0.055
Butane	<13	<5.5	Trichloroethene	<0.59	<0.11
Bromomethane	<13	<3.3	cis-1,3-Dichloropropene	<2.5	<0.55
Chloroethane	<15	<5.5	4-Methyl-2-pentanone	31	7.6
Vinyl bromide	<2.4	<0.55	trans-1,3-Dichloropropene	<2.5	<0.55
Ethanol	150 ve ca	78 ve ca	Toluene	<100	<27
Acrolein	<11 j	<4.7 j	1,1,2-Trichloroethane	<0.3	<0.055
Pentane	<16	<5.5	2-Hexanone	<23	<5.5
Trichlorofluoromethane	<12	<2.2	Tetrachloroethene	<37	<5.5
Acetone	<26	<11	Dibromochloromethane	<0.47	<0.055
2-Propanol	<47	<19	1,2-Dibromoethane (EDB)	<0.42	<0.055
1,1-Dichloroethene	<2.2	<0.55	Chlorobenzene	<2.5	<0.55
trans-1,2-Dichloroethene	<2.2	<0.55	Ethylbenzene	<2.4	<0.55
Methylene chloride	<190	<55	1,1,2,2-Tetrachloroethane	<0.76	<0.11
t-Butyl alcohol (TBA)	<67	<22	Nonane	190	36
3-Chloropropene	<8.6	<2.7	Isopropylbenzene	<14	<2.7
CFC-113	<4.2	<0.55	2-Chlorotoluene	<28	<5.5
Carbon disulfide	<34	<11	Propylbenzene	<14	<2.7
Methyl t-butyl ether (MTBE)	<9.9	<2.7	4-Ethyltoluene	<14	<2.7
Vinyl acetate	<39	<11	m,p-Xylene	<4.8	<1.1
1,1-Dichloroethane	<2.2	<0.55	o-Xylene	<2.4	<0.55
cis-1,2-Dichloroethene	<2.2	<0.55	Styrene	<4.7	<1.1
Hexane	<19	<5.5	Bromoform	<11	<1.1
Chloroform	<0.27	<0.055	Benzyl chloride	<0.29	<0.055
Ethyl acetate	<40	<11	1,3,5-Trimethylbenzene	<14	<2.7
Tetrahydrofuran	<1.6	<0.55	1,2,4-Trimethylbenzene	<14	<2.7
2-Butanone (MEK)	<16	<5.5	1,3-Dichlorobenzene	<3.3	<0.55
1,2-Dichloroethane (EDC)	<0.22	<0.055	1,4-Dichlorobenzene	<1.3	<0.21
1,1,1-Trichloroethane	<3	<0.55	1,2-Dichlorobenzene	<3.3	<0.55
Carbon tetrachloride	<1.7	<0.28	1,2,4-Trichlorobenzene	<4.1	<0.55
Benzene	<1.8	<0.55	Naphthalene	<1.4	<0.28
Cyclohexane	<38	<11	Hexachlorobutadiene	<1.2	<0.11

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-19-0-1-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-09 1/5.6
Date Analyzed:	02/26/21	Data File:	022619.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	91	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<6.7	<3.9	1,2-Dichloropropane	<1.3	<0.28
Dichlorodifluoromethane	390 ve	79 ve	1,4-Dioxane	<2	<0.56
Chloromethane	<21	<10	2,2,4-Trimethylpentane	<26	<5.6
F-114	<3.9	<0.56	Methyl methacrylate	<23	<5.6
Vinyl chloride	<1.4	<0.56	Heptane	<23	<5.6
1,3-Butadiene	<0.25	<0.11	Bromodichloromethane	<0.38	<0.056
Butane	<13	<5.6	Trichloroethene	<0.6	<0.11
Bromomethane	<13	<3.4	cis-1,3-Dichloropropene	<2.5	<0.56
Chloroethane	<15	<5.6	4-Methyl-2-pentanone	<23	<5.6
Vinyl bromide	<2.4	<0.56	trans-1,3-Dichloropropene	<2.5	<0.56
Ethanol	200 ve ca	110 ve ca	Toluene	<110	<28
Acrolein	<11 j	<4.8 j	1,1,2-Trichloroethane	<0.31	<0.056
Pentane	<17	<5.6	2-Hexanone	<23	<5.6
Trichlorofluoromethane	<13	<2.2	Tetrachloroethene	420 ve	62 ve
Acetone	27	11	Dibromochloromethane	<0.48	<0.056
2-Propanol	<48	<20	1,2-Dibromoethane (EDB)	<0.43	<0.056
1,1-Dichloroethene	<2.2	<0.56	Chlorobenzene	<2.6	<0.56
trans-1,2-Dichloroethene	<2.2	<0.56	Ethylbenzene	<2.4	<0.56
Methylene chloride	<190	<56	1,1,2,2-Tetrachloroethane	<0.77	<0.11
t-Butyl alcohol (TBA)	<68	<22	Nonane	<29	<5.6
3-Chloropropene	<8.8	<2.8	Isopropylbenzene	<14	<2.8
CFC-113	<4.3	<0.56	2-Chlorotoluene	<29	<5.6
Carbon disulfide	<35	<11	Propylbenzene	<14	<2.8
Methyl t-butyl ether (MTBE)	<10	<2.8	4-Ethyltoluene	<14	<2.8
Vinyl acetate	<39	<11	m,p-Xylene	<4.9	<1.1
1,1-Dichloroethane	<2.3	<0.56	o-Xylene	<2.4	<0.56
cis-1,2-Dichloroethene	<2.2	<0.56	Styrene	<4.8	<1.1
Hexane	<20	<5.6	Bromoform	<12	<1.1
Chloroform	<0.27	<0.056	Benzyl chloride	<0.29	<0.056
Ethyl acetate	<40	<11	1,3,5-Trimethylbenzene	<14	<2.8
Tetrahydrofuran	<1.7	<0.56	1,2,4-Trimethylbenzene	<14	<2.8
2-Butanone (MEK)	<17	<5.6	1,3-Dichlorobenzene	<3.4	<0.56
1,2-Dichloroethane (EDC)	<0.23	<0.056	1,4-Dichlorobenzene	<1.3	<0.21
1,1,1-Trichloroethane	<3.1	<0.56	1,2-Dichlorobenzene	<3.4	<0.56
Carbon tetrachloride	<1.8	<0.28	1,2,4-Trichlorobenzene	<4.2	<0.56
Benzene	<1.8	<0.56	Naphthalene	<1.5	<0.28
Cyclohexane	<39	<11	Hexachlorobutadiene	<1.2	<0.11

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-03-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-10
Date Analyzed:	02/26/21	Data File:	022615.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	93	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	0.26 J	0.056 J
Dichlorodifluoromethane	4.6	0.93	1,4-Dioxane	<0.36 J	<0.1 J
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7 J	<1 J
F-114	<0.7	<0.1	Methyl methacrylate	<4.1 J	<1 J
Vinyl chloride	<0.26	<0.1	Heptane	<4.1 J	<1 J
1,3-Butadiene	0.15	0.070	Bromodichloromethane	0.094 J	0.014 J
Butane	2.9	1.2	Trichloroethene	<0.11 J	<0.02 J
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45 J	<0.1 J
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	9.0 J	2.2 J
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45 J	<0.1 J
Ethanol	1,400 ve ca	740 ve ca	Toluene	<19 J	<5 J
Acrolein	<2.0 j	<0.85 j	1,1,2-Trichloroethane	<0.055 J	<0.01 J
Pentane	<3	<1	2-Hexanone	<4.1 J	<1 J
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8 J	<1 J
Acetone	43 ve	18 ve	Dibromochloromethane	<0.085 J	<0.01 J
2-Propanol	880 ve	360 ve	1,2-Dibromoethane (EDB)	<0.077 J	<0.01 J
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.0	0.23
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.46	0.11
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.28	0.057	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.21	0.051	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.44	0.070	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.71	0.22	Naphthalene	0.21	0.041
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-03-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-10 1/2
Date Analyzed:	03/01/21	Data File:	030123.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	91	70	130

Compounds:	Concentration ug/m3	ppbv
1,2-Dichloropropane	<0.46	<0.1
1,4-Dioxane	<0.72	<0.2
2,2,4-Trimethylpentane	<9.3	<2
Methyl methacrylate	<8.2	<2
Heptane	<8.2	<2
Bromodichloromethane	<0.13	<0.02
Trichloroethene	<0.21	<0.04
cis-1,3-Dichloropropene	<0.91	<0.2
4-Methyl-2-pentanone	<8.2	<2
trans-1,3-Dichloropropene	<0.91	<0.2
Toluene	<38	<10
1,1,2-Trichloroethane	<0.11	<0.02
2-Hexanone	<8.2	<2
Tetrachloroethene	<14	<2
Dibromochloromethane	<0.17	<0.02
1,2-Dibromoethane (EDB)	<0.15	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-SV-20-0-1-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-11 1/6.0
Date Analyzed:	02/26/21	Data File:	022617.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	89	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<7.2	<4.2	1,2-Dichloropropane	<1.4	<0.3
Dichlorodifluoromethane	840 ve	170 ve	1,4-Dioxane	<2.2	<0.6
Chloromethane	<22	<11	2,2,4-Trimethylpentane	<28	<6
F-114	<4.2	<0.6	Methyl methacrylate	<25	<6
Vinyl chloride	<1.5	<0.6	Heptane	<25	<6
1,3-Butadiene	<0.27	<0.12	Bromodichloromethane	<0.4	<0.06
Butane	<14	<6	Trichloroethene	<0.64	<0.12
Bromomethane	<14	<3.6	cis-1,3-Dichloropropene	<2.7	<0.6
Chloroethane	<16	<6	4-Methyl-2-pentanone	<25	<6
Vinyl bromide	<2.6	<0.6	trans-1,3-Dichloropropene	<2.7	<0.6
Ethanol	240 ve ca	130 ve ca	Toluene	<110	<30
Acrolein	<12 j	<5.1 j	1,1,2-Trichloroethane	<0.33	<0.06
Pentane	<18	<6	2-Hexanone	<25	<6
Trichlorofluoromethane	<13	<2.4	Tetrachloroethene	45	6.6
Acetone	<29	<12	Dibromochloromethane	<0.51	<0.06
2-Propanol	<52	<21	1,2-Dibromoethane (EDB)	<0.46	<0.06
1,1-Dichloroethene	<2.4	<0.6	Chlorobenzene	<2.8	<0.6
trans-1,2-Dichloroethene	<2.4	<0.6	Ethylbenzene	<2.6	<0.6
Methylene chloride	<210	<60	1,1,2,2-Tetrachloroethane	<0.82	<0.12
t-Butyl alcohol (TBA)	<73	<24	Nonane	<31	<6
3-Chloropropene	<9.4	<3	Isopropylbenzene	<15	<3
CFC-113	<4.6	<0.6	2-Chlorotoluene	<31	<6
Carbon disulfide	<37	<12	Propylbenzene	<15	<3
Methyl t-butyl ether (MTBE)	<11	<3	4-Ethyltoluene	<15	<3
Vinyl acetate	<42	<12	m,p-Xylene	<5.2	<1.2
1,1-Dichloroethane	<2.4	<0.6	o-Xylene	<2.6	<0.6
cis-1,2-Dichloroethene	<2.4	<0.6	Styrene	<5.1	<1.2
Hexane	<21	<6	Bromoform	<12	<1.2
Chloroform	<0.29	<0.06	Benzyl chloride	<0.31	<0.06
Ethyl acetate	<43	<12	1,3,5-Trimethylbenzene	<15	<3
Tetrahydrofuran	<1.8	<0.6	1,2,4-Trimethylbenzene	<15	<3
2-Butanone (MEK)	<18	<6	1,3-Dichlorobenzene	<3.6	<0.6
1,2-Dichloroethane (EDC)	<0.24	<0.06	1,4-Dichlorobenzene	<1.4	<0.23
1,1,1-Trichloroethane	<3.3	<0.6	1,2-Dichlorobenzene	<3.6	<0.6
Carbon tetrachloride	<1.9	<0.3	1,2,4-Trichlorobenzene	<4.5	<0.6
Benzene	<1.9	<0.6	Naphthalene	<1.6	<0.3
Cyclohexane	<41	<12	Hexachlorobutadiene	<1.3	<0.12

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA-IA-04-022421	Client:	Pioneer Technologies Corp
Date Received:	02/24/21	Project:	PLC, F&BI 102398
Date Collected:	02/24/21	Lab ID:	102398-12
Date Analyzed:	02/26/21	Data File:	022616.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	0.24	0.052
Dichlorodifluoromethane	5.2	1.1	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	0.17	0.076	Bromodichloromethane	0.08	0.012
Butane	3.1	1.3	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	8.0	2.0
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	1,300 ve	ca 670 ve ca	Toluene	<19	<5
Acrolein	<2.0 j	<0.85 j	1,1,2-Trichloroethane	0.060	0.011
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	49	20	Dibromochloromethane	<0.085	<0.01
2-Propanol	980 ve	400 ve	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	1.0	0.23
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	0.45	0.10
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	0.27	0.056	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	0.23	0.058	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	0.45	0.072	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	0.75	0.23	Naphthalene	0.18	0.034
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Pioneer Technologies Corp
Date Received:	Not Applicable	Project:	PLC, F&BI 102398
Date Collected:	Not Applicable	Lab ID:	01-446 MB
Date Analyzed:	02/26/21	Data File:	022610.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	91	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	<0.49	<0.1	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.0 j	<0.85 j	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.31	<0.05	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	<0.057 j	<0.011 j
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Date of Report: 03/05/21
Date Received: 02/24/21
Project: PLC, F&BI 102398

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 102398-11 1/6.0 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	<7.2	<7.2	nm
Dichlorodifluoromethane	ug/m3	840	840	0
Chloromethane	ug/m3	<22	<22	nm
F-114	ug/m3	<4.2	<4.2	nm
Vinyl chloride	ug/m3	<1.5	<1.5	nm
1,3-Butadiene	ug/m3	<0.27	<0.27	nm
Butane	ug/m3	<14	<14	nm
Bromomethane	ug/m3	<14	<14	nm
Chloroethane	ug/m3	<16	<16	nm
Vinyl bromide	ug/m3	<2.6	<2.6	nm
Ethanol	ug/m3	240	190	23
Acrolein	ug/m3	<12	<12	nm
Pentane	ug/m3	<18	<18	nm
Trichlorofluoromethane	ug/m3	<13	<13	nm
Acetone	ug/m3	<29	<29	nm
2-Propanol	ug/m3	<52	<52	nm
1,1-Dichloroethene	ug/m3	<2.4	<2.4	nm
trans-1,2-Dichloroethene	ug/m3	<2.4	<2.4	nm
Methylene chloride	ug/m3	<210	<210	nm
t-Butyl alcohol (TBA)	ug/m3	<73	<73	nm
3-Chloropropene	ug/m3	<9.4	<9.4	nm
CFC-113	ug/m3	<4.6	<4.6	nm
Carbon disulfide	ug/m3	<37	<37	nm
Methyl t-butyl ether (MTBE)	ug/m3	<11	<11	nm
Vinyl acetate	ug/m3	<42	<42	nm
1,1-Dichloroethane	ug/m3	<2.4	<2.4	nm
cis-1,2-Dichloroethene	ug/m3	<2.4	<2.4	nm
Hexane	ug/m3	<21	<21	nm
Chloroform	ug/m3	<0.29	0.29	nm
Ethyl acetate	ug/m3	<43	<43	nm
Tetrahydrofuran	ug/m3	<1.8	<1.8	nm
2-Butanone (MEK)	ug/m3	<18	<18	nm
1,2-Dichloroethane (EDC)	ug/m3	<0.24	<0.24	nm
1,1,1-Trichloroethane	ug/m3	<3.3	<3.3	nm
Carbon tetrachloride	ug/m3	<1.9	<1.9	nm
Benzene	ug/m3	<1.9	<1.9	nm
Cyclohexane	ug/m3	<41	<41	nm
1,2-Dichloropropane	ug/m3	<1.4	<1.4	nm
1,4-Dioxane	ug/m3	<2.2	<2.2	nm
2,2,4-Trimethylpentane	ug/m3	<28	<28	nm

Date of Report: 03/05/21
Date Received: 02/24/21
Project: PLC, F&BI 102398

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 102398-11 1/6.0 (Duplicate, continued)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<25	<25	nm
Heptane	ug/m3	<25	<25	nm
Bromodichloromethane	ug/m3	<0.4	<0.4	nm
Trichloroethene	ug/m3	<0.64	<0.64	nm
cis-1,3-Dichloropropene	ug/m3	<2.7	<2.7	nm
4-Methyl-2-pentanone	ug/m3	<25	<25	nm
trans-1,3-Dichloropropene	ug/m3	<2.7	<2.7	nm
Toluene	ug/m3	<110	<110	nm
1,1,2-Trichloroethane	ug/m3	<0.33	<0.33	nm
2-Hexanone	ug/m3	<25	<25	nm
Tetrachloroethene	ug/m3	45	44	2
Dibromochloromethane	ug/m3	<0.51	<0.51	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.46	<0.46	nm
Chlorobenzene	ug/m3	<2.8	<2.8	nm
Ethylbenzene	ug/m3	<2.6	<2.6	nm
1,1,2,2-Tetrachloroethane	ug/m3	<0.82	<0.82	nm
Nonane	ug/m3	<31	<31	nm
Isopropylbenzene	ug/m3	<15	<15	nm
2-Chlorotoluene	ug/m3	<31	<31	nm
Propylbenzene	ug/m3	<15	<15	nm
4-Ethyltoluene	ug/m3	<15	<15	nm
m,p-Xylene	ug/m3	<5.2	<5.2	nm
o-Xylene	ug/m3	<2.6	<2.6	nm
Styrene	ug/m3	<5.1	<5.1	nm
Bromoform	ug/m3	<12	<12	nm
Benzyl chloride	ug/m3	<0.31	<0.31	nm
1,3,5-Trimethylbenzene	ug/m3	<15	<15	nm
1,2,4-Trimethylbenzene	ug/m3	<15	<15	nm
1,3-Dichlorobenzene	ug/m3	<3.6	<3.6	nm
1,4-Dichlorobenzene	ug/m3	<1.4	<1.4	nm
1,2-Dichlorobenzene	ug/m3	<3.6	<3.6	nm
1,2,4-Trichlorobenzene	ug/m3	<4.5	<4.5	nm
Naphthalene	ug/m3	<1.6	<1.6	nm
Hexachlorobutadiene	ug/m3	<1.3	<1.3	nm

Date of Report: 03/05/21
Date Received: 02/24/21
Project: PLC, F&BI 102398

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Propene	ug/m3	23	95	70-130
Dichlorodifluoromethane	ug/m3	67	104	70-130
Chloromethane	ug/m3	28	85	70-130
F-114	ug/m3	94	105	70-130
Vinyl chloride	ug/m3	35	101	70-130
1,3-Butadiene	ug/m3	30	98	70-130
Butane	ug/m3	32	108	70-130
Bromomethane	ug/m3	52	103	70-130
Chloroethane	ug/m3	36	109	70-130
Vinyl bromide	ug/m3	59	108	70-130
Ethanol	ug/m3	25	132 vo	70-130
Acrolein	ug/m3	31	107	70-130
Pentane	ug/m3	40	104	70-130
Trichlorofluoromethane	ug/m3	76	102	70-130
Acetone	ug/m3	32	109	70-130
2-Propanol	ug/m3	33	116	70-130
1,1-Dichloroethene	ug/m3	54	108	70-130
trans-1,2-Dichloroethene	ug/m3	54	104	70-130
Methylene chloride	ug/m3	94	96	70-130
t-Butyl alcohol (TBA)	ug/m3	41	97	70-130
3-Chloropropene	ug/m3	42	105	70-130
CFC-113	ug/m3	100	106	70-130
Carbon disulfide	ug/m3	42	113	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	92	70-130
Vinyl acetate	ug/m3	48	98	70-130
1,1-Dichloroethane	ug/m3	55	112	70-130
cis-1,2-Dichloroethene	ug/m3	54	104	70-130
Hexane	ug/m3	48	97	70-130
Chloroform	ug/m3	66	110	70-130
Ethyl acetate	ug/m3	49	109	70-130
Tetrahydrofuran	ug/m3	40	106	70-130
2-Butanone (MEK)	ug/m3	40	102	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	108	70-130
1,1,1-Trichloroethane	ug/m3	74	102	70-130
Carbon tetrachloride	ug/m3	85	101	70-130
Benzene	ug/m3	43	104	70-130
Cyclohexane	ug/m3	46	92	70-130
1,2-Dichloropropane	ug/m3	62	114	70-130
1,4-Dioxane	ug/m3	49	105	70-130
2,2,4-Trimethylpentane	ug/m3	63	110	70-130

Date of Report: 03/05/21
Date Received: 02/24/21
Project: PLC, F&BI 102398

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample (Continued)

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Methyl methacrylate	ug/m3	55	112	70-130
Heptane	ug/m3	55	114	70-130
Bromodichloromethane	ug/m3	90	112	70-130
Trichloroethene	ug/m3	73	108	70-130
cis-1,3-Dichloropropene	ug/m3	61	106	70-130
4-Methyl-2-pentanone	ug/m3	55	94	70-130
trans-1,3-Dichloropropene	ug/m3	61	106	70-130
Toluene	ug/m3	51	98	70-130
1,1,2-Trichloroethane	ug/m3	74	113	70-130
2-Hexanone	ug/m3	55	111	70-130
Tetrachloroethene	ug/m3	92	104	70-130
Dibromochloromethane	ug/m3	120	109	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	104	70-130
Chlorobenzene	ug/m3	62	108	70-130
Ethylbenzene	ug/m3	59	105	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	124	70-130
Nonane	ug/m3	71	112	70-130
Isopropylbenzene	ug/m3	66	123	70-130
2-Chlorotoluene	ug/m3	70	107	70-130
Propylbenzene	ug/m3	66	108	70-130
4-Ethyltoluene	ug/m3	66	108	70-130
m,p-Xylene	ug/m3	120	105	70-130
o-Xylene	ug/m3	59	107	70-130
Styrene	ug/m3	58	105	70-130
Bromoform	ug/m3	140	114	70-130
Benzyl chloride	ug/m3	70	120	70-130
1,3,5-Trimethylbenzene	ug/m3	66	107	70-130
1,2,4-Trimethylbenzene	ug/m3	66	105	70-130
1,3-Dichlorobenzene	ug/m3	81	119	70-130
1,4-Dichlorobenzene	ug/m3	81	107	70-130
1,2-Dichlorobenzene	ug/m3	81	112	70-130
1,2,4-Trichlorobenzene	ug/m3	100	103	70-130
Naphthalene	ug/m3	71	107	70-130
Hexachlorobutadiene	ug/m3	140	112	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

102398

SAMPLE CHAIN OF CUSTODY

02-24-21

Page # 1 of 2

Report To Nathan Steer
Company Pioneer
Address 5205 Corp. Center Ct. SE Ste A
City, State, ZIP Lacey, WA 98503
Phone 206-890-4849 Email SteerN@uspioneer.com

SAMPLERS (signature)

PROJECT NAME & ADDRESS: PLC

PO #

NOTES:

INVOICE TO: Pioneer

TURNAROUND TIME
☒ Standard
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Default: Clean after 3 days
☐ Archive (Fee may apply)

SAMPLE INFORMATION										ANALYSIS REQUESTED						
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium		Notes
AA-AA-01-022421	01	37240	07871	(IA) / SG	2/24/21	29	0732	4	1555	X						8-hr
SG-SV-17-01-022421	02	20555	8-hr N/A	IA / (SG)		29	0822	5	1500							8-hr
SG-SV-17-01-022421-(01)	03	18574	N/A 8-hr	IA / (SG)		30	0822	4	1500							
IA-IA-01-022421	04	35331	~~N/A~~ 0780 ~~8-hr~~ LM	(IA) / SG		30+	0818	4	1710							
IA-IA-01-022421-(01)	05	37224	05356 ~~07870~~ MS	(IA) / SG		30	0818	5	1710							
SG-SV-18-01-022421	06	23227	N/A 8-hr	IA / (SG)		29	0836	4	1640							
IA-IA-02-022421	07	~~32097~~ ~~5226~~	07847	(IA) / SG		30+	0827	4	1640							
SG-SV-21-01-022421	08	18568	N/A 8-hr	IA / (SG)		30+	0847	4	1520							

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Nathan Steer	Pioneer	2/24/21	1841
Received by:	JOE MOHAMMED	FSDE	2/24/21	1841
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COCTO-15.DOC

Samples received at 18 °C

102398

SAMPLE CHAIN OF CUSTODY ME

02-24-21

Page # 2 of 2

Report To See page 1

Company

Address

City, State, ZIP

Phone Email

SAMPLERS (signature)

PROJECT NAME & ADDRESS: See Page 1

PO #

NOTES:

INVOICE TO

TURNAROUND TIME
☒ Standard
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Default: Clean after 3 days
☐ Archive (Fee may apply)

SAMPLE INFORMATION										ANALYSIS REQUESTED						
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium		Notes
S6-SV-19-0-1-022421	09	20546	N/A 8-hr	IA / (SG)	2/24/21	30+	0925	4	1513	X						8-hr
1A-1A-03-022421	10	37228	07845	(IA) / SG	↓	29	0922	5	1744	↓						↓
S6-SV-20-0-1-022421	11	18561	N/A 8-hr	IA / (SG)		30+	0946	6	1749							
1A-1A-04-022421	12	37214	08183	(IA) / SG		30+	0936	7	1755							
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COCTO-15.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Nathan Stearns	Nathan Stearns	Pioneer	2/24/21	1841
Received by:	JOE MOHAMED	FBA	2/24/21	1841
Relinquished by:				
Received by:				

Samples received at 18 °C

Data Quality Review

August 5, 2020, January 20, 2021, and February 24, 2021 VI Sampling Events
Pine Lake Cleaners Site
2830 228th Avenue Southeast
Sammamish, Washington

This document summarizes the cursory data quality review performed by PIONEER Technologies Corporation for the laboratory analysis results generated during the aforementioned vapor intrusion (VI) sampling events. Precision, accuracy, representativeness, comparability, sensitivity, and completeness were assessed during the data quality review.

1. Precision

Precision was assessed via the relative percent difference (RPD) for laboratory duplicates and field duplicates. One laboratory duplicate was prepared and analyzed by the laboratory for each sample delivery group. As shown in the laboratory reports, the RPDs for all of the laboratory duplicate analyses were less than the 30% RPD control limit established by the laboratory. The RPDs for constituents in the soil vapor and indoor air field duplicates are presented in Table C-1. The RPDs were generally very low for all field duplicates. Only four field duplicates results had a RPD exceeding a common screening criterion of 35% (i.e., hexane, methylene chloride, and trichloroethene [TCE] in the August 5, 2020 IA-01 duplicate samples, and naphthalene in the August 5, 2020 SV-17 duplicate samples). The slightly elevated RPDs in these four results do not appear to negatively affect the use of the data for the following reasons:

- The maximum hexane and methylene chloride concentrations in these field duplicates do not exceed indoor air screening levels (SLs) for unrestricted land use.
- Some heterogeneity in the sample matrix is expected for the TCE duplicate results given the presence of a TCE indoor air background source near the sampling location.
- Some heterogeneity in the sample matrix is expected for the naphthalene duplicate results since both duplicates were J qualified and B qualified.

2. Accuracy

Accuracy was assessed via laboratory method blank results and recoveries in laboratory control samples (LCSs) and surrogates. As shown in the laboratory reports, no constituents were detected in any of the three method blanks, with the exception of naphthalene in the method blank associated with the August 5, 2020 samples. All detected naphthalene results in August 5, 2020 samples were B qualified by the laboratory. As shown in the laboratory reports, all LCS percent recoveries were within the 70% to 130% control limits, with the exception of methylene chloride and 1,2,4-trichlorobenzene in the LCS associated with the January 20, 2021 samples and ethanol in the LCS associated with the February 24, 2021 samples. All detected methylene chloride and 1,2,4-trichlorobenzene results in January 20, 2021 samples and all detected ethanol results in February 24, 2021 samples were qualified by the laboratory. As shown in the laboratory reports, all surrogate percent recoveries were within the 70% to 130% control limits.

3. Representativeness

Representativeness was assessed by evaluating the sample collection, handling, preservation, and analysis procedures. All samples were collected, handled, preserved, and analyzed in general accordance with the VI Investigation Work Plan (presented in Appendix A), which was designed to obtain representative samples. In addition, all samples were analyzed within the 30 day holding time expectation listed in the VI Investigation Work Plan.

4. Comparability

Comparability was assessed by comparing actual sample collection and analysis procedures with standard procedures for collecting and analyzing soil vapor, indoor air, and ambient air samples. All samples were collected and analyzed in general accordance with the VI Investigation Work Plan (presented in Appendix A), which was designed to obtain comply with standard procedures and typical Washington State Department of Ecology expectations for soil vapor, indoor air, and ambient air sampling and analysis.

5. Sensitivity

Since the sub-slab soil vapor target reporting limits (RLs) provided by the laboratory for inclusion in the VI Investigation Work Plan were unrealistic (almost every actual sub-slab soil vapor RL exceeded the target RL), sensitivity for the sub-slab soil vapor results was assessed by comparing actual RLs with sub-slab soil vapor SLs for unrestricted land use. The vast majority of the actual RLs for non-detect sub-slab soil vapor results were less than the sub-slab soil vapor SLs for unrestricted land use. Only 14 constituents had at least one non-detect RL that exceeded a corresponding SL for unrestricted land use (see table below). However, the elevated RLs for 12 of these 14 constituents were due to necessary dilutions because of elevated tetrachloroethene (PCE) concentrations in sampling locations SV-17 and/or SV-18. Although the two remaining constituents (acrolein and 1,2-dibromoethane) had elevated RLs in all samples, the RLs for acrolein and 1,2-dibromoethane were considered acceptable for the purpose of this investigation because neither constituent is expected to be present in soil vapor at the Pine Lake Cleaners Site, and it is not practicable to achieve RLs that are less than the SLs for these two constituents.

Constituent	Maximum RL in Non-Detect Sub-Slab Soil Vapor Result (ug/m^3)	Maximum RL in Non-Detect Sub-Slab Soil Vapor Result Excluding SV-17 and SV-18 Samples with Necessary Dilutions Because of Elevated PCE Concentrations (ug/m^3)	Sub-Slab Soil Vapor SL for Unrestricted Land Use (ug/m^3)	Were RLs for All Non-Diluted Samples Less than SL?
1,1,2,2-Tetrachloroethane	6.5	0.82	1.4	Yes
1,1,2-Trichloroethane	5.1	0.59	3.0	Yes
1,2,4-Trichlorobenzene	35	4.5	30	Yes
1,2-Dibromoethane	3.6	0.46	0.14	No
1,4-Dichlorobenzene	11	1.4	7.6	Yes
Acrolein	97	12	0.3	No
Benzene	15	1.9	11	Yes
Benzyl Chloride	2.4	0.31	1.7	Yes
Bromoform	97	12	76	Yes
Carbon Tetrachloride	30	3.4	14	Yes
Dichlorobromomethane	3.1	0.4	2.3	Yes
Hexachlorobutadiene	10	1.3	3.8	Yes
Trichloroethene	13	1.5	11	Yes
Vinyl Chloride	12	1.5	9.5	Yes

Sensitivity for the indoor air and ambient air results was assessed by comparing actual RLs with target RLs presented in the VI Investigation Work Plan (see Attachment A) since these target RLs were designed to provide appropriate sensitivity for the purpose of this investigation. All actual RLs for non-detect indoor air and ambient air results were less than or equal to target RLs in the VI Investigation Work Plan, with the exception of select 1,3-butadiene and bromomethane results. The maximum actual RL for 1,3-butadiene of 0.044 ug/m^3 was twice the target RL (0.022 ug/m^3) and was less than the indoor air SL for

unrestricted land use (0.083 ug/m^3). The maximum actual RL for bromomethane of 2.3 ug/m^3 was slightly higher than the target RL (1.6 ug/m^3) and was equal to the indoor air SL for unrestricted land use (2.3 ug/m^3). Since the actual RLs for all 1,3-butadiene and bromomethane indoor air and ambient air results did not exceed the indoor air SLs for unrestricted land use, the 1,3-butadiene and bromomethane RLs were considered acceptable for the purpose of this investigation.

6. Completeness

Completeness was assessed by calculating the percentage of useable results to all results. A total of 2,146 laboratory sample results (i.e., 29 samples times 74 analytes) were obtained.[1] All of the laboratory sample results were useable as qualified. Thus, the completeness of the laboratory sample results was 100 percent. In addition, the actual laboratory analyses matched the requested laboratory analyses.

7. Conclusion

The quality of the laboratory analysis results obtained during this investigation appears to be acceptable and all data appear to be usable for the purpose of this investigation. No corrective action or further data qualification (beyond what was reported by the laboratory) appears to be necessary.

[1] The sub-slab soil vapor samples from the January 20, 2021 sampling event were not included in this total since sub-slab soil vapor was re-sampled in February 24, 2021 as explained in the main text of the VI Investigation Report.

Table C-1: Relative Percent Difference for Field Duplicates

Consituent	Conc. in SG-SV-17-0-1-080520 (ug/m^3)		Conc. in SG-SV-17-0-1-080520-(01) (ug/m^3)		RPD	Conc. in SG-SV-17-0-1-022421 (ug/m^3)		Conc. in SG-SV-17-0-1-022421-(01) (ug/m^3)		RPD	Conc. in IA-IA-01-080520 (ug/m^3)		Conc. in IA-IA-01-080520-(01) (ug/m^3)		RPD	Conc. in IA-IA-01-012021 (ug/m^3)		Conc. in IA-IA-01-012021-(01) (ug/m^3)		RPD	Conc. in IA-IA-01-022421 (ug/m^3)		Conc. in IA-IA-01-022421-(01) (ug/m^3)		RPD
1,1,1-Trichloroethane	25	U	23	U	8.3%	9.3	U	8.7	U	6.7%	0.55	U	0.55	U	0.0%	0.55	U	0.55	U	0.0%	0.55	U	0.55	U	0.0%
1,1,2,2-Tetrachloroethane	6.2	U	5.9	U	5.0%	2.3	U	2.2	U	4.4%	0.14	U	0.14	U	0.0%	0.14	U	0.14	U	0.0%	0.14	U	0.14	U	0.0%
1,1,2-Trichloroethane	4.9	U	4.7	U	4.2%	0.93	U	0.87	U	6.7%	0.11	U	0.11	U	0.0%	0.055	U	0.055	U	0.0%	0.055	UJ	0.055	UJ	0.0%
1,1-Dichloroethane	18	U	17	U	5.7%	6.9	U	6.5	U	6.0%	0.40	U	0.40	U	0.0%	0.40	U	0.40	U	0.0%	0.40	U	0.40	U	0.0%
1,1-Dichloroethene	18	U	17	U	5.7%	6.7	U	6.3	U	6.2%	0.40	U	0.40	U	0.0%	0.40	U	0.40	U	0.0%	0.40	U	0.40	U	0.0%
1,2,4-Trichlorobenzene	33	U	32	U	3.1%	13	U	12	U	8.0%	0.74	U	0.74	U	0.0%	0.74	U	0.74	U	0.0%	0.74	U	0.74	U	0.0%
1,2,4-Trimethylbenzene	110	U	110	U	0.0%	42	U	39	U	7.4%	2.5	U	2.5	U	0.0%	4.1		4.2		2.4%	2.5	U	2.5	U	0.0%
1,2-Dibromoethane	3.5	U	3.3	U	5.9%	0.65	UJ	0.62	UJ	4.7%	0.077	U	0.077	U	0.0%	0.077	U	0.077	U	0.0%	0.077	UJ	0.077	UJ	0.0%
1,2-Dichlorobenzene	27	U	26	U	3.8%	10	U	9.6	U	4.1%	0.60	U	0.60	U	0.0%	0.60	U	0.60	U	0.0%	0.60	U	0.60	U	0.0%
1,2-Dichloroethane	1.8	U	1.7	U	5.7%	0.69	U	0.65	U	6.0%	0.089		0.097		8.6%	0.085		0.073		15.2%	0.11		0.11		0.0%
1,2-Dichloropropane	10	U	9.9	U	1.0%	3.9	U	3.7	U	5.3%	0.23	U	0.23	U	0.0%	0.23	U	0.23	U	0.0%	0.23	UJ	0.23	UJ	0.0%
1,3,5-Trimethylbenzene	110	U	110	U	0.0%	42	U	39	U	7.4%	2.5	U	2.5	U	0.0%	2.5	U	2.5	U	0.0%	2.5	U	2.5	U	0.0%
1,3-Butadiene	1.0	U	0.95	U	5.1%	0.75	U	0.71	U	5.5%	0.022	U	0.022	U	0.0%	0.091		0.086		5.6%	0.044	U	0.044	U	0.0%
1,3-Dichlorobenzene	27	U	26	U	3.8%	10	U	9.6	U	4.1%	0.60	U	0.60	U	0.0%	0.60	U	0.60	U	0.0%	0.60	U	0.60	U	0.0%
1,4-Dichlorobenzene	11	U	10	U	9.5%	4.0	U	3.7	U	7.8%	0.24	U	0.24	U	0.0%	0.23	U	0.23	U	0.0%	0.23	U	0.23	U	0.0%
1,4-Dioxane	16	U	15	U	6.5%	6.1	U	5.8	U	5.0%	0.36	U	0.36	U	0.0%	0.36	U	0.36	U	0.0%	0.36	UJ	0.36	UJ	0.0%
2,2,4-Trimethylpentane	210	U	200	U	4.9%	79	U	75	U	5.2%	4.7	U	4.7	U	0.0%	4.7	U	4.7	U	0.0%	4.7	UJ	4.7	UJ	0.0%
2-Butanone	130	U	130	U	0.0%	50	U	47	U	6.2%	2.9	U	2.9	U	0.0%	2.9	U	2.9	U	0.0%	2.9	U	2.9	U	0.0%
2-Chlorotoluene	230	U	220	U	4.4%	88	U	83	U	5.8%	5.2	U	5.2	U	0.0%	5.2	U	5.2	U	0.0%	5.2	U	5.2	U	0.0%
2-Hexanone	180	U	180	U	0.0%	70	U	66	U	5.9%	4.1	U	4.1	U	0.0%	4.1	U	4.1	U	0.0%	4.1	UJ	4.1	UJ	0.0%
2-Propanol, 2-methyl-	550	U	520	U	5.6%	210	U	190	U	10.0%	12	U	12	U	0.0%	12	U	12	U	0.0%	12	U	12	U	0.0%
3-Chloropropene	70	U	67	U	4.4%	27	U	25	U	7.7%	1.6	U	1.6	U	0.0%	1.6	U	1.6	U	0.0%	1.6	U	1.6	U	0.0%
4-Ethyltoluene	110	U	110	U	0.0%	42	U	39	U	7.4%	2.5	U	2.5	U	0.0%	2.5	U	2.5	U	0.0%	2.5	U	2.5	U	0.0%
Acetone	210	U	200	U	4.9%	81	U	76	U	6.4%	14		18		25.0%	11		10		9.5%	9.6		10		4.1%
Acrolein	93	U	89	U	4.4%	33	UJ	31	UJ	6.3%	2.1	U	2.1	U	0.0%	2.1	U	2.1	U	0.0%	2.1	U	2.0	UJ	4.9%
Benzene	14	U	14	U	0.0%	5.4	U	5.1	U	5.7%	0.32	U	0.32	U	0.0%	0.71		0.73		2.8%	0.44		0.47		6.6%
Benzyl chloride	2.3	U	2.2	U	4.4%	0.88	U	0.83	U	5.8%	0.052	U	0.052	U	0.0%	0.052	U	0.052	U	0.0%	0.052	U	0.052	U	0.0%
Bromoform	93	U	89	U	4.4%	35	U	33	U	5.9%	2.1	U	2.1	U	0.0%	2.1	U	2.1	U	0.0%	2.1	U	2.1	U	0.0%
Bromomethane	70	U	67	U	4.4%	40	U	37	U	7.8%	1.6	U	1.6	U	0.0%	2.3	U	2.3	U	0.0%	2.3	U	2.3	U	0.0%
Butane	110	U	100	U	9.5%	40	U	38	U	5.1%	2.4	U	2.4	U	0.0%	3.6		3.8		5.4%	3.4		3.8		11.1%
Carbon disulfide	280	U	270	U	3.6%	110	U	100	U	9.5%	6.2	U	6.2	U	0.0%	6.2	U	6.2	U	0.0%	6.2	U	6.2	U	0.0%
Carbon tetrachloride	28	U	27	U	3.6%	5.3	U	5.0	U	5.8%	0.63	U	0.63	U	0.0%	0.42		0.43		2.4%	0.42		0.44		4.7%
CFC-11	100	U	97	U	3.0%	38	U	36	U	5.4%	2.2	U	2.2	U	0.0%	2.2	U	2.2	U	0.0%	2.2	U	2.2	U	0.0%
CFC-113	34	U	33	U	3.0%	13	U	12	U	8.0%	0.77	U	0.77	U	0.0%	0.77	U	0.77	U	0.0%	0.77	U	0.77	U	0.0%
CFC-12	1,700		1,800		5.7%	290		270		7.1%	3.5		3.5		0.0%	3.8		3.9		2.6%	4.1		4.2		2.4%
Chlorobenzene	21	U	20	U	4.9%	7.8	U	7.4	U	5.3%	0.46	U	0.46	U	0.0%	0.46	U	0.46	U	0.0%	0.46	U	0.46	U	0.0%
Chloroethane	120	U	110	U	8.7%	45	U	42	U	6.9%	2.6	U	2.6	U	0.0%	2.6	U	2.6	U	0.0%	2.6	U	2.6	U	0.0%
Chloroform	14		15		6.9%	6.1		5.9		3.3%	0.16		0.16		0.0%	0.13		0.15		14.3%	0.14		0.15		6.9%
Chloromethane	170	U	160	U	6.1%	63	U	59	U	6.6%	3.7	U	3.7	U	0.0%	3.7	U	3.7	U	0.0%	3.7	U	3.7	U	0.0%
cis-1,2-Dichloroethene	18	U	17	U	5.7%	6.7	U	6.3	U	6.2%	0.40	U	0.40	U	0.0%	0.40	U	0.40	U	0.0%	0.40	U	0.40	U	0.0%
cis-1,3-Dichloropropene	20	U	20	U	0.0%	7.7	U	7.3	U	5.3%	0.45	U	0.45	U	0.0%	0.45	U	0.45	U	0.0%	0.45	UJ	0.45	UJ	0.0%
Cyclohexane	310	U	300	U	3.3%	120	U	110	U	8.7%	6.9	U	6.9	U	0.0%	6.9	U	6.9	U	0.0%	6.9	U	6.9	U	0.0%
Dibromochloromethane	3.8	U	3.7	U	2.7%	1.4	U	1.4	U	0.0%	0.085	U	0.085	U	0.0%	0.085	U	0.085	U	0.0%	0.085	UJ	0.085	UJ	0.0%

Table C-1: Relative Percent Difference for Field Duplicates

Consituent	Conc. in SG-SV-17-0-1-080520 (ug/m^3)		Conc. in SG-SV-17-0-1-080520-(01) (ug/m^3)		RPD	Conc. in SG-SV-17-0-1-022421 (ug/m^3)		Conc. in SG-SV-17-0-1-022421-(01) (ug/m^3)		RPD	Conc. in IA-IA-01-080520 (ug/m^3)		Conc. in IA-IA-01-080520-(01) (ug/m^3)		RPD	Conc. in IA-IA-01-012021 (ug/m^3)		Conc. in IA-IA-01-012021-(01) (ug/m^3)		RPD	Conc. in IA-IA-01-022421 (ug/m^3)		Conc. in IA-IA-01-022421-(01) (ug/m^3)		RPD
Dichlorobromomethane	3.0	U	2.9	U	3.4%	1.1	U	1.1	U	0.0%	0.067	U	0.067	U	0.0%	0.067	U	0.067	U	0.0%	0.067	UJ	0.067	UJ	0.0%
Ethanol	340	U	320	U	6.1%	130	U	120	U	8.0%	140	E	140	E	0.0%	720	E	720	E	0.0%	540	EJ	580	EJ	7.1%
Ethyl acetate	320	U	310	U	3.2%	120	U	120	U	0.0%	7.2	U	7.2	U	0.0%	7.2	U	7.2	U	0.0%	7.2	U	7.2	U	0.0%
Ethylbenzene	20	U	19	U	5.1%	7.4	U	6.9	U	7.0%	0.43	U	0.43	U	0.0%	0.89		0.88		1.1%	0.63		0.65		3.1%
F-114	31	U	30	U	3.3%	12	U	11	U	8.7%	0.70	U	0.70	U	0.0%	0.70	U	0.70	U	0.0%	0.70	U	0.70	U	0.0%
Heptane	180	U	180	U	0.0%	70	U	66	U	5.9%	4.1	U	4.1	U	0.0%	4.1	U	4.1	U	0.0%	4.1	UJ	4.1	UJ	0.0%
Hexachlorobutadiene	9.6	U	9.2	U	4.3%	3.6	U	3.4	U	5.7%	0.21	U	0.21	U	0.0%	0.21	U	0.21	U	0.0%	0.21	U	0.21	U	0.0%
Hexane	160	U	150	U	6.5%	60	U	56	U	6.9%	3.5	U	9.1		88.9%	3.5	U	3.5	U	0.0%	3.5	U	3.5	U	0.0%
Isopropyl alcohol	390	U	370	U	5.3%	150	U	140	U	6.9%	8.6	U	8.6	U	0.0%	8.6	U	8.6	U	0.0%	8.6	U	8.6	U	0.0%
Isopropylbenzene	110	U	110	U	0.0%	42	U	39	U	7.4%	2.5	U	2.5	U	0.0%	2.5	U	2.5	U	0.0%	2.5	U	2.5	U	0.0%
m,p-Xylene	39	U	37	U	5.3%	15	U	14	U	6.9%	1.0		1.1		9.5%	3.2		3.2		0.0%	2.0		2.1		4.9%
Methyl isobutyl ketone	180	U	180	U	0.0%	70	U	66	U	5.9%	4.1	U	4.1	U	0.0%	4.1	U	4.1	U	0.0%	4.1	UJ	4.1	UJ	0.0%
Methyl methacrylate	180	U	180	U	0.0%	70	U	66	U	5.9%	4.1	U	4.1	U	0.0%	4.1	U	4.1	U	0.0%	4.1	UJ	4.1	UJ	0.0%
Methyl t-butyl ether	81	U	78	U	3.8%	31	U	29	U	6.7%	1.8	U	1.8	U	0.0%	1.8	U	1.8	U	0.0%	1.8	U	1.8	U	0.0%
Methylene chloride	1,600	U	1,500	U	6.5%	590	U	560	U	5.2%	87	U	180	E	69.7%	52	LC	55	LC	5.6%	35	U	35	U	0.0%
Naphthalene	7.8	J B	4.7	J B	49.6%	0.98	UJ	0.92	UJ	6.3%	0.29	B	0.29	B	0.0%	0.47		0.45		4.3%	0.48		0.57		17.1%
Nonane	240	U	230	U	4.3%	89	U	84	U	5.8%	5.2	U	5.2	U	0.0%	5.2	U	5.2	U	0.0%	5.2	U	5.2	U	0.0%
o-Xylene	20	U	19	U	5.1%	7.4	U	6.9	U	7.0%	0.58		0.58		0.0%	1.5		1.5		0.0%	0.92		0.96		4.3%
Pentane	130	U	130	U	0.0%	50	U	47	U	6.2%	3.0	U	3.0	U	0.0%	3.0	U	3.0	U	0.0%	3.0	U	3.0	U	0.0%
Propene	54	U	52	U	3.8%	20	U	19	U	5.1%	1.2	U	1.2	U	0.0%	1.2	U	1.2	U	0.0%	1.2	U	1.2	U	0.0%
Propylbenzene	110	U	110	U	0.0%	42	U	39	U	7.4%	2.5	U	2.5	U	0.0%	2.5	U	2.5	U	0.0%	2.5	U	2.5	U	0.0%
Styrene	38	U	37	U	2.7%	14	U	14	U	0.0%	0.85	U	0.85	U	0.0%	0.85	U	0.85	U	0.0%	0.85	U	0.85	U	0.0%
Tetrachloroethene	27,000	E	30,000	E	10.5%	20,000	E	23,000	E	14.0%	6.8	U	6.8	U	0.0%	7.4		7.2		2.7%	7.9	J	8.3	J	4.9%
Tetrahydrofuran	13	U	13	U	0.0%	5.0	U	4.7	U	6.2%	0.29	U	0.29	U	0.0%	0.29	U	0.29	U	0.0%	0.29	U	0.29	U	0.0%
Toluene	850	U	810	U	4.8%	320	U	300	U	6.5%	19	U	19	U	0.0%	19	U	19	U	0.0%	19	UJ	19	UJ	0.0%
trans-1,2-Dichloroethene	18	U	17	U	5.7%	6.7	U	6.3	U	6.2%	0.40	U	0.40	U	0.0%	0.40	U	0.40	U	0.0%	0.40	U	0.40	U	0.0%
trans-1,3-Dichloropropene	20	U	20	U	0.0%	7.7	U	7.3	U	5.3%	0.45	U	0.45	U	0.0%	0.45	U	0.45	U	0.0%	0.45	UJ	0.45	UJ	0.0%
Trichloroethene	42		46		9.1%	18		18		0.0%	0.27	U	0.41		41.2%	0.11	U	0.11	U	0.0%	0.11	UJ	0.11	UJ	0.0%
Vinyl acetate	320	U	300	U	6.5%	120	U	110	U	8.7%	7.0	U	7.0	U	0.0%	7.0	U	7.0	U	0.0%	7.0	U	7.0	U	0.0%
Vinyl bromide	20	U	19	U	5.1%	7.4	U	7.0	U	5.6%	0.44	U	0.44	U	0.0%	0.44	U	0.44	U	0.0%	0.44	U	0.44	U	0.0%
Vinyl chloride	12	U	11	U	8.7%	4.3	U	4.1	U	4.8%	0.26	U	0.26	U	0.0%	0.26	U	0.26	U	0.0%	0.26	U	0.26	U	0.0%

Notes:

B: Constituent was detected in method blank; E: Estimated concentration because concentration exceeds calibration level; J: Estimated concentration because internal standard associated with the analyte is out of control limits; LC: Presence of this constituent is likely due to laboratory contamination (and concentration is estimated because laboratory percent recovery is out of control limits); U: Not detected at shown reporting limit

RPDs exceeding 35% are highlighted in yellow.

Non-detect values (i.e., U qualified results) were assumed to equal the full reporting limit for the RPD calculation.

Appendix D

Table D-1: 2020-2021 Sub-Slab Soil Vapor Sampling Results

Constituent Name in Laboratory EDDs	Constituent Synonym or Acronym Used in Laboratory Report(s) and/or Main Text	Chemical Abstract Service Number	Concentration (µg/m^3) in August 5, 2020 Samples										Concentration (µg/m^3) in February 24, 2021 Samples									
			SG-SV-17-0-1-080520	Qualifier	SG-SV-17-0-1-080520-(01)	Qualifier	SG-SV-18-01-080520	Qualifier	SG-SV-19-0-1-080520	Qualifier	SG-SV-20-0-1-080520	Qualifier	SG-SV-17-0-1-022421	Qualifier	SG-SV-17-0-1-022421-(01)	Qualifier	SG-SV-18-0-1-022421	Qualifier	SG-SV-19-0-1-022421	Qualifier	SG-SV-20-0-1-022421	Qualifier	SG-SV-21-0-1-022421	Qualifier
1,1,1-Trichloroethane		71-55-6	25	U	23	U	26	U	2.9	U	1.9	U	9.3	U	8.7	U	4.5	U	3.1	U	3.3	U	3.0	U
1,1,2,2-Tetrachloroethane		79-34-5	6.2	U	5.9	U	6.5	U	0.74	U	0.48	U	2.3	U	2.2	U	1.1	U	0.77	U	0.82	U	0.76	U
1,1,2-Trichloroethane		79-00-5	4.9	U	4.7	U	5.1	U	0.59	U	0.38	U	0.93	U	0.87	U	0.45	U	0.31	U	0.33	U	0.30	U
1,1-Dichloroethane		75-34-3	18	U	17	U	19	U	2.2	U	1.4	U	6.9	U	6.5	U	3.3	U	2.3	U	2.4	U	2.2	U
1,1-Dichloroethene		75-35-4	18	U	17	U	19	U	2.1	U	1.4	U	6.7	U	6.3	U	3.3	U	2.2	U	2.4	U	2.2	U
1,2,4-Trichlorobenzene		120-82-1	33	U	32	U	35	U	4.0	U	2.6	U	13	U	12	U	6.1	U	4.2	U	4.5	U	4.1	U
1,2,4-Trimethylbenzene		95-63-6	110	U	110	U	120	U	13	U	8.6	U	42	U	39	U	20	U	14	U	15	U	14	U
1,2-Dibromoethane	EDB	106-93-4	3.5	U	3.3	U	3.6	U	0.41	U	0.27	U	0.65	UJ	0.62	UJ	0.32	UJ	0.43	U	0.46	U	0.42	U
1,2-Dichlorobenzene		95-50-1	27	U	26	U	28	U	3.2	U	2.1	U	10	U	9.6	U	4.9	U	3.4	U	3.6	U	3.3	U
1,2-Dichloroethane	EDC	107-06-2	1.8	U	1.7	U	1.9	U	0.22	U	0.21		0.69	U	0.65	U	0.33	U	0.23	U	0.24	U	0.22	U
1,2-Dichloropropane		78-87-5	10	U	9.9	U	11	U	1.2	U	0.81	U	3.9	U	3.7	U	1.9	U	1.3	U	1.4	U	1.3	U
1,3,5-Trimethylbenzene		108-67-8	110	U	110	U	120	U	13	U	8.6	U	42	U	39	U	20	U	14	U	15	U	14	U
1,3-Butadiene		106-99-0	1.0	U	0.95	U	1.0	U	0.12	U	0.077	U	0.75	U	0.71	U	0.36	U	0.25	U	0.27	U	1.5	
1,3-Dichlorobenzene		541-73-1	27	U	26	U	28	U	3.2	U	2.1	U	10	U	9.6	U	4.9	U	3.4	U	3.6	U	3.3	U
1,4-Dichlorobenzene		106-46-7	11	U	10	U	11	U	1.3	U	0.84	U	4.0	U	3.7	U	1.9	U	1.3	U	1.4	U	1.3	U
1,4-Dioxane		123-91-1	16	U	15	U	17	U	1.9	U	1.3	U	6.1	U	5.8	U	3.0	U	2.0	U	2.2	U	2.0	U
2,2,4-Trimethylpentane		540-84-1	210	U	200	U	220	U	25	U	16	U	79	U	75	U	38	U	26	U	28	U	26	U
2-Butanone	MEK	78-93-3	130	U	130	U	140	U	16	U	10	U	50	U	47	U	24	U	17	U	18	U	16	U
2-Chlorotoluene		95-49-8	230	U	220	U	240	U	28	U	18	U	88	U	83	U	42	U	29	U	31	U	28	U
2-Hexanone		591-78-6	180	U	180	U	190	U	22	U	14	U	70	U	66	U	34	U	23	U	25	U	23	U
2-Propanol, 2-methyl-	t-Butyl alcohol (TBA)	75-65-0	550	U	520	U	570	U	65	U	42	U	210	U	190	U	99	U	68	U	73	U	67	U
3-Chloropropene		107-05-1	70	U	67	U	74	U	8.5	U	5.5	U	27	U	25	U	13	U	8.8	U	9.4	U	8.6	U
4-Ethyltoluene		622-96-8	110	U	110	U	120	U	13	U	8.6	U	42	U	39	U	20	U	14	U	15	U	14	U
Acetone		67-64-1	210	U	200	U	220	U	94		43		81	U	76	U	39	U	27		29	U	26	U
Acrolein		107-02-8	93	U	89	U	97	U	11	U	7.2	U	33	UJ	31	UJ	16	UJ	11	UJ	12	UJ	11	UJ
Benzene		71-43-2	14	U	14	U	15	U	1.7	U	1.1	U	5.4	U	5.1	U	2.6	U	1.8	U	1.9	U	1.8	U
Benzyl chloride		100-44-7	2.3	U	2.2	U	2.4	U	0.28	U	0.18	U	0.88	U	0.83	U	0.42	U	0.29	U	0.31	U	0.29	U
Bromoform		75-25-2	93	U	89	U	97	U	11	U	7.2	U	35	U	33	U	17	U	12	U	12	U	11	U
Bromomethane		74-83-9	70	U	67	U	73	U	8.4	U	5.4	U	40	U	37	U	19	U	13	U	14	U	13	U
Butane		106-97-8	110	U	100	U	110	U	13	U	8.3	U	40	U	38	U	19	U	13	U	14	U	13	U
Carbon disulfide		75-15-0	280	U	270	U	290	U	34	U	22	U	110	U	100	U	51	U	35	U	37	U	34	U
Carbon tetrachloride		56-23-5	28	U	27	U	30	U	3.4	U	2.2	U	5.3	U	5.0	U	2.6	U	1.8	U	1.9	U	1.7	U
CFC-11	Trichlorofluoromethane	75-69-4	100	U	97	U	110	U	12	U	7.9	U	38	U	36	U	18	U	13	U	13	U	12	U
CFC-113		76-13-1	34	U	33	U	36	U	4.1	U	2.7	U	13	U	12	U	6.3	U	4.3	U	4.6	U	4.2	U
CFC-12	Dichlorodifluoromethane	75-71-8	1,700		1,800		3,500		1,900	E	3,700	E	290		270		330		390	E	840	E	2.7	U
Chlorobenzene		108-90-7	21	U	20	U	22	U	2.5	U	1.6	U	7.8	U	7.4	U	3.8	U	2.6	U	2.8	U	2.5	U
Chloroethane		75-00-3	120	U	110	U	120	U	14	U	9.2	U	45	U	42	U	22	U	15	U	16	U	15	U
Chloroform		67-66-3	14		15		2.3	U	0.32		0.46		6.1		5.9		0.40	U	0.27	U	0.29	U	0.27	U
Chloromethane		74-87-3	170	U	160	U	170	U	20	U	13	U	63	U	59	U	30	U	21	U	22	U	20	U

Table D-1: 2020-2021 Sub-Slab Soil Vapor Sampling Results

Constituent Name in Laboratory EDDs	Constituent Synonym or Acronym Used in Laboratory Report(s) and/or Main Text	Chemical Abstract Service Number	Concentration (µg/m^3) in August 5, 2020 Samples										Concentration (µg/m^3) in February 24, 2021 Samples									
			SG-SV-17-0-1-080520	Qualifier	SG-SV-17-0-1-080520-(01)	Qualifier	SG-SV-18-01-080520	Qualifier	SG-SV-19-0-1-080520	Qualifier	SG-SV-20-0-1-080520	Qualifier	SG-SV-17-0-1-022421	Qualifier	SG-SV-17-0-1-022421-(01)	Qualifier	SG-SV-18-0-1-022421	Qualifier	SG-SV-19-0-1-022421	Qualifier	SG-SV-20-0-1-022421	Qualifier	SG-SV-21-0-1-022421	Qualifier
cis-1,2-Dichloroethene		156-59-2	18	U	17	U	19	U	2.1	U	1.4	U	6.7	U	6.3	U	3.3	U	2.2	U	2.4	U	2.2	U
cis-1,3-Dichloropropene		10061-01-5	20	U	20	U	21	U	2.5	U	1.6	U	7.7	U	7.3	U	3.7	U	2.5	U	2.7	U	2.5	U
Cyclohexane		110-82-7	310	U	300	U	320	U	37	U	24	U	120	U	110	U	56	U	39	U	41	U	38	U
Dibromochloromethane		124-48-1	3.8	U	3.7	U	4.0	U	0.46	U	0.30	U	1.4	U	1.4	U	0.70	U	0.48	U	0.51	U	0.47	U
Dichlorobromomethane	Bromodichloromethane	75-27-4	3.0	U	2.9	U	3.1	U	0.36	U	0.23	U	1.1	U	1.1	U	0.55	U	0.38	U	0.40	U	0.37	U
Ethanol		64-17-5	340	U	320	U	1300		210		210	E	130	U	120	U	92	EJ	200	EJ	240	EJ	150	EJ
Ethyl acetate		141-78-6	320	U	310	U	340	U	39	U	25	U	120	U	120	U	59	U	40	U	43	U	40	U
Ethylbenzene		100-41-4	20	U	19	U	20	U	5.2		5.7		7.4	U	6.9	U	3.6	U	2.4	U	2.6	U	2.4	U
F-114		76-14-2	31	U	30	U	33	U	3.8	U	2.4	U	12	U	11	U	5.7	U	3.9	U	4.2	U	3.8	U
Heptane		142-82-5	180	U	180	U	190	U	22	U	14	U	70	U	66	U	34	U	23	U	25	U	23	U
Hexachlorobutadiene		87-68-3	9.6	U	9.2	U	10	U	1.2	U	0.75	U	3.6	U	3.4	U	1.7	U	1.2	U	1.3	U	1.2	U
Hexane		110-54-3	160	U	150	U	170	U	19	U	12	U	60	U	56	U	29	U	20	U	21	U	19	U
Isopropyl alcohol	2-Propanol	67-63-0	390	U	370	U	400	U	46	U	30	U	150	U	140	U	71	U	48	U	52	U	47	U
Isopropylbenzene	Cumene	98-82-8	110	U	110	U	120	U	13	U	8.6	U	42	U	39	U	20	U	14	U	15	U	14	U
m,p-Xylene		179601-23-1	39	U	37	U	41	U	28		30		15	U	14	U	7.1	U	4.9	U	5.2	U	4.8	U
Methyl isobutyl ketone	4-Methyl-2-pentanone	108-10-1	180	U	180	U	190	U	22	U	14	U	70	U	66	U	34	U	23	U	25	U	31	
Methyl methacrylate		80-62-6	180	U	180	U	190	U	22	U	14	U	70	U	66	U	34	U	23	U	25	U	23	U
Methyl t-butyl ether	MTBE	1634-04-4	81	U	78	U	85	U	9.7	U	6.3	U	31	U	29	U	15	U	10	U	11	U	9.9	U
Methylene chloride		75-09-2	1,600	U	1,500	U	1,600	U	470	U	300	U	590	U	560	U	280	U	190	U	210	U	190	U
Naphthalene		91-20-3	7.8	J B	4.7	J B	4.7	J B	1.4	U	0.92	U	0.98	UJ	0.92	UJ	2.1	U	1.5	U	1.6	U	1.4	U
Nonane		111-84-2	240	U	230	U	250	U	28	U	18	U	89	U	84	U	43	U	29	U	31	U	190	
o-Xylene		95-47-6	20	U	19	U	20	U	11		11		7.4	U	6.9	U	3.6	U	2.4	U	2.6	U	2.4	U
Pentane		109-66-0	130	U	130	U	140	U	16	U	10	U	50	U	47	U	24	U	17	U	18	U	16	U
Propene		115-07-1	54	U	52	U	57	U	6.5	U	4.2	U	20	U	19	U	9.9	U	6.7	U	7.2	U	6.6	U
Propylbenzene		103-65-1	110	U	110	U	120	U	13	U	8.6	U	42	U	39	U	20	U	14	U	15	U	14	U
Styrene		100-42-5	38	U	37	U	40	U	4.6	U	3.0	U	14	U	14	U	7.0	U	4.8	U	5.1	U	4.7	U
Tetrachloroethene	PCE	127-18-4	27,000	E	30,000	E	15,000	E	480		33		20,000	E	23,000	E	7,800	E	420	E	45		37	U
Tetrahydrofuran		109-99-9	13	U	13	U	14	U	1.6	U	1.0	U	5.0	U	4.7	U	2.4	U	1.7	U	1.8	U	1.6	U
Toluene		108-88-3	850	U	810	U	890	U	100	U	66	U	320	U	300	U	150	U	110	U	110	U	100	U
trans-1,2-Dichloroethene		156-60-5	18	U	17	U	19	U	2.1	U	1.4	U	6.7	U	6.3	U	3.3	U	2.2	U	2.4	U	2.2	U
trans-1,3-Dichloropropene		10061-02-6	20	U	20	U	21	U	2.5	U	1.6	U	7.7	U	7.3	U	3.7	U	2.5	U	2.7	U	2.5	U
Trichloroethene	TCE	79-01-6	42		46		13	U	1.5	U	0.94	U	18		18		0.88	U	0.60	U	0.64	U	0.59	U
Vinyl acetate		108-05-4	320	U	300	U	330	U	38	U	25	U	120	U	110	U	58	U	39	U	42	U	39	U
Vinyl bromide		593-60-2	20	U	19	U	21	U	2.4	U	1.5	U	7.4	U	7.0	U	3.6	U	2.4	U	2.6	U	2.4	U
Vinyl chloride		75-01-4	12	U	11	U	12	U	1.4	U	0.89	U	4.3	U	4.1	U	2.1	U	1.4	U	1.5	U	1.4	U

Notes:

B: Constituent was detected in method blank; E: Estimated concentration because concentration exceeds calibration level; EDD: Electronic data deliverable; J: Estimated concentration because internal standard associated with the analyte is out of control limits; U: Not detected at shown reporting limit

The laboratory made a typo by inadvertently changing the sample name of SG-SV-17-0-1-080520 on the chain-of-custody to SG-SV-07-0-1-080520.

The results presented in this table were from the EDDs provided by the laboratory. In some cases, the constituent names and qualifiers in the EDDs were inconsistent with the constituent names and qualifiers in the laboratory reports. Constituent name synonyms and acronyms used in the laboratory reports that were different than the constituent names used in the EDDs are provided in the second column to assist the reader. The U qualifiers in the EDD for three naphthalene results were changed to J B qualifiers to match the laboratory report qualifiers.

Table D-2: 2020-2021 Indoor Air and Ambient Air Sampling Results

Constituent Name in Laboratory EDDs	Constituent Synonym or Acronym Used in Laboratory Report(s) and/or Main Text	Chemical Abstract Service Number	Concentration (µg/m³) in August 5, 2020 Samples												Concentration (µg/m³) in January 20, 2021 Samples												Concentration (µg/m³) in February 24, 2021 Samples											
			AA-AA-01-080520	Qualifier	IA-IA-01-080520	Qualifier	IA-IA-01-080520-(01)	Qualifier	IA-IA-02-080520	Qualifier	IA-IA-03-080520	Qualifier	IA-IA-04-080520	Qualifier	AA-AA-01-012021	Qualifier	IA-IA-01-012021	Qualifier	IA-IA-01-012021-(01)	Qualifier	IA-IA-02-012021	Qualifier	IA-IA-03-012021	Qualifier	IA-IA-04-012021	Qualifier	AA-AA-01-022421	Qualifier	IA-IA-01-022421	Qualifier	IA-IA-01-022421-(01)	Qualifier	IA-IA-02-022421	Qualifier	IA-IA-03-022421	Qualifier	IA-IA-04-022421	Qualifier
1,1,1-Trichloroethane		71-55-6	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U
1,1,2,2-Tetrachloroethane		79-34-5	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U
1,1,2-Trichloroethane		79-00-5	0.11	U	0.11	U	0.11	U	0.11	U	0.11	U	0.11	U	0.055	U	0.055	U	0.055	U	0.055	U	0.055	U	0.055	U	0.055	U	0.055	UJ	0.055	UJ	0.055	UJ	0.055	UJ	0.060	
1,1-Dichloroethane		75-34-3	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U
1,1-Dichloroethene		75-35-4	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U
1,2,4-Trichlorobenzene		120-82-1	0.74	U	0.74	U	0.74	U	0.74	U	0.74	U	0.74	U	0.74	U	0.74	U	0.74	U	0.74	U	0.74	U	0.74	U	0.74	U	0.74	U	0.74	U	0.74	U	0.74	U	0.74	U
1,2,4-Trimethylbenzene		95-63-6	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	4.1		4.2		3.1		2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,2-Dibromoethane	EDB	106-93-4	0.077	U	0.077	U	0.077	U	0.077	U	0.077	U	0.077	U	0.077	U	0.077	U	0.077	U	0.077	U	0.077	U	0.077	U	0.077	U	0.077	UJ	0.077	UJ	0.077	UJ	0.077	UJ	0.077	U
1,2-Dichlorobenzene		95-50-1	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U
1,2-Dichloroethane	EDC	107-06-2	0.053		0.089		0.097		0.081		0.64		0.66		0.057		0.085		0.073		0.085		0.17		0.20		0.069		0.11		0.11		0.10		0.21		0.23	
1,2-Dichloropropane		78-87-5	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	UJ	0.23	UJ	0.23	UJ	0.26	J	0.24	
1,3,5-Trimethylbenzene		108-67-8	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,3-Butadiene		106-99-0	0.022	U	0.022	U	0.022	U	0.022	U	0.022	U	0.022	U	0.10		0.091		0.086		0.15		0.095		0.084		0.044	U	0.044	U	0.044	U	0.044	U	0.15		0.17	
1,3-Dichlorobenzene		541-73-1	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U
1,4-Dichlorobenzene		106-46-7	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U
1,4-Dioxane		123-91-1	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	UJ	0.36	UJ	0.36	UJ	0.36	UJ	0.36	U
2,2,4-Trimethylpentane		540-84-1	4.7	U	4.7	U	4.7	U	4.7	U	4.7	U	4.7	U	4.7	U	4.7	U	4.7	U	4.7	U	4.7	U	4.7	U	4.7	U	4.7	UJ	4.7	UJ	4.7	UJ	4.7	UJ	4.7	U
2-Butanone	MEK	78-93-3	2.9	U	2.9	U	2.9	U	2.9	U	3.4		3.1		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U
2-Chlorotoluene		95-49-8	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U
2-Hexanone		591-78-6	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	UJ	4.1	UJ	4.1	UJ	4.1	UJ	4.1	U
2-Propanol, 2-methyl-	t-Butyl alcohol (TBA)	75-65-0	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U
3-Chloropropene		107-05-1	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U
4-Ethyltoluene		622-96-8	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Acetone		67-64-1	11		14		18		27		120	E	110	E	4.8	U	11		10		37		38		35		4.8	U	9.6		10		9.1		43	E	49	
Acrolein		107-02-8	2.1	U	2.1	U	2.1	U	2.1	U	2.2		2.1		2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ
Benzene		71-43-2	0.32	U	0.32	U	0.32	U	0.32	U	0.35		0.32	U	0.74		0.71		0.73		0.87		0.64		0.61		0.37		0.44		0.47		0.48		0.71		0.75	
Benzyl chloride		100-44-7	0.052	U	0.052	U	0.052	U	0.052	U	0.052	U	0.052	U	0.052	U	0.052	U	0.052	U	0.052	U	0.052	U	0.052	U	0.052	U	0.052	U	0.052	U	0.052	U	0.052	U	0.052	U
Bromoform		75-25-2	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
Bromomethane		74-83-9	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	2.3	U	2.3	U	2.3	U	2.3	U	2.3	U	2.3	U	2.3	U	2.3	U	2.3	U	2.3	U	2.3	U	2.3	U
Butane		106-97-8	2.4	U	2.4	U	2.4	U	2.4	U	4.7		4.3		2.4		3.6		3.8		4.3		3.6		3.2		2.4	U	3.4		3.8		4.0		2.9		3.1	
Carbon disulfide		75-15-0	6.2	U	6.2	U	6.2	U	6.2	U	6.2	U	6.2	U	6.2	U	6.2	U	6.2	U	6.2	U	6.2	U	6.2	U	6.2	U	6.2	U	6.2	U	6.2	U	6.2	U	6.2	U
Carbon tetrachloride		56-23-5	0.63	U	0.63	U	0.63	U	0.63	U	0.63	U	0.63	U	0.45		0.42		0.43		0.45		0.43		0.42		0.45		0.42		0.44		0.44		0.44		0.45	
CFC-11	Trichlorofluoromethane	75-69-4	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U
CFC-113		76-13-1	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U
CFC-12	Dichlorodifluoromethane	75-71-8	3.0		3.5		3.5		3.2		9.5		9.2		2.1		3.8		3.9		3.7		4.9		4.8		2.1		4.1		4.2		4.3		4.6		5.2	
Chlorobenzene		108-90-7	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U
Chloroethane		75-00-3	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U
Chloroform		67-66-3	0.10		0.16		0.16		0.15		0.50		0.47		0.10		0.13		0.15		0.14		0.32		0.26		0.078		0.14		0.15		0.15		0.28		0.27	
Chloromethane		74-87-3	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U
cis-1,2-Dichloroethene		156-59-2	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U

Table D-2: 2020-2021 Indoor Air and Ambient Air Sampling Results

Constituent Name in Laboratory EDDs	Constituent Synonym or Acronym Used in Laboratory Report(s) and/or Main Text	Chemical Abstract Service Number	Concentration (µg/m³) in August 5, 2020 Samples												Concentration (µg/m³) in January 20, 2021 Samples												Concentration (µg/m³) in February 24, 2021 Samples											
			AA-AA-01-080520	Qualifier	IA-IA-01-080520	Qualifier	IA-IA-01-080520-(01)	Qualifier	IA-IA-02-080520	Qualifier	IA-IA-03-080520	Qualifier	IA-IA-04-080520	Qualifier	AA-AA-01-012021	Qualifier	IA-IA-01-012021	Qualifier	IA-IA-01-012021-(01)	Qualifier	IA-IA-02-012021	Qualifier	IA-IA-03-012021	Qualifier	IA-IA-04-012021	Qualifier	AA-AA-01-022421	Qualifier	IA-IA-01-022421	Qualifier	IA-IA-01-022421-(01)	Qualifier	IA-IA-02-022421	Qualifier	IA-IA-03-022421	Qualifier	IA-IA-04-022421	Qualifier
cis-1,3-Dichloropropene		10061-01-5	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	UJ	0.45	UJ	0.45	UJ	0.45	UJ	0.45	U
Cyclohexane		110-82-7	6.9	U	6.9	U	6.9	U	6.9	U	6.9	U	6.9	U	6.9	U	6.9	U	6.9	U	6.9	U	6.9	U	6.9	U	6.9	U	6.9	U	6.9	U	6.9	U	6.9	U	6.9	U
Dibromochloromethane		124-48-1	0.085	U	0.085	U	0.085	U	0.085	U	0.085	U	0.085	U	0.085	U	0.085	U	0.085	U	0.085	U	0.085	U	0.085	U	0.085	U	0.085	UJ	0.085	UJ	0.085	UJ	0.085	UJ	0.085	U
Dichlorobromomethane	Bromodichloromethane	75-27-4	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U	0.067	UJ	0.067	UJ	0.067	UJ	0.094	J	0.080	
Ethanol		64-17-5	7.5	U	140	E	140	E	160	E	850	E	800	E	15		720	E	720	E	1,500	E	2,300	E	1,200	E	7.5	U	540	EJ	580	EJ	730	EJ	1,400	EJ	1,300	EJ
Ethyl acetate		141-78-6	7.2	U	7.2	U	7.2	U	7.2	U	27		26		7.2	U	7.2	U	7.2	U	7.2	U	7.2	U	7.2	U	7.2	U	7.2	U	7.2	U	7.2	U	7.2	U	7.2	U
Ethylbenzene		100-41-4	0.43	U	0.43	U	0.43	U	0.43	U	9.2		10		0.43	U	0.89		0.88		0.81		0.49		0.43		0.43	U	0.63		0.65		0.61		0.43	U	0.43	U
F-114		76-14-2	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U
Heptane		142-82-5	4.1	U	4.1	U	4.1	U	4.1	U	4.9		4.6		4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	UJ	4.1	UJ	4.1	UJ	4.1	UJ	4.1	U
Hexachlorobutadiene		87-68-3	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
Hexane		110-54-3	3.5	U	3.5	U	9.1		21		6.0		8.0		3.5	U	3.5	U	3.5	U	9.9		3.5	U	5.3		3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U
Isopropyl alcohol	2-Propanol	67-63-0	8.6	U	8.6	U	8.6	U	8.6	U	480	E	430	E	8.6	U	8.6	U	8.6	U	8.6	U	280	E	200	E	8.6	U	8.6	U	8.6	U	8.6	U	880	E	980	E
Isopropylbenzene	Cumene	98-82-8	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
m,p-Xylene		179601-23-1	0.87	U	1.0		1.1		1.1		48		54		0.88		3.2		3.2		2.9		1.8		1.6		0.87	U	2.0		2.1		1.9		1.0		1.0	
Methyl isobutyl ketone	4-Methyl-2-pentanone	108-10-1	4.1	U	4.1	U	4.1	U	4.1	U	21		20		4.1	U	4.1	U	4.1	U	4.1	U	5.3		4.5		4.1	U	4.1	UJ	4.1	UJ	4.1	UJ	9.0	J	8.0	
Methyl methacrylate		80-62-6	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	UJ	4.1	UJ	4.1	UJ	4.1	UJ	4.1	U
Methyl t-butyl ether	MTBE	1634-04-4	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U
Methylene chloride		75-09-2	87	U	87	U	180	E	330	E	130	E	110	E	35	LC	52	LC	55	LC	490	LC	93	LC	190	LC	35	U	35	U	35	U	35	U	35	U	35	U
Naphthalene		91-20-3	0.21	B	0.29	B	0.29	B	0.20	B	0.18	B	0.31	B	0.13		0.47		0.45		0.33		0.25		0.18		0.089	J	0.48		0.57		0.47		0.21		0.18	
Nonane		111-84-2	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U
o-Xylene		95-47-6	0.43	U	0.58		0.58		0.55		17		19		0.43	U	1.5		1.5		1.3		0.79		0.69		0.43	U	0.92		0.96		0.91		0.46		0.45	
Pentane		109-66-0	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Propene		115-07-1	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
Propylbenzene		103-65-1	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Styrene		100-42-5	0.85	U	0.85	U	0.85	U	0.85	U	0.94		1.0		0.85	U	0.85	U	0.85	U	0.85	U	1.0		0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U
Tetrachloroethene	PCE	127-18-4	7.3		6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	7.4		7.2		6.8	U	6.8	U	6.8	U	6.8	U	7.9	J	8.3	J	7.5	J	6.8	UJ	6.8	U
Tetrahydrofuran		109-99-9	0.29	U	0.29	U	0.29	U	0.29	U	0.32		0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U
Toluene		108-88-3	19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	UJ	19	UJ	19	UJ	19	UJ	19	U
trans-1,2-Dichloroethene		156-60-5	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U
trans-1,3-Dichloropropene		10061-02-6	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	UJ	0.45	UJ	0.45	UJ	0.45	UJ	0.45	U
Trichloroethene	TCE	79-01-6	0.27	U	0.27	U	0.41		0.27	U	0.27	U	0.27	U	0.11	U	0.11	U	0.11	U	0.11	U	0.11	U	0.11	U	0.11	U	0.11	UJ	0.11	UJ	0.11	UJ	0.11	UJ	0.11	U
Vinyl acetate		108-05-4	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U
Vinyl bromide		593-60-2	0.44	U	0.44	U	0.44	U	0.44	U	0.44	U	0.44	U	0.44	U	0.44	U	0.44	U	0.44	U	0.44	U	0.44	U	0.44	U	0.44	U	0.44	U	0.44	U	0.44	U	0.44	U
Vinyl chloride		75-01-4	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U

Notes:

B: Constituent was detected in method blank; E: Estimated concentration because concentration exceeds calibration level; EDD: Electronic data deliverable; J: Estimated concentration because internal standard associated with the analyte is out of control limits; LC: Presence of this constituent is likely due to laboratory contamination (and concentration is estimated because laboratory percent recovery is out of control limits); U: Not detected at shown reporting limit

As discussed in the case narrative of the laboratory report, select constituents in February 24, 2021 samples IA-IA-01-022421, IA-IA-01-022421-(01), IA-IA-02-022421, and IA-IA-03-022421 were analyzed twice and both results were reported. If one result was detected and the other result was not detected, the detected result was included in this table. If both results were not detected, the result with the lower reporting limit was included in this table.

The results presented in this table were from the EDDs provided by the laboratory. In some cases, the constituent names and qualifiers in the EDDs were inconsistent with the constituent names and qualifiers in the laboratory reports. Constituent name synonyms and acronyms used in the laboratory reports that were different than the constituent names used in the EDDs are provided in the second column to assist the reader. A few of the EDD qualifiers were modified based on the laboratory report qualifiers in order to provide better clarity about the meaning of the qualifier (e.g., the EUU qualifier was changed to a B qualifier, a LC qualifier was added since the EDD did not include a similar qualifier, and a single T qualifier was changed to a J qualifier).

Appendix E

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Picrin

OTHER MEANS OF IDENTIFICATION: Not applicable.

GENERAL USE: For professional drycleaning use only.

PRODUCT DESCRIPTION: Stain Removal Agent

MANUFACTURER

R. R. Street & Co. Inc.
215 Shuman Boulevard/Suite 403
Naperville, IL 60563

Product Information: 800-323-7206 (USA & Canada only) **or** 630-416-4244

24 HR. EMERGENCY TELEPHONE NUMBERS

Medical Emergency: 866-303-6947 (USA & Canada only) **or** 651-632-9272

Transportation Emergency: 800-424-9300 (USA & Canada only) **or** 703-527-3887

2. HAZARDS IDENTIFICATION

GHS CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

Skin Corrosion/Irritation: Category 2
Eye Damage/Irritation: Category 2
Specific Target Organ Toxicity (STOT-SE): Narcotic Effects: Category 3
Germ Cell Mutagenicity: Category 2
Carcinogenicity: Category 1A
Aspiration Hazard: Category 1

GHS LABEL ELEMENTS

Symbol(s):



Signal Word: Danger

Hazard Statements:

H304 – May be fatal if swallowed and enters airways.
H315 – Causes skin irritation.
H319 – Causes serious eye irritation.
H336 – May cause drowsiness or dizziness.
H341 – Suspected of causing genetic defects.
H350 – May cause cancer.

Precautionary Statements:

P201 – Obtain special instructions before use.
P202 – Do not handle until all safety precautions have been read and understood.
P261 – Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 – Wash skin thoroughly after handling.
P271 – Use only outdoors or in a well-ventilated area.
P280 – Wear protective gloves/protective clothing/eye protection/ face protection.
P281 – Use personal protective equipment as required.
P302+P352 – IF ON SKIN: Wash with plenty of soap and water.

P362+P364 – Take off contaminated clothing and wash before reuse.
P332+P313 – If skin irritation occurs: Get medical advice/ attention.
P304+P340 – IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.
P312 – Call a POISON CENTER/doctor/physician if you feel unwell.
P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 – If eye irritation persists: Get medical advice/ attention.
P301+P310 – IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P331 – Do NOT induce vomiting.
P321 – Specific treatment, see First Aid Measures section (section 4).
P308+P313 – IF exposed or concerned: Get medical advice/ attention.
P403+P233 – Store in a well-ventilated place. Keep container tightly closed.
P501 – Dispose of contents and container to licensed, permitted incinerator, or other thermal destruction device.

Other Hazards: Not available.
Unknown Acute Toxicity: Not applicable.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Wt.%	CAS
Trichloroethylene	>75	79-01-6

4. FIRST AID MEASURES

EYES: Immediately flush eyes with plenty of water for at least 15 minutes. Get immediate medical attention.

SKIN: Remove contaminated clothing. Wash with water. Consult a physician if irritation persists.

INGESTION: Get immediate medical attention. Do not induce vomiting unless instructed to do so by poison center or physician.

INHALATION: Remove affected person to fresh air. If not breathing, give artificial respiration. Get medical attention.

NOTES TO PHYSICIAN: Only administer adrenaline after careful consideration following overexposure. Increased sensitivity of the heart to adrenaline may be caused by overexposure to this product. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

SIGNS AND SYMPTOMS OF OVEREXPOSURE

EYES: Discomfort, pain, irritation.

SKIN: Irritation, dermatitis.

SKIN ABSORPTION: Insufficient data available.

INGESTION: May result in irritation to mouth and GI tract, Vomiting and subsequent aspiration into lungs could possibly lead to pneumonia or pulmonary edema.

INHALATION: Central nervous system depressant. Inhalation can cause irritation of the respiratory tract, dizziness, nausea, headache, loss of coordination and equilibrium.

ADDITIONAL INFORMATION: After emergency actions, call the emergency medical information number on page 1 or a physician immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE CLASS: Not applicable.

EXTINGUISHING MEDIA: Carbon dioxide, dry chemical, foam, water spray or fog.

HAZARDOUS COMBUSTION PRODUCTS: Emits toxic fumes under fire conditions. Hydrogen chloride, phosgene.

OTHER CONSIDERATIONS: Concentrated vapor can be ignited by high-intensity ignition source. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

FIRE FIGHTING EQUIPMENT: As in any fire, wear self-contained breathing apparatus pressure-demand, (MSHA/NIOSH approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL: Clean up spill with absorbent material and water, if necessary.

LARGE SPILL: Contain spill. Provide plenty of fresh air. Avoid breathing vapor. Clean up spills immediately with absorbent material, observing precautions in the Exposure Controls/Personal Protection section (see section 8). Place absorbed material in closed containers for disposal (see section 13). Do not flush to sewer. Avoid contamination of ground and surface waters.

7. HANDLING AND STORAGE

GENERAL PROCEDURES: Not applicable.

HANDLING: Follow all SDS/label precautions even after container is emptied because it may retain product residues.

STORAGE: Store in labeled, tightly sealed containers in a cool, dry, well-ventilated area.

ELECTROSTATIC ACCUMULATION HAZARD: Ground and bond containers when transferring material.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

OSHA HAZARDOUS COMPONENTS (29 CFR 1910.1200)

		EXPOSURE LIMITS					
		OSHA PEL		ACGIH TLV		Supplier OEL	
		ppm	mg/m^3	ppm	mg/m^3	ppm	mg/m^3
Trichloroethylene	**TWA**	100	10[1]				
	STEL	200[2]	25				

TABLE FOOTNOTES

1. A2: Suspected human carcinogen.
2. Ceiling concentration. A 300 ppm peak concentration is allowed for 5 minutes in any 2-hour period.

ENGINEERING CONTROLS: Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Safety glasses with side shields, or goggles.

SKIN: Neoprene or Barrier™ gloves.

RESPIRATORY: NIOSH/MSHA approved air purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations

are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

PROTECTIVE CLOTHING: Where contact is likely, wear the appropriate chemical resistant equipment, which depending on circumstances may include gloves, a chemical suit, rubber boots, and chemical safety goggles plus a face shield.

WORK HYGIENIC PRACTICES: Wash thoroughly after handling. Do not eat or drink in work area.

OTHER USE PRECAUTIONS: Have eye wash station available. Do not wear contact lenses without eye protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Clear.

PHYSICAL STATE: Liquid.

COLOR: Colorless.

ODOR: Ethereal.

ODOR THRESHOLD: 20 ppm

pH: Not applicable.

FREEZING POINT: -85°C (-121°F)

INITIAL BOILING POINT: 87°C (188°F)

FLASHPOINT: No data available.

EVAPORATION RATE: 4.5 (butyl acetate = 1)

FLAMMABILITY (Solid, Gas): Not applicable, this product is a liquid at room temperature.

FLAMMABLE LIMITS: 8.0 to 12.5%

VAPOR PRESSURE: 58 mm Hg at 20°C

VAPOR DENSITY: 4.5 (air = 1)

RELATIVE DENSITY: 1.45

SOLUBILITY IN WATER: Negligible.

PARTITION COEFFICIENT (Log K_{ow}): 2.42

AUTOIGNITION TEMPERATURE: 420°C (788°F)

DECOMPOSITION TEMPERATURE: No data available.

VISCOSITY: No data available.

PERCENT VOLATILE: 100

10. STABILITY AND REACTIVITY

REACTIVITY: No.

CHEMICAL STABILITY: Stable.

POSSIBILITY OF HAZARDOUS REACTIONS: Polymerization will not occur.

CONDITIONS TO AVOID: Contact with open flame, electric arcs, other hot surfaces which can cause thermal decomposition.

INCOMPATIBLE MATERIALS: Strong alkalies, strong acids, oxidizers, sodium, potassium, lithium, aluminum, barium, magnesium, titanium.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrogen chloride, phosgene.

11. TOXICOLOGICAL INFORMATION

ROUTES OF EXPOSURE: Inhalation and skin.

ACUTE TOXICITY (ATE):

DERMAL LD_{50}: > 20,000 mg/kg (rabbit)

ORAL LD_{50}: > 2,000mg/kg (rat)

INHALATION LD_{50}: > 20 mg/L (mouse)

CHRONIC TOXICITY

TARGET ORGANS: Overexposure can lead to kidney and liver damage.

SENSITIZATION: Insufficient data available.

CARCINOGENICITY

IARC: This product is classified as Group 1 (Carcinogenic to humans).

NTP: This product is reasonably anticipated to be a human carcinogen.

OSHA: Not listed as a carcinogen.

OTHER: ACGIH: A2 – Limited epidemiology data have shown a weak association between trichloroethylene exposure and renal cancer.

OTHER: No data available.

REPRODUCTIVE EFFECTS: Insufficient data available.

MUTAGENICITY: Laboratory experiments have shown mutagenic effects. In vitro tests showed mutagenic effects.

SYNERGISTIC MATERIALS: No data available.

POTENTIAL HEALTH EFFECTS

EYES: May cause serious irritation.

SKIN: Prolonged or repeated exposure may cause dermatitis.

SKIN ABSORPTION: Harmful if absorbed through the skin.

INGESTION: May be harmful if swallowed. In the case of vomiting, product may be aspirated into lungs causing chemical pneumonia, which in extreme cases could lead to death. See section 4, First Aid Measures, for more information.

ASPIRATION HAZARD: Yes.

INHALATION: Inhalation can cause unconsciousness and even death in confined or poorly ventilated areas.

MEDICAL CONDITIONS AGGRAVATED: Insufficient data available.

GENERAL COMMENTS: Refer to Section 3 for additional information on potential health effects.

12. ECOLOGICAL INFORMATION

ECOTOXICITY: Harmful to aquatic organisms.

PERSISTENCE AND DEGRADABILITY: Insufficient data available.

BIOACCUMULATIVE POTENTIAL: Does not bioaccumulate.

MOBILITY IN SOIL: Insufficient data available.

OTHER ADVERSE EFFECTS: No data available.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD:

Recovered liquids may be sent to a licensed reclaimer or incineration facility. Contaminated material must be disposed of in a permitted waste management facility. Consult federal, state and local authorities for approved procedures

EMPTY CONTAINER: Not applicable.

RCRA/EPA WASTE INFORMATION: Contains material(s) listed by RCRA as a hazardous waste.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

PROPER SHIPPING NAME: Trichloroethylene
TECHNICAL NAME: None.
PRIMARY HAZARD CLASS/DIVISION: 6.1
UN/NA NUMBER: UN1710
PACKING GROUP: III
LABEL: Toxic
REPORTABLE QUANTITY (RQ) UNDER CERCLA: 8 gal
OTHER SHIPPING INFORMATION: Original 4x1-gallon packaging is approved for ground shipments only.

CANADA TRANSPORT OF DANGEROUS GOODS

PROPER SHIPPING NAME: Trichloroethylene
PRIMARY HAZARD CLASS/DIVISION: 6.1
UN/NA NUMBER: UN1710
PACKING GROUP: III
LABEL: Toxic
OTHER SHIPPING INFORMATION: Original 4x1-gallon packaging is approved for ground shipments only. Drums of this product contain a Reportable Quantity of trichloroethylene.

AIR (ICAO/IATA)

PROPER SHIPPING NAME: Trichloroethylene
PRIMARY HAZARD CLASS/DIVISION: 3
UN/NA NUMBER: UN1710
PACKING GROUP: III
LABEL: Toxic
PLACARD: Consult applicable regulations governing air shipments.
IATA NOTE: Original 4x1-gallon packaging is not approved for air shipment. Consult applicable regulations for packaging requirements and quantity limitations.

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

311/312 HAZARD CATEGORIES:

FIRE: No. **PRESSURE GENERATING:** No. **REACTIVITY:** No. **ACUTE:** Yes. **CHRONIC:** Yes.

313 REPORTABLE INGREDIENTS: Trichloroethylene is reportable.

CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)

CERCLA RQ: Trichloroethylene has an RQ of 100 lbs.

REPORTABLE SPILL QUANTITY: 8 gals

RCRA STATUS: See section 13.

MEXICO

Regulated for transportation.

STATE REGULATIONS

MASSACHUSETTS

Contains one or more substances regulated by the Massachusetts Substance List.

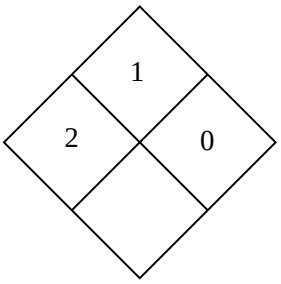
CALIFORNIA

PROPOSITION 65 STATEMENT: Trichloroethylene is on the Proposition 65 list of chemicals known to the State of California to cause cancer.

16. OTHER INFORMATION

HMIS RATINGS	
HEALTH:	3
FLAMMABILITY:	1
REACTIVITY:	0
PERSONAL PROTECTION:	H

NFPA RATINGS



SDS Revision Date: June 3, 2015

APPENDIX E: Terrestrial Ecological Evaluation

Voluntary Cleanup Program

Washington State Department of Ecology
Toxics Cleanup Program

TERRESTRIAL ECOLOGICAL EVALUATION FORM

Under the Model Toxics Control Act (MTCA), a terrestrial ecological evaluation is necessary if hazardous substances are released into the soils at a Site. In the event of such a release, you must take one of the following three actions as part of your investigation and cleanup of the Site:

1. Document an exclusion from further evaluation using the criteria in WAC 173-340-7491.
2. Conduct a simplified evaluation as set forth in WAC 173-340-7492.
3. Conduct a site-specific evaluation as set forth in WAC 173-340-7493.

When requesting a written opinion under the Voluntary Cleanup Program (VCP), you must complete this form and submit it to the Department of Ecology (Ecology). The form documents the type and results of your evaluation.

Completion of this form is not sufficient to document your evaluation. You still need to document your analysis and the basis for your conclusion in your cleanup plan or report.

If you have questions about how to conduct a terrestrial ecological evaluation, please contact the Ecology site manager assigned to your Site. For additional guidance, please refer to https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Terrestrial-ecological-evaluation.

Step 1: IDENTIFY HAZARDOUS WASTE SITE	
Please identify below the hazardous waste site for which you are documenting an evaluation.	
Facility/Site Name: Pine Lake Cleaners	
Facility/Site Address: 2830 228th Avenue SE, Sammamish, WA 98075	
Facility/Site No:	VCP Project No.:

Step 2: IDENTIFY EVALUATOR			
Please identify below the person who conducted the evaluation and their contact information.			
Name: Kevin Cline			Title: Environmental Scientist
Organization: Urban Environmental Partners			
Mailing address: 2324 1st Avenue			
City: Seattle		State: WA	Zip code: 98121
Phone: 503-754-1128	Fax:	E-mail: KMCEnvironmental@outlook.com	

Step 3: DOCUMENT EVALUATION TYPE AND RESULTS

A. Exclusion from further evaluation.

1. Does the Site qualify for an exclusion from further evaluation?

☒ Yes *If you answered **"YES,"** then answer **Question 2**.*

☐ No or Unknown *If you answered **"NO" or "UNKNOWN,"** then skip to **Step 3B** of this form.*

2. What is the basis for the exclusion? *Check all that apply. Then skip to **Step 4** of this form.*

Point of Compliance: WAC 173-340-7491(1)(a)

☐ All soil contamination is, or will be,* at least 15 feet below the surface.

☐ All soil contamination is, or will be,* at least 6 feet below the surface (or alternative depth if approved by Ecology), and institutional controls are used to manage remaining contamination.

Barriers to Exposure: WAC 173-340-7491(1)(b)

☒ All contaminated soil, is or will be,* covered by physical barriers (such as buildings or paved roads) that prevent exposure to plants and wildlife, and institutional controls are used to manage remaining contamination.

Undeveloped Land: WAC 173-340-7491(1)(c)

☐ There is less than 0.25 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site and any of the following chemicals is present: chlorinated dioxins or furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, heptachlor epoxide, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene.

☒ For sites not containing any of the chemicals mentioned above, there is less than 1.5 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site.

Background Concentrations: WAC 173-340-7491(1)(d)

☐ Concentrations of hazardous substances in soil do not exceed natural background levels as described in WAC 173-340-200 and 173-340-709.

* An exclusion based on future land use must have a completion date for future development that is acceptable to Ecology.

[±] "Undeveloped land" is land that is not covered by building, roads, paved areas, or other barriers that would prevent wildlife from feeding on plants, earthworms, insects, or other food in or on the soil.

[#] "Contiguous" undeveloped land is an area of undeveloped land that is not divided into smaller areas of highways, extensive paving, or similar structures that are likely to reduce the potential use of the overall area by wildlife.

B. Simplified evaluation.

1. Does the Site qualify for a simplified evaluation?

☒ Yes *If you answered **"YES,"** then answer **Question 2** below.*

☐ No or Unknown *If you answered **"NO"** or **"UNKNOWN,"** then skip to **Step 3C** of this form.*

2. Did you conduct a simplified evaluation?

☒ Yes *If you answered **"YES,"** then answer **Question 3** below.*

☐ No *If you answered **"NO,"** then skip to **Step 3C** of this form.*

3. Was further evaluation necessary?

☐ Yes *If you answered **"YES,"** then answer **Question 4** below.*

☒ No *If you answered **"NO,"** then answer **Question 5** below.*

4. If further evaluation was necessary, what did you do?

☐ Used the concentrations listed in Table 749-2 as cleanup levels. *If so, then skip to **Step 4** of this form.*

☐ Conducted a site-specific evaluation. *If so, then skip to **Step 3C** of this form.*

5. If no further evaluation was necessary, what was the reason? *Check all that apply. Then skip to **Step 4** of this form.*

Exposure Analysis: WAC 173-340-7492(2)(a)

☐ Area of soil contamination at the Site is not more than 350 square feet.

☒ Current or planned land use makes wildlife exposure unlikely. Used Table 749-1.

Pathway Analysis: WAC 173-340-7492(2)(b)

☒ No potential exposure pathways from soil contamination to ecological receptors.

Contaminant Analysis: WAC 173-340-7492(2)(c)

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations that exceed the values listed in Table 749-2.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations that exceed the values listed in Table 749-2, and institutional controls are used to manage remaining contamination.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays, and institutional controls are used to manage remaining contamination.

C. Site-specific evaluation. A site-specific evaluation process consists of two parts: (1) formulating the problem, and (2) selecting the methods for addressing the identified problem. Both steps require consultation with and approval by Ecology. *See* WAC 173-340-7493(1)(c).

1. Was there a problem? *See* WAC 173-340-7493(2).

☐ Yes *If you answered **"YES,"** then answer **Question 2** below.*

☐ No *If you answered **"NO,"** then identify the reason here and then skip to **Question 5** below:*

- ☐ No issues were identified during the problem formulation step.
- ☐ While issues were identified, those issues were addressed by the cleanup actions for protecting human health.

2. What did you do to resolve the problem? *See* WAC 173-340-7493(3).

- ☐ Used the concentrations listed in Table 749-3 as cleanup levels. *If so, then skip to **Question 5** below.*
- ☐ Used one or more of the methods listed in WAC 173-340-7493(3) to evaluate and address the identified problem. *If so, then answer **Questions 3 and 4** below.*

3. If you conducted further site-specific evaluations, what methods did you use?
Check all that apply. See WAC 173-340-7493(3).

- ☐ Literature surveys.
- ☐ Soil bioassays.
- ☐ Wildlife exposure model.
- ☐ Biomarkers.
- ☐ Site-specific field studies.
- ☐ Weight of evidence.
- ☐ Other methods approved by Ecology. If so, please specify:

4. What was the result of those evaluations?

- ☐ Confirmed there was no problem.
- ☐ Confirmed there was a problem and established site-specific cleanup levels.

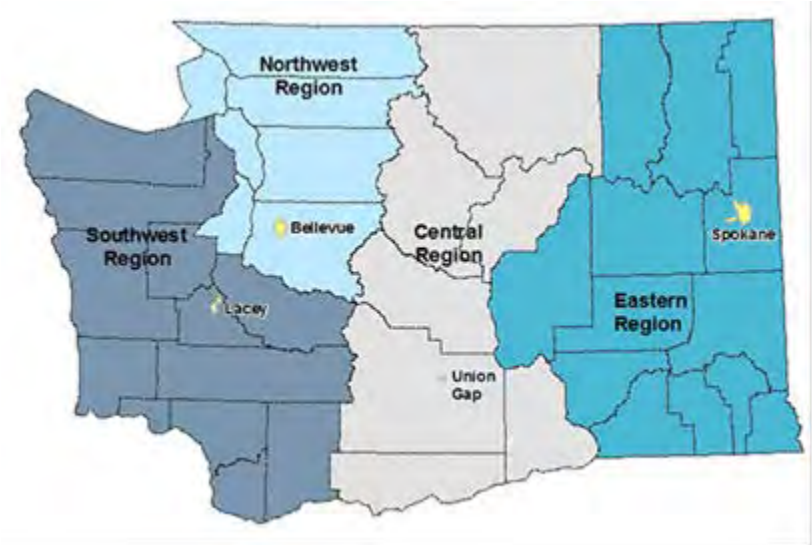
5. Have you already obtained Ecology's approval of both your problem formulation and problem resolution steps?

☐ Yes If so, please identify the Ecology staff who approved those steps:

☐ No

Step 4: SUBMITTAL

Please mail your completed form to the Ecology site manager assigned to your Site. If a site manager has not yet been assigned, please mail your completed form to the Ecology regional office for the County in which your Site is located.



Northwest Region: Attn: VCP Coordinator 3190 160th Ave. SE Bellevue, WA 98008-5452	**Central Region:** Attn: VCP Coordinator 1250 West Alder St. Union Gap, WA 98903-0009
Southwest Region: Attn: VCP Coordinator P.O. Box 47775 Olympia, WA 98504-7775	**Eastern Region:** Attn: VCP Coordinator N. 4601 Monroe Spokane WA 99205-1295

If you need this publication in an alternate format, please call the Toxics Cleanup Program at 360-407-7170. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call 877-833-6341.

APPENDIX F: Picrin® Safety Data Sheet

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Picrin

OTHER MEANS OF IDENTIFICATION: Not applicable.

GENERAL USE: For professional drycleaning use only.

PRODUCT DESCRIPTION: Stain Removal Agent

MANUFACTURER

R. R. Street & Co. Inc.
215 Shuman Boulevard/Suite 403
Naperville, IL 60563

Product Information: 800-323-7206 (USA & Canada only) **or** 630-416-4244

24 HR. EMERGENCY TELEPHONE NUMBERS

Medical Emergency: 866-303-6947 (USA & Canada only) **or** 651-632-9272

Transportation Emergency: 800-424-9300 (USA & Canada only) **or** 703-527-3887

2. HAZARDS IDENTIFICATION

GHS CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

Skin Corrosion/Irritation: Category 2
Eye Damage/Irritation: Category 2
Specific Target Organ Toxicity (STOT-SE): Narcotic Effects: Category 3
Germ Cell Mutagenicity: Category 2
Carcinogenicity: Category 1A
Aspiration Hazard: Category 1

GHS LABEL ELEMENTS

Symbol(s):



Signal Word: Danger

Hazard Statements:

H304 – May be fatal if swallowed and enters airways.
H315 – Causes skin irritation.
H319 – Causes serious eye irritation.
H336 – May cause drowsiness or dizziness.
H341 – Suspected of causing genetic defects.
H350 – May cause cancer.

Precautionary Statements:

P201 – Obtain special instructions before use.
P202 – Do not handle until all safety precautions have been read and understood.
P261 – Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 – Wash skin thoroughly after handling.
P271 – Use only outdoors or in a well-ventilated area.
P280 – Wear protective gloves/protective clothing/eye protection/ face protection.
P281 – Use personal protective equipment as required.
P302+P352 – IF ON SKIN: Wash with plenty of soap and water.

P362+P364 – Take off contaminated clothing and wash before reuse.
P332+P313 – If skin irritation occurs: Get medical advice/ attention.
P304+P340 – IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.
P312 – Call a POISON CENTER/doctor/physician if you feel unwell.
P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 – If eye irritation persists: Get medical advice/ attention.
P301+P310 – IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P331 – Do NOT induce vomiting.
P321 – Specific treatment, see First Aid Measures section (section 4).
P308+P313 – IF exposed or concerned: Get medical advice/ attention.
P403+P233 – Store in a well-ventilated place. Keep container tightly closed.
P501 – Dispose of contents and container to licensed, permitted incinerator, or other thermal destruction device.

Other Hazards: Not available.
Unknown Acute Toxicity: Not applicable.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Wt.%	CAS
Trichloroethylene	>75	79-01-6

4. FIRST AID MEASURES

EYES: Immediately flush eyes with plenty of water for at least 15 minutes. Get immediate medical attention.

SKIN: Remove contaminated clothing. Wash with water. Consult a physician if irritation persists.

INGESTION: Get immediate medical attention. Do not induce vomiting unless instructed to do so by poison center or physician.

INHALATION: Remove affected person to fresh air. If not breathing, give artificial respiration. Get medical attention.

NOTES TO PHYSICIAN: Only administer adrenaline after careful consideration following overexposure. Increased sensitivity of the heart to adrenaline may be caused by overexposure to this product. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

SIGNS AND SYMPTOMS OF OVEREXPOSURE

EYES: Discomfort, pain, irritation.

SKIN: Irritation, dermatitis.

SKIN ABSORPTION: Insufficient data available.

INGESTION: May result in irritation to mouth and GI tract, Vomiting and subsequent aspiration into lungs could possibly lead to pneumonia or pulmonary edema.

INHALATION: Central nervous system depressant. Inhalation can cause irritation of the respiratory tract, dizziness, nausea, headache, loss of coordination and equilibrium.

ADDITIONAL INFORMATION: After emergency actions, call the emergency medical information number on page 1 or a physician immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE CLASS: Not applicable.

EXTINGUISHING MEDIA: Carbon dioxide, dry chemical, foam, water spray or fog.

HAZARDOUS COMBUSTION PRODUCTS: Emits toxic fumes under fire conditions. Hydrogen chloride, phosgene.

OTHER CONSIDERATIONS: Concentrated vapor can be ignited by high-intensity ignition source. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

FIRE FIGHTING EQUIPMENT: As in any fire, wear self-contained breathing apparatus pressure-demand, (MSHA/NIOSH approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL: Clean up spill with absorbent material and water, if necessary.

LARGE SPILL: Contain spill. Provide plenty of fresh air. Avoid breathing vapor. Clean up spills immediately with absorbent material, observing precautions in the Exposure Controls/Personal Protection section (see section 8). Place absorbed material in closed containers for disposal (see section 13). Do not flush to sewer. Avoid contamination of ground and surface waters.

7. HANDLING AND STORAGE

GENERAL PROCEDURES: Not applicable.

HANDLING: Follow all SDS/label precautions even after container is emptied because it may retain product residues.

STORAGE: Store in labeled, tightly sealed containers in a cool, dry, well-ventilated area.

ELECTROSTATIC ACCUMULATION HAZARD: Ground and bond containers when transferring material.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

OSHA HAZARDOUS COMPONENTS (29 CFR 1910.1200)

		EXPOSURE LIMITS					
		OSHA PEL		ACGIH TLV		Supplier OEL	
		ppm	mg/m^3	ppm	mg/m^3	ppm	mg/m^3
Trichloroethylene	**TWA**	100	10[1]				
	STEL	200[2]	25				

TABLE FOOTNOTES

1. A2: Suspected human carcinogen.
2. Ceiling concentration. A 300 ppm peak concentration is allowed for 5 minutes in any 2-hour period.

ENGINEERING CONTROLS: Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Safety glasses with side shields, or goggles.

SKIN: Neoprene or Barrier™ gloves.

RESPIRATORY: NIOSH/MSHA approved air purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations

are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

PROTECTIVE CLOTHING: Where contact is likely, wear the appropriate chemical resistant equipment, which depending on circumstances may include gloves, a chemical suit, rubber boots, and chemical safety goggles plus a face shield.

WORK HYGIENIC PRACTICES: Wash thoroughly after handling. Do not eat or drink in work area.

OTHER USE PRECAUTIONS: Have eye wash station available. Do not wear contact lenses without eye protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Clear.

PHYSICAL STATE: Liquid.

COLOR: Colorless.

ODOR: Ethereal.

ODOR THRESHOLD: 20 ppm

pH: Not applicable.

FREEZING POINT: -85°C (-121°F)

INITIAL BOILING POINT: 87°C (188°F)

FLASHPOINT: No data available.

EVAPORATION RATE: 4.5 (butyl acetate = 1)

FLAMMABILITY (Solid, Gas): Not applicable, this product is a liquid at room temperature.

FLAMMABLE LIMITS: 8.0 to 12.5%

VAPOR PRESSURE: 58 mm Hg at 20°C

VAPOR DENSITY: 4.5 (air = 1)

RELATIVE DENSITY: 1.45

SOLUBILITY IN WATER: Negligible.

PARTITION COEFFICIENT (Log K_{ow}): 2.42

AUTOIGNITION TEMPERATURE: 420°C (788°F)

DECOMPOSITION TEMPERATURE: No data available.

VISCOSITY: No data available.

PERCENT VOLATILE: 100

10. STABILITY AND REACTIVITY

REACTIVITY: No.

CHEMICAL STABILITY: Stable.

POSSIBILITY OF HAZARDOUS REACTIONS: Polymerization will not occur.

CONDITIONS TO AVOID: Contact with open flame, electric arcs, other hot surfaces which can cause thermal decomposition.

INCOMPATIBLE MATERIALS: Strong alkalies, strong acids, oxidizers, sodium, potassium, lithium, aluminum, barium, magnesium, titanium.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrogen chloride, phosgene.

11. TOXICOLOGICAL INFORMATION

ROUTES OF EXPOSURE: Inhalation and skin.

ACUTE TOXICITY (ATE):

DERMAL LD_{50}: > 20,000 mg/kg (rabbit)

ORAL LD_{50}: > 2,000mg/kg (rat)

INHALATION LD_{50}: > 20 mg/L (mouse)

CHRONIC TOXICITY

TARGET ORGANS: Overexposure can lead to kidney and liver damage.

SENSITIZATION: Insufficient data available.

CARCINOGENICITY

IARC: This product is classified as Group 1 (Carcinogenic to humans).

NTP: This product is reasonably anticipated to be a human carcinogen.

OSHA: Not listed as a carcinogen.

OTHER: ACGIH: A2 – Limited epidemiology data have shown a weak association between trichloroethylene exposure and renal cancer.

OTHER: No data available.

REPRODUCTIVE EFFECTS: Insufficient data available.

MUTAGENICITY: Laboratory experiments have shown mutagenic effects. In vitro tests showed mutagenic effects.

SYNERGISTIC MATERIALS: No data available.

POTENTIAL HEALTH EFFECTS

EYES: May cause serious irritation.

SKIN: Prolonged or repeated exposure may cause dermatitis.

SKIN ABSORPTION: Harmful if absorbed through the skin.

INGESTION: May be harmful if swallowed. In the case of vomiting, product may be aspirated into lungs causing chemical pneumonia, which in extreme cases could lead to death. See section 4, First Aid Measures, for more information.

ASPIRATION HAZARD: Yes.

INHALATION: Inhalation can cause unconsciousness and even death in confined or poorly ventilated areas.

MEDICAL CONDITIONS AGGRAVATED: Insufficient data available.

GENERAL COMMENTS: Refer to Section 3 for additional information on potential health effects.

12. ECOLOGICAL INFORMATION

ECOTOXICITY: Harmful to aquatic organisms.

PERSISTENCE AND DEGRADABILITY: Insufficient data available.

BIOACCUMULATIVE POTENTIAL: Does not bioaccumulate.

MOBILITY IN SOIL: Insufficient data available.

OTHER ADVERSE EFFECTS: No data available.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD:

Recovered liquids may be sent to a licensed reclaimer or incineration facility. Contaminated material must be disposed of in a permitted waste management facility. Consult federal, state and local authorities for approved procedures

EMPTY CONTAINER: Not applicable.

RCRA/EPA WASTE INFORMATION: Contains material(s) listed by RCRA as a hazardous waste.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

PROPER SHIPPING NAME: Trichloroethylene
TECHNICAL NAME: None.
PRIMARY HAZARD CLASS/DIVISION: 6.1
UN/NA NUMBER: UN1710
PACKING GROUP: III
LABEL: Toxic
REPORTABLE QUANTITY (RQ) UNDER CERCLA: 8 gal
OTHER SHIPPING INFORMATION: Original 4x1-gallon packaging is approved for ground shipments only.

CANADA TRANSPORT OF DANGEROUS GOODS

PROPER SHIPPING NAME: Trichloroethylene
PRIMARY HAZARD CLASS/DIVISION: 6.1
UN/NA NUMBER: UN1710
PACKING GROUP: III
LABEL: Toxic
OTHER SHIPPING INFORMATION: Original 4x1-gallon packaging is approved for ground shipments only. Drums of this product contain a Reportable Quantity of trichloroethylene.

AIR (ICAO/IATA)

PROPER SHIPPING NAME: Trichloroethylene
PRIMARY HAZARD CLASS/DIVISION: 3
UN/NA NUMBER: UN1710
PACKING GROUP: III
LABEL: Toxic
PLACARD: Consult applicable regulations governing air shipments.
IATA NOTE: Original 4x1-gallon packaging is not approved for air shipment. Consult applicable regulations for packaging requirements and quantity limitations.

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

311/312 HAZARD CATEGORIES:

FIRE: No. **PRESSURE GENERATING:** No. **REACTIVITY:** No. **ACUTE:** Yes. **CHRONIC:** Yes.

313 REPORTABLE INGREDIENTS: Trichloroethylene is reportable.

CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)

CERCLA RQ: Trichloroethylene has an RQ of 100 lbs.

REPORTABLE SPILL QUANTITY: 8 gals

RCRA STATUS: See section 13.

MEXICO

Regulated for transportation.

STATE REGULATIONS

MASSACHUSETTS

Contains one or more substances regulated by the Massachusetts Substance List.

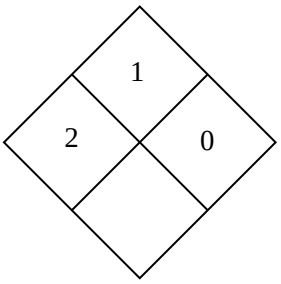
CALIFORNIA

PROPOSITION 65 STATEMENT: Trichloroethylene is on the Proposition 65 list of chemicals known to the State of California to cause cancer.

16. OTHER INFORMATION

HMIS RATINGS	
HEALTH:	3
FLAMMABILITY:	1
REACTIVITY:	0
PERSONAL PROTECTION:	H

NFPA RATINGS



SDS Revision Date: June 3, 2015

APPENDIX G: Photos of UB1 Deep Boring Samples from 0 to 65 feet bgs

KMC environmental

PHOTOLOG



UB1 cores 0-30 ft top to bottom



UB 1 Cores 35-50 ft top to bottom



Wet/saturated layer UB1 about 11-12 ft



UB1 Location

KMC environmental

PHOTOLOG



UB 1 Location



Temp screen after pulled from boring



UB2 cores 0-30 bottom to top



UB 2 location

KMC environmental

PHOTOLOG



UB2 location