

## PHASE II SUBSURFACE INVESTIGATION REPORT

Cascade Village  
16950-17060 116th Avenue Southeast  
Renton, Washington 98053

July 6, 2015  
Partner Project Number: 15-139176.2

Prepared for:  
**AMERCO Real Estate Company**  
2727 North Central Avenue  
Phoenix, Arizona 85004



July 6, 2015

Mr. Larry Hine  
AMERCO Real Estate Company  
2727 North Central Avenue  
Phoenix, Arizona 85004

Subject: Phase II Subsurface Investigation Report  
Cascade Village  
16950-17060 116th Avenue Southeast  
Renton, Washington 98053  
Partner Project Number: 15-139176.2

Dear Mr. Hine:

Partner Engineering and Science, Inc. (Partner) is pleased to provide the results of the assessment performed on the above-referenced property. The following report describes the field activities, methods, and findings of the Phase II Subsurface Investigation conducted at the above-referenced property.

This assessment was performed utilizing methods and procedures consistent with good commercial or customary practices designed to conform to acceptable industry standards. The independent conclusions represent Partner's best professional judgment based upon existing conditions and the information and data available to us during the course of this assignment.

We appreciate the opportunity to provide these services. If you have any questions concerning this report, or if we can assist you in any other matter, please contact the undersigned at (310) 615-4500.

Sincerely,

**Partner Engineering and Science, Inc.**



Hunter White  
Project Assessor



Samantha J. Fujita, PG  
Regional Manager – Subsurface Investigation



**SAMANTHA J. FUJITA**



Eric Englehart, PG  
Project Manager



Summer D. Gell  
Principal

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## 1.0 INTRODUCTION

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### 1.1 Purpose

The purpose of the investigation was to investigate the potential impact of chlorinated hydrocarbons to soil and/or groundwater as a consequence of a release or releases from the former dry cleaning facility. AMERCO Real Estate Company provided project authorization of Partner Proposal Number P15-139176.2.

### 1.2 Limitations

This report presents a summary of work conducted by Partner. The work includes observations of site conditions encountered and the analytical results provided by an independent third party laboratory of samples collected during the course of the project. The number and location of samples were selected to provide the required information. However, it cannot be assumed that the limited available data are representative of subsurface conditions in areas not sampled.

Conclusions and/or recommendations are based on the observations, laboratory analyses, and the governing regulations. Conclusions and/or recommendations beyond those stated and reported herein should not be inferred from this document.

Partner warrants that the environmental consulting services contained herein were accomplished in accordance with generally-accepted practices in the environmental engineering, geology, and hydrogeology fields that existed at the time and location of work. No other warranties are implied or expressed.

### 1.3 User Reliance

Partner was engaged by the Addressee, or their authorized representative, to perform this assessment. The engagement agreement specifically states the scope and purpose of the assessment, as well as the contractual obligations and limitations of both parties. This report and the information therein, are for the exclusive use of the Addressee. This report has no other purpose and may not be relied upon, or used, by any other person or entity without the written consent of Partner. Third parties that obtain this report, or the information therein, shall have no rights of recourse or recovery against Partner, its officers, employees, vendors, successors or assigns. Any such unauthorized user shall be responsible to protect, indemnify and hold Partner, the Addressee and their respective officers, employees, vendors, successors and assigns harmless from any and all claims, damages, losses, liabilities, expenses (including reasonable attorneys' fees) and costs attributable to such use. Unauthorized use of this report shall constitute acceptance of, and commitment to, these responsibilities, which shall be irrevocable and shall apply regardless of the cause of action or legal theory pled or asserted.

This report has been completed under specific Terms and Conditions relating to scope, relying parties, limitations of liability, indemnification, dispute resolution, and other factors relevant to any reliance on this report. Any parties relying on this report do so having accepted the Terms and Conditions for which this report was completed.

## 2.0 SITE BACKGROUND

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### 2.1 Site Description

The subject property consists of one parcel of land totaling approximately 13.63 acres located on the east side of 116th Avenue Southeast and the southwest side of 119th Street Southeast within a mixed residential and commercial area of King County, Washington. The subject property is currently developed with five structures totaling approximately 102,000 square feet, which were constructed between 1959 and 1985 and are occupied by Cascade Village for commercial and retail use. Current tenants include Barber Shop, Pantel Tactical, Iglesia Pentecostal Bethel, Khalsa Gurmat School, Uhaul, and Only a Dollar Plus. In addition to the structures, the subject property is also improved with asphalt-paved parking areas and associated landscaping.

The subject property is bound by baseball fields to the north, Brighter Future Learning center and single-family residences to the east, a commercial shopping center and Emerald Heights Apartments to the south, and single-family residences and apartments to the west. Refer to Figure 1 for a site plan.

### 2.2 Site History

Partner completed a *Phase I Environmental Site Assessment* (Phase I) Report, dated May 22, 2015, prepared on behalf of AMERCO Real Estate Company. Based on the information reviewed and the site reconnaissance, the subject property was previously undeveloped as early as 1924; and developed with the current structures in 1959, 1960, 1961, 1985, and 1986.

The Phase I identified the following recognized environmental condition (REC):

- During the onsite reconnaissance Partner observed a vacant tenant space (17028 116th Avenue Southeast) that was a former dry cleaner facility. The dry cleaner, Cascade Cleaner, occupied the subject property from at least 1977 until approximately 2010. According to a prior report prepared by Surveys Inc. in 2007, separator water and spent solvents were stored in 30-gallon drums and recycled through a licensed hazardous waste disposal company. The drums and solvent were stored on a secondary spill containment pallet during the 2007 assessment. Since the 1930s, dry cleaning operations have typically used chlorinated solvents, particularly tetrachloroethylene (PCE), during the dry cleaning process. These solvents, even when properly stored and disposed of, can be released from these facilities in small, frequent releases through floor drains, cracked concrete, and sewer systems. Chlorinated solvents are highly mobile chemicals that can easily accumulate in soil and migrate to groundwater beneath a facility. It should be noted that the dry cleaner operated during a time of little to no regulatory oversight. In 2008 a pre-existing monitoring well located presumably down-gradient of the dry cleaner was sampled for volatile organic compounds (VOCs). Based on Partner's site reconnaissance, the monitor well appears to be within approximately 20 feet of the entrance to the former dry cleaning facility. While the sample analyzed was below the reportable limits for VOCs, a recommendation to conduct additional assessments was noted to evaluate whether impacts to soil had occurred. Based on the nature of chemicals used, the long duration of occupancy, and the lack of a subsurface investigation, the presence of the former dry cleaner represented a REC.

### 2.3 Geology and Hydrogeology

Based on a review of the United States Geological Survey (USGS) *Renton, Washington* Quadrangle topographic map, the subject property is situated at an elevation approximately 450 feet above mean sea level, and the local topography is sloping gently to the southwest. Refer to Figure 2 for a topographic map of the site vicinity.

The subject property lies in the Puget Sound Lowland, a series of north to south trending valleys ranging from British Columbia to Eugene, Oregon and bordered by the Cascade Range and Olympic Mountains. Surficial soils in the Puget Sound Lowland are mainly formed in glacial drift deposits from the last period of glaciation, about 10-14,000 years ago. Underlying the young glacial deposits is sediment deposited during previous or interglacial periods.

Based on borings advanced during this investigation, the underlying subsurface consists predominantly of medium to fine sand from the ground surface to approximately two feet below ground surface (bgs). From two to seven feet bgs, the subsurface consists predominantly of silt. Drilling refusal was encountered at seven feet bgs in borings B1 and B2 and at 5.5 feet bgs in boring B3 due to dense silt and gravel.

Groundwater was not encountered during this investigation. According to the Washington Department of Ecology (DOE) Well Log Viewer for nearby wells, groundwater is anticipated to be first encountered between five and nine feet bgs with groundwater flowing to the south-southeast.

Refer to Appendix A for boring logs from this investigation.

## **3.0 FIELD ACTIVITIES**

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Refer to Table 1 for a summary of the borings, sampling schedule and laboratory analyses for this investigation. The scope of the Phase II Subsurface Investigation included the advancement of three borings (B1 through B3) for the collection of representative soil, groundwater, and/or soil gas samples. Due to drilling refusal above the groundwater table, groundwater samples were not collected.

### **3.1 Preparatory Activities**

Prior to the initiation of fieldwork, Partner completed the following activities.

#### **3.1.1 Utility Clearance**

Partner delineated the work area with white spray paint and notified Washington One-Call to clear public utility lines as required by law at least 48 hours prior to drilling activities. Washington One-Call issued ticket number 15177550 for the project. In addition, Partner subcontracted with Applied Professional Services, Inc. (APS) on June 19, 2015 to clear boring locations of utilities. The boring clearance was conducted with RadioDetection RD7000 electromagnetic induction (EM) equipment.

#### **3.1.2 Health and Safety Plan**

Partner reviewed the site-specific Health and Safety Plan with on-site personnel involved in the project prior to the commencement of drilling activities.

### **3.2 Drilling Equipment**

On June 19, 2015, Partner subcontracted with Environmental Services Network Northwest (ESN-NW) to provide and operate drilling equipment. ESN-NW, under the direction of Partner, advanced borings B1 through B3 with a limited-access AMS 9100 P PowerProbe direct push rig. Sampling equipment was decontaminated between sample intervals and boring locations to prevent cross-contamination.

### **3.3 Boring Locations**

Borings B1 through B3 were advanced in the northeast, central, and southwest interior areas of the former dry cleaning facility, respectively, with boring B3 located inside the former dry cleaning equipment room. Boring placement was limited due to utility conflicts in the former dry cleaning facility.

Refer to Figure 3 for a map indicating boring locations.

### **3.4 Soil Sampling**

Borings B1 through B3 were overlain by concrete, which was penetrated using a concrete coring attachment advanced by the direct push drill rig. Borings B1 and B2 were advanced to refusal at a terminal depth of seven feet bgs and B3 was advanced to refusal at a terminal depth of 5.5 feet bgs.

Soil samples were collected using a four-foot long by 2.25-inch diameter MacroCore sampler with a four-foot long acetate liner, which was advanced by the direct push drill rig using four-foot long by 1.5-inch diameter drill rods. The sampler was driven into the subsurface to allow undisturbed soil to enter the open MacroCore barrel and retrieved in four-foot intervals to recover the soil-filled liners.

A lengthwise section of each acetate liner was removed with a splitting tool to expose the soil. The soil column was visually inspected for discoloration, monitored for odors, and classified in accordance with the Unified Soil Classification System (USCS). Select intervals were placed in sealable plastic bags and field-screened with a photoionization detector (PID) calibrated to isobutylene. PID readings in boring B3 suggested the presence of elevated volatile organics concentrations. Refer to Appendix A for PID readings observed at each interval.

Soil depths selected for laboratory analysis were sampled directly from the liners using a disposable plastic syringe and retained in two methanol-preserved volatile organics analysis (VOA) vials. The VOA vials were labeled for identification and stored in an iced cooler.

Soil samples were collected from B1 at five feet bgs, from B2 at five and seven feet bgs, and from B3 at 5.5 feet bgs.

### **3.5 Soil Gas Probe Construction**

Soil gas probes screened at four feet bgs were constructed within the boreholes upon completion of soil sampling. A new section of ¼-inch diameter polyethylene tubing with a new ¼-inch diameter polypropylene filter at the terminal end was inserted into the borehole to the desired sampling depth. One-inch diameter polyvinyl chloride (PVC) casing was used as a guide for the tubing to ensure that the desired sampling depth was achieved. Sand was poured into the boring annulus to form an approximately one-foot long sand pack around the polypropylene filter, at which time the PVC piping was withdrawn. Approximately one foot of dry, granular bentonite was placed atop the sand pack and the remainder of the borehole was backfilled with hydrated bentonite to the ground surface to form a seal. The sampling end of the tubing was fitted with a valve and the probe was labeled for identification.

### **3.6 Soil Gas Sampling Methodology**

Soil gas samples were collected in general accordance with the October 2009 Washington DOE "Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action."

Soil gas samples were collected using one-liter, stainless-steel, cylindrical SUMMA canisters. The sampling containers were provided by Eurofins in Folsom, California, which subjected each canister to a rigorous cleaning process using a combination of dilution, heat, and high vacuum. After cleaning, the canisters were batch certified to be free of target contaminants to a specified reporting limit via gas chromatography/mass spectroscopy prior to delivery.

Partner received the SUMMA canisters evacuated to approximately minus 30 inches of mercury. The SUMMA canisters were fitted with stainless-steel flow controllers, which Eurofins calibrated to maintain constant flow (approximately 0.1 liter per minute) for approximately five to 10 minutes of sampling time.

Each probe was allowed to equilibrate for a minimum of one hour after installation prior to sampling. After equilibration, the sample tubing and sampler screen were purged of ambient air using a separate one-liter SUMMA purge volume canister evacuated to approximately minus 30 inches of mercury. Tracer gas isopropanol was placed around each probe at the ground surface while sampling to detect ambient air intrusion. The tracer gas was not detected in samples SG1-4 and SG2-4, but was detected in sample SG3-4, indicating that the integrity of the bentonite seal was maintained in SG1-4 and SG2-4, but not in SG3-4.



Ambient air intrusion would likely dilute the concentrations of chemicals contained in the soil gas, as relatively cleaner air would flow in from the interior of the structure, causing the laboratory's analysis to detect lower concentrations than what actually may exist in the soil gas. Once the one-liter purge volume canisters were filled, the sampling end of the tubing was fitted to the sampling canister and the port valve was opened, causing air to enter the sample container due to the pressure differential. Partner closed the valves after the canister was evacuated to approximately minus one to two inches of mercury, with pertinent data (e.g., time, canister vacuum) recorded at the start and end of sampling. Partner successfully connected individual one-liter SUMMA canisters to each sampling point.

The SUMMA canisters were labeled for identification and stored away from direct sunlight prior to analysis. Upon completion of the remaining soil gas sampling procedures, all probes were removed from the subsurface and the boreholes were capped with concrete to match existing ground cover upon completion of sampling. No significant amount of derived wastes were generated during this investigation.

Soil gas samples were collected from each boring at four feet bgs.

## 4.0 LABORATORY ANALYSIS

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### 4.1 Laboratory Analysis

Partner collected four soil samples and three soil gas samples on June 19, 2015, which were transported on the same day in an iced cooler and a room temperature container, respectively, under proper chain-of-custody protocol to ESN-NW, a state-certified laboratory [DOE Environmental Laboratory Accreditation Program (ELAP) certificate number C076] in the City of Olympia, Washington, for analysis. Based on field-screening results, visual observations, and/or olfactory observations, one soil sample per boring (three soil samples total) was analyzed for VOCs in accordance with EPA Method 8260. The remaining soil sample was placed on hold at the laboratory.

Each of the soil gas samples were subcontracted and transported under proper chain-of-custody protocol from ESN-NW to Eurofins Air Toxics (DOE ELAP certificate number C935) for analysis. Each soil gas sample was analyzed for VOCs in accordance with EPA Method TO-15.

### 4.2 Laboratory Analytical Results

Laboratory analytical results are included in Appendix B and discussed below.

#### 4.2.1 Soil Sample Analytical Results

Soil samples B1-5, B1-7, and B3-5.5 contain concentrations of VOCs above laboratory reporting limits (RLs). PCE was detected in soil samples B1-5, B2-7, and B3-5.5 at concentrations of 0.04 milligrams per kilogram (mg/kg), 2.5 mg/kg, and 4.2 mg/kg, respectively. Trichoroethylene (TCE) was detected in soil sample B3-5.5 at a concentration of 0.06 mg/kg.

Refer to Table 2 for a summary of the soil sample VOCs laboratory analysis results.

#### 4.2.2 Soil Gas Sample Analytical Results

Soil gas samples SG1-4, SG2-4 and SG3-4 contained concentrations of VOCs above laboratory reporting limits (RLs). Trans-1,2,-dichloroethene (DCE) was detected in soil gas samples SG2-4 and SG3-4 at concentrations of 1,400 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) and 150  $\mu\text{g}/\text{m}^3$ , respectively. Cis-1,2-DCE was detected in soil gas samples SG2-4 and SG3-4 at concentrations of 26,000  $\mu\text{g}/\text{m}^3$  and 6,700  $\mu\text{g}/\text{m}^3$ , respectively. PCE was detected in soil gas samples SG2-4 and SG3-4 at concentrations of 530,000  $\mu\text{g}/\text{m}^3$  and 19,000  $\mu\text{g}/\text{m}^3$ , respectively. TCE was detected in soil gas samples SG2-4 and SG3-4 at concentrations of 12,000  $\mu\text{g}/\text{m}^3$  and 4,900  $\mu\text{g}/\text{m}^3$ , respectively. Benzene was detected in soil gas samples SG1-4, SG2-4, and SG3-4 at concentrations of 1,500  $\mu\text{g}/\text{m}^3$ , 1,000  $\mu\text{g}/\text{m}^3$ , and 2,700  $\mu\text{g}/\text{m}^3$ , respectively. Toluene was detected in soil gas samples SG1-4, SG2-4, and SG3-4 at concentrations of 24,000  $\mu\text{g}/\text{m}^3$ , 17,000  $\mu\text{g}/\text{m}^3$ , and 3,800  $\mu\text{g}/\text{m}^3$ , respectively. Ethylbenzene was detected in soil gas samples SG1-4, SG2-4, and SG3-4 at concentrations of 3,900  $\mu\text{g}/\text{m}^3$ , 3,400  $\mu\text{g}/\text{m}^3$ , and 6,400  $\mu\text{g}/\text{m}^3$ , respectively. Total xylenes was detected in soil gas samples SG1-4, SG2-4, and SG3-4 at concentrations of 21,200  $\mu\text{g}/\text{m}^3$ , 20,100  $\mu\text{g}/\text{m}^3$ , and 35,200  $\mu\text{g}/\text{m}^3$ , respectively. Various other chemicals unrelated to the dry cleaning facility were detected at low concentrations, however these can generally be attributed to urban background. Although the reporting limits are slightly higher than the screening levels for certain chemicals, there is no evidence that results below the laboratory reporting limits present a significant risk to human health or the environment.

Refer to Table 6 for a summary of the soil gas sample VOCs laboratory analysis results.

## 5.0 DISCUSSION AND CONCLUSIONS

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### 5.1 Regulatory Agency Guidance

#### *Environmental Screening Levels*

The DOE promulgated the Model Toxics Control Act (MTCA) Cleanup Regulation (Chapter 173-340 of the Washington Administrative Code [WAC]) to establish administrative processes and standards for identifying, investigating, and cleaning up facilities where there has been a release or threatened release of a hazardous substance or substances that may pose a threat to human health and/or the environment. The MTCA Cleanup Regulation provides two methods (B and C) for establishing screening levels in soil gas. Method B provides tables of cleanup levels calculated for unrestricted indoor air and Method C provides tables of cleanup levels calculated for industrial indoor air. The MTCA Cleanup Regulation provides Method A for establishing cleanup levels for soils for unrestricted land use.

#### *Regional Screening Levels*

Regional Screening Levels (RSLs) (formerly Preliminary Remediation Goals) are generic, risk-based chemical concentrations developed by the EPA Region 9 for use in initial screening-level evaluations. RSLs combine human health toxicity values with standard exposure factors to estimate contaminant concentrations that are considered to be health protective of human exposures over a lifetime through direct-contact exposure pathways (e.g., via inhalation and/or ingestion of and/or dermal contact with impacted soil and/or indoor air). RSLs are not legally enforceable standards, but rather are considered guidelines to evaluate if potential risks associated with encountered chemical impacts may warrant further evaluation.

### 5.2 Discussion

Trans-1,2,-DCE was detected in soil gas sample SG2-4 at a concentration exceeding the applicable MTCA Method B soil gas screening level of 320  $\mu\text{g}/\text{m}^3$  and the MTCA Method C soil gas screening level of 700  $\mu\text{g}/\text{m}^3$ . Cis-1,2-DCE was detected in soil gas samples SG2-4 and SG3-4 at concentrations exceeding the applicable MTCA Method B soil gas screening level of 160  $\mu\text{g}/\text{m}^3$  and the MTCA Method C soil gas screening level of 350  $\mu\text{g}/\text{m}^3$ . PCE was detected in soil gas samples SG2-4 and SG3-4 and soil samples B2-7 and B3-5.5 at concentrations exceeding the applicable MTCA Method B soil gas screening level of 4.2  $\mu\text{g}/\text{m}^3$ , the MTCA Method C soil gas screening level of 42  $\mu\text{g}/\text{m}^3$ , and the MTCA Method A groundwater cleanup level of 0.05 mg/kg. TCE was detected in soil gas samples SG2-4 and SG3-4 and soil sample B2-7 at concentrations exceeding the applicable MTCA Method B soil gas screening level of 1.0  $\mu\text{g}/\text{m}^3$ , the MTCA Method C soil gas screening level of 350  $\mu\text{g}/\text{m}^3$ , and the MTCA Method A groundwater cleanup level of 0.03 mg/kg. The greatest concentrations of trans-1,2,-DCE, cis-1,2-DCE, PCE and TCE (1,400  $\mu\text{g}/\text{m}^3$ , 26,000  $\mu\text{g}/\text{m}^3$ , 530,000  $\mu\text{g}/\text{m}^3$ , and 12,000  $\mu\text{g}/\text{m}^3$ , respectively) detected within the former dry cleaning facility were in soil gas sample SG2-4, located within the center of the former dry cleaning facility. Based on the presence of chlorinated solvents above the screening levels in soil gas and cleanup levels in soil, it is likely that a release has occurred from the former on-site dry cleaning facility.

Benzene was detected in each of the three soil gas samples at concentrations exceeding the applicable MTCA Method B soil gas screening level of 3.2  $\mu\text{g}/\text{m}^3$  and the MTCA Method C soil gas screening level of 32  $\mu\text{g}/\text{m}^3$ . Toluene was detected in soil gas samples SG1-4 and SG3-4 at concentrations exceeding the

applicable MTCA Method B soil gas screening level of 22,000  $\mu\text{g}/\text{m}^3$  and the MTCA Method C soil gas screening level of 49,000  $\mu\text{g}/\text{m}^3$ . Ethylbenzene was detected in soil gas sample SG3-4 at a concentration exceeding the applicable MTCA Method B soil gas screening level of 6,400  $\mu\text{g}/\text{m}^3$ . Total xylenes were detected in all three soil gas samples at concentrations exceeding the applicable MTCA Method B soil gas screening level of 460  $\mu\text{g}/\text{m}^3$  and the MTCA Method C soil gas screening level of 1,000  $\mu\text{g}/\text{m}^3$ . No soil samples contained benzene, toluene, ethylbenzene, xylenes (BTEX). The northeastern portion of the subject property was formerly occupied by a gasoline station from approximately 1960 to 1985. A 2002 subsurface investigation discovered that soil was impacted with petroleum hydrocarbons. Following remediation four consecutive quarters of groundwater sampling concluded that petroleum hydrocarbons in the groundwater were below regulatory limits. In 2007, the DOE issued a No Further Action (NFA) Determination for the former fuel service station. Based on the presence of petroleum hydrocarbons above screening levels in soil gas samples, it is likely that residual soil and/or groundwater contamination from the former fuel service station is present on the subject property, however this contamination has already been addressed through the NFA.

### **5.3 Summary and Conclusions**

Partner conducted a Phase II Subsurface Investigation at the subject property to investigate the potential impact of chlorinated hydrocarbons to soil and soil gas as a consequence of a release or releases from the former dry cleaning facility. The scope of the Phase II Subsurface Investigation included three borings. Three soil samples and three soil gas samples were analyzed for VOCs.

Subsurface lithology encountered in the upper two feet bgs consisted of medium to fine sand and transitioned to silt from two to seven feet bgs. Drilling refusal was encountered at seven feet in B1 and B2 and at 5.5 feet in B3 due to dense silt and gravel. Groundwater was not encountered.

Soil gas samples contained concentrations of trans-1,2,-DCE, cis-1,2-DCE, PCE, and TCE at levels exceeding DOE regulatory guidelines. Soil samples contained concentrations of PCE and TCE at levels exceeding DOE regulatory guidelines.

Based on the field observations and analysis of soil gas and soil samples, there is evidence of a release of chlorinated solvents from the former dry cleaning facility. Partner recommends further investigation to evaluate the extent of contamination on the subject property associated with the former dry cleaning facility.

## TABLES

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Table 1: Summary of Investigation Scope  
 16950-17060 116th Avenue Southeast  
 Renton, Washington 98058  
 Partner Project Number 15-139176.2  
 July 6, 2015

Boring Identification	Location	Terminal Depth (feet bgs)	Matrix Sampled	Sampling Depths* (feet bgs)	Target Analytes
<b>B1</b>	Interior; northeast portion of the former dry cleaning facility	7**	Soil Gas	<b>4</b>	VOCs
			Soil	<b>5</b>	VOCs
<b>B2</b>	Interior; central portion of the former dry cleaning facility	7**	Soil Gas	<b>4</b>	VOCs
			Soil	<b>5,7</b>	VOCs
<b>B3</b>	Interior; southwest portion of the former dry cleaning facility	5.5**	Soil Gas	<b>4</b>	VOCs
			Soil	<b>5.5</b>	VOCs

Notes:

\*Depths in **bold** analyzed for volatile organic compounds (VOCs) in accordance with United States Environmental Protection Agency (EPA) Methods 8260B (soil) or TO-15 (soil gas).

\*\*Refusal encountered at the terminal depth

bgs = below ground surface

Table 2: Soil Sample VOCs Laboratory Results  
 16950-17060 116th Avenue Southeast  
 Renton, Washington 98058  
 Partner Project Number 15-139176.2  
 July 6, 2015

EPA Method	VOCs via 8260B			
Units	(mg/kg)			
Analyte	MTCA Method A	B1-5	B2-7	B3-5.5
<b>Vinyl Chloride</b>	<b>0.24</b>	<0.02	<0.02	<0.02
<b>trans-1,2,-Dichloroethene</b>	<b>1,600</b>	<0.05	<0.05	<0.05
<b>cis-1,2-Dichloroethene</b>	<b>160</b>	<0.05	<0.05	<0.05
<b>Tetrachloroethene (PCE)</b>	<b>0.05</b>	0.04	<b>2.5</b>	<b>4.2</b>
<b>Trichloroethene (TCE)</b>	<b>0.03</b>	<0.02	<0.02	<b>0.06</b>
<b>Other VOCs</b>	<b>NA</b>	ND	ND	ND

Notes:

VOCs = volatile organic compounds

EPA = United States Environmental Protection Agency

mg/kg = milligrams per kilogram

Method A= Soil cleanup levels for unrestricted land use (Washington State Department of Ecology, Model Toxics Control Act-November 2007)

< = not detected above indicated laboratory reporting limit (RL)

ND = not detected above laboratory RLs

NA = not applicable

Highlighted values exceed the regulatory guideline

Table 3: Soil Gas Sample VOCs Laboratory Results  
 16950-17060 116th Avenue Southeast  
 Renton, Washington 98058  
 Partner Project Number 15-139176.2  
 July 6, 2015

EPA Method	VOCs via 8260B					
Units	$\mu\text{g}/\text{m}^3$					
Analyte	MTCA Method B	MTCA Method C	EPA RSLs (Commercial)	SG1-4	SG2-4	SG3-4
Vinyl Chloride	2.8	28	NA	<53	<53	<53
trans-1,2,-Dichloroethene	320	700	NA	<100	1,400	150
cis-1,2-Dichloroethene	160	350	NA	<100	26,000	6,700
Tetrachloroethene (PCE)	4.2	42	NA	<170	530,000	19,000
Trichloroethene (TCE)	1.0	10	NA	<140	12,000	4,900
Benzene	3.2	32	NA	1,500	1,000	2,700
Toluene	22,000	49,000	NA	24,000	17,000	38,000
Ethylbenzene	4,600	10,000	NA	3,900	3,400	6,400
Total Xylenes	460	1,000	NA	21,200	20,100	35,200
Ethanol	NA	NA	NA	3,100	2,300	7,400
Hexane	3,200	7,000	N/A	2,400	1,800	5,200
Cyclohexane	NA	NA	876,000	1,000	900	2,100
2,2,4-Trimethylpentane	NA	NA	NA	2,300	660	1,700
Heptane	NA	NA	NA	2,700	1,700	4,600
Cumene	1,800	4,000	N/A	160	<100	280
Propylbenzene	NA	NA	NA	850	780	1,500
4-Ethyltoluene	NA	NA	NA	3,800	3,600	6,800
1,3,5-Trimethylbenzene	27	60	NA	860	860	1,500
1,2,4-Trimethylbenzene	27	60	NA	3,100	3,000	5,500
1,3-Butadiene	NA	NA	14	<56	<56	180
Acetone	NA	NA	4,526,000	<600	<600	1,300
4-Methyl-2-pentanone	NA	NA	438,000	<100	<100	130

Notes:

VOCs = volatile organic compounds

< = not detected above indicated laboratory reporting limit (RL)

EPA = United States Environmental Protection Agency



Table 3: Soil Gas Sample VOCs Laboratory Results  
16950-17060 116th Avenue Southeast  
Renton, Washington 98058  
Partner Project Number 15-139176.2  
July 6, 2015

$\mu\text{g}/\text{m}^3$  = micrograms per cubic meter

EPA RSLs= Risk based Regional Screening Levels for EPA Region 9

Method B= Unrestricted Use Screening Levels (Washington State Department of Ecology, Model Toxics Control Act-November 2007)

Method C=Industrial Screening Levels (Washington State Department of Ecology, Model Toxics Control Act-November 2007)

ND = not detected above laboratory RLs

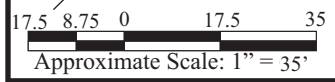
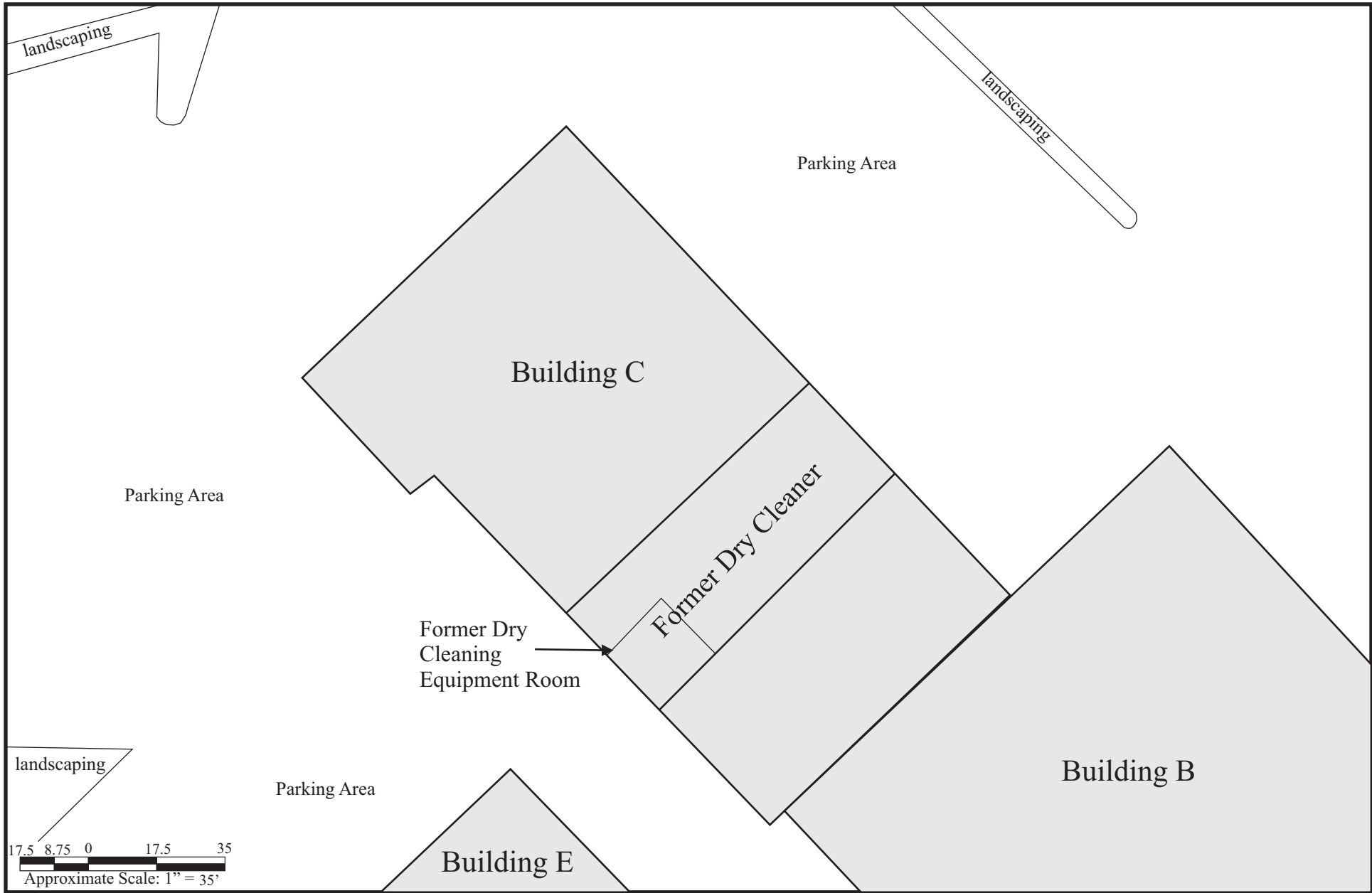
NA = not applicable

Highlighted values exceed one or more regulatory guideline

## FIGURES

---

**PARTNER**



**PARTNER**  
 Engineering and Science, Inc.  
 2154 Torrance Boulevard, Suite 200  
 Torrance, California 90501  
 Project Number: 15-139176.2

**Legend**

Subject Site

Site Plan		
Figure	Prepared By	Date
1	H. White	June 2015
16950-17060 116th Avenue Southeast Renton, Washington 98058		



**Benson Hill**

**Subject Property  
Cascade**

**PARTNER**

Engineering and Science, Inc.  
2154 Torrance Boulevard, Suite 200  
Torrance, California 90501

Project Number: 15-139176.2

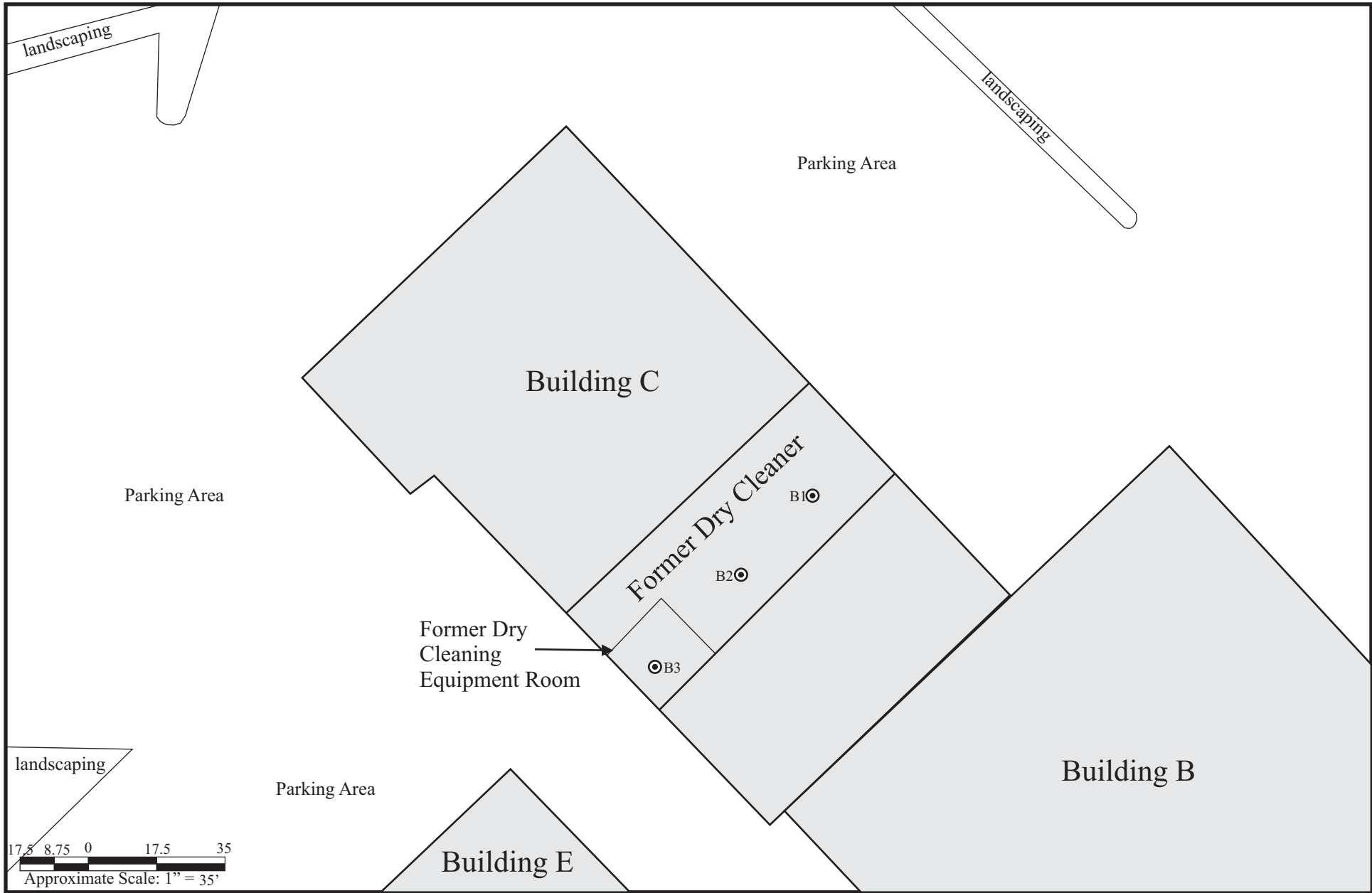


USGS Renton, WA Quadrangle  
Version: 2014

**Topographic Map**

Figure	Prepared By	Date
2	H. White	June 2015

16950-17060 116th Avenue Southeast  
Renton, Washington 98058



**PARTNER**  
 Engineering and Science, Inc.  
 2154 Torrance Boulevard, Suite 200  
 Torrance, California 90501  
 Project Number: 15-139176.2

**Legend**

 Subject Site	 Boring Location
---	--

Sample Location Map		
Figure	Prepared By	Date
3	H. White	June 2015
16950-17060 116th Avenue Southeast Renton, Washington 98058		

## APPENDIX A: BORING LOGS

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Boring Number:		B1			Page 1 of 1	
Location:		Northeast portion of the dry cleaning facility			Date Started:	6/19/2015
Site Address:		16950-17060 116th Avenue Southeast			Date Completed:	6/19/2015
		Renton, Washington 98058			Depth to Groundwater:	N/A
Project Number:		15-139176.2			Field Technician:	H. White
Drill Rig Type:		Direct-Push, Limited-Access Rig			<b>Partner Engineering and Science</b>	
Sampling Equipment:		Acetate Liners			2154 Torrance Boulevard, Suite 200	
Borehole Diameter:		2.25 inches			Torrance, California 90501	
Depth	Sample	PID	USCS	Description	Notes	
1	SG1-4  B1-5	0.0	SP	0.5'-2.5' Brown medium-fine SAND, little f rounded Gravel; Dry.	6-inch asphalt @ surface	
2						
3		0.0	ML	2.5'-4.0' Dark brown SILT, some medium-fine Sand, trace Gravel; Dry.		
4						
5						
6		0.0	ML	4.0'-7.0' Light brown SILT, some medium-fine Sand, little fine Gravel; moist @ 4.0 feet below ground surface.		
7						
8					Boring refusal at 7 feet below ground surface. Borehole was backfilled with bentonite chips and capped to match surrounding cover upon completion of sampling.	
9						
10						
11						
12						
13						
14						
15						
16						
17						
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22						
23						
24						
25						

Boring Number:	B2	Page 1 of 1	
Location:	Central portion of the dry cleaning facility	Date Started:	6/19/2015
Site Address:	16950-17060 116th Avenue Southeast	Date Completed:	6/19/2015
	Renton, Washington 98058	Depth to Groundwater:	N/A
Project Number:	15-139176.2	Field Technician:	H. White
Drill Rig Type:	Direct-Push, Limited-Access Rig	<b>Partner Engineering and Science</b>	
Sampling Equipment:	Acetate Liners	2154 Torrance Boulevard, Suite 200	
Borehole Diameter:	2.25 inches	Torrance, California 90501	

Depth	Sample	PID	USCS	Description	Notes
1		0.0	SP	0.5'-2.0' Brown medium-fine SAND, little fine Gravel; Dry.	6-inch asphalt @ surface
2					
3		0.0	ML	2.0'-4.0' Dark brown SILT, some medium-fine Sand, trace Clay; Dry.	
4	SG2-4				
5	B2-5	0.0		4.0'-7.0' Brown SILT, some medium-fine Sand, little fine Gravel; moist @ 4.0 feet below ground surface.	
6			ML		
7	B2-7				
8					Boring refusal at 7 feet below ground surface. Borehole was backfilled with bentonite chips and capped to match surrounding cover upon completion of sampling.
9					
10					
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24					
25					



Boring Number:		B3		Page 1 of 1	
Location:		Southwest portion of the dry cleaning facility		Date Started:	6/19/2015
Site Address:		16950-17060 116th Avenue Southeast		Date Completed:	6/19/2015
		Renton, Washington 98058		Depth to Groundwater:	N/A
Project Number:		15-139176.2		Field Technician:	H. White
Drill Rig Type:		Direct-Push, Limited-Access Rig		<b>Partner Engineering and Science</b>	
Sampling Equipment:		Acetate Liners		2154 Torrance Boulevard, Suite 200	
Borehole Diameter:		2.25 inches		Torrance, California 90501	
Depth	Sample	PID	USCS	Description	Notes
1		0.0		0.5'-2.0' Brown medium-fine SAND, little fine rounded Gravel; Dry.	6-inch asphalt @ surface
2		5.3	SP		
3		45.0	SP	2.0'-3.0' Light brown medium-fine SAND and SILT, trace f Gravel; Dry.	
4	SG3-4	55.4	ML	3.0'-4.0' Light brown SILT, little medium-fine Sand, trace Gravel; Dry.	
5	B3-5.5	263.3	ML/SP	4.0'-5.5' Brown SAND and SILT, little fine Gravel; Dry.	Strong odor from 4.8'-5.5' bgs.
6					Boring refusal at 5.5 feet bgs. Borehole was backfilled with bentonite chips and capped to match surrounding cover upon completion of sampling.
7					
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## APPENDIX B: LABORATORY ANALYTICAL REPORTS

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# CHAIN-OF-CUSTODY RECORD

CLIENT: Partners Engineering & Science, Inc.  
 ADDRESS: 3607 1st Ave NW, Seattle, WA  
 PHONE: 504-421-1403 FAX: \_\_\_\_\_

DATE: 6/19/2015 PAGE 1 OF 1  
 PROJECT NAME: Cascade Village  
 LOCATION: 16950-1760 116th Ave SE

CLIENT PROJECT #: 15-139176.2 PROJECT MANAGER: Eric Englehart

COLLECTOR: Hunter White DATE OF COLLECTION: 6/19/15

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES										NOTES	Total Number of Containers	Laboratory Note Number				
					TPH - HClD	TPH - Diesel & Oil	BTEX	VOC 8260	Semivol 8270	PAH's 8270	PCB's 8082	RCRA 8 Metals	Pb	Asbestos - PLM				GRO Suite	PRO Suite	WO Suite	
1. B1-5	5'	1330	Soil	V09	X													2		RUN	
2. B2-5	5'	1415	soil	V09	X															"HOLD"	
3. B2-7	7'	1410	soil	V09	X															RUN	
4. B3-5.5	5.5'	1505	soil	V09	X															RUN	
5. <del>B3-4</del>	<del>4'</del>																				
6.																					
7.																					
8.																					
9.																					
10.																					
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16.																					
17.																					
18.																					

RELINQUISHED BY (Signature) \_\_\_\_\_ DATE/TIME \_\_\_\_\_ RECEIVED BY (Signature) \_\_\_\_\_ DATE/TIME \_\_\_\_\_

RELINQUISHED BY (Signature) Hunter White DATE/TIME 6/19/15 1545 RECEIVED BY (Signature) \_\_\_\_\_ DATE/TIME \_\_\_\_\_

TOTAL NUMBER OF CONTAINERS: \_\_\_\_\_

CHAIN OF CUSTODY SEALS Y/N/NA: \_\_\_\_\_

SEALS INTACT? Y/N/NA: \_\_\_\_\_

RECEIVED GOOD COND./COLD: \_\_\_\_\_

LABORATORY NOTES: Final res ✓ (B). Englehart Partners Inc.

Turn Around Time: 24 HR 48 HR 5 DAY

# ESN NORTHWEST CHEMISTRY LABORATORY

Partner Engineering & Science, Inc.  
 PROJECT CASCADE VILLAGE  
 PROJECT #15-139176.2  
 Renton, Washington

ESN Northwest  
 1210 Eastside Street SE Suite 200  
 Olympia, WA 98501  
 (360) 459-4670 (360) 459-3432 Fax  
 lab@esnnw.com

## Analysis of Volatile Organic Compounds in Soil by Method 8260C/5035

	RL	MB	LCS	B1-5	B2-7	B3-5.5
Date extracted		06/24/15	06/24/15	06/19/15	06/19/15	06/19/15
Date analyzed	(mg/Kg)	06/24/15	06/24/15	06/24/15	06/24/15	06/24/15
% Moisture						
Dichlorodifluoromethane	0.05	nd		nd	nd	nd
Chloromethane	0.05	nd		nd	nd	nd
Vinyl chloride	0.02	nd	92%	nd	nd	nd
Bromomethane	0.05	nd		nd	nd	nd
Chloroethane	0.05	nd		nd	nd	nd
Trichlorofluoromethane	0.05	nd		nd	nd	nd
Acetone	0.25	nd		nd	nd	nd
1,1-Dichloroethene	0.05	nd	69%	nd	nd	nd
Methylene chloride	0.05	nd		nd	nd	nd
Methyl-t-butyl ether (MTBE)	0.05	nd		nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd		nd	nd	nd
1,1-Dichloroethane	0.05	nd		nd	nd	nd
2-Butanone (MEK)	0.25	nd		nd	nd	nd
cis-1,2-Dichloroethene	0.05	nd		nd	nd	nd
2,2-Dichloropropane	0.05	nd		nd	nd	nd
Chloroform	0.05	nd	95%	nd	nd	nd
Bromochloromethane	0.05	nd		nd	nd	nd
1,1,1-Trichloroethane	0.05	nd		nd	nd	nd
1,2-Dichloroethane (EDC)	0.05	nd		nd	nd	nd
1,1-Dichloropropene	0.05	nd		nd	nd	nd
Carbon tetrachloride	0.05	nd		nd	nd	nd
Benzene	0.02	nd	87%	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	98%	nd	nd	0.06
1,2-Dichloropropane	0.05	nd	79%	nd	nd	nd
Dibromomethane	0.05	nd		nd	nd	nd
Bromodichloromethane	0.05	nd		nd	nd	nd
4-Methyl-2-pentanone (MIBK)	0.25	nd		nd	nd	nd
cis-1,3-Dichloropropene	0.05	nd		nd	nd	nd
Toluene	0.05	nd	85%	nd	nd	nd
trans-1,3-Dichloropropene	0.05	nd		nd	nd	nd
1,1,2-Trichloroethane	0.05	nd		nd	nd	nd
2-Hexanone	0.25	nd		nd	nd	nd
1,3-Dichloropropane	0.05	nd		nd	nd	nd
Dibromochloromethane	0.05	nd		nd	nd	nd
Tetrachloroethene (PCE)	0.02	nd	105%	0.04	2.5	4.2
1,2-Dibromoethane (EDB)	0.05	nd		nd	nd	nd
Chlorobenzene	0.05	nd	90%	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.05	nd		nd	nd	nd
Ethylbenzene	0.05	nd	86%	nd	nd	nd
Xylenes	0.15	nd	84%	nd	nd	nd
Styrene	0.05	nd		nd	nd	nd
Bromoform	0.05	nd		nd	nd	nd
1,1,2,2-Tetrachloroethane	0.05	nd		nd	nd	nd
Isopropylbenzene	0.05	nd		nd	nd	nd
1,2,3-Trichloropropane	0.05	nd		nd	nd	nd
Bromobenzene	0.05	nd		nd	nd	nd

# ESN NORTHWEST CHEMISTRY LABORATORY

Partner Engineering & Science, Inc.  
 PROJECT CASCADE VILLAGE  
 PROJECT #15-139176.2  
 Renton, Washington

ESN Northwest  
 1210 Eastside Street SE Suite 200  
 Olympia, WA 98501  
 (360) 459-4670 (360) 459-3432 Fax  
 lab@esnnw.com

## Analysis of Volatile Organic Compounds in Soil by Method 8260C/5035

	RL	MB	LCS	B1-5	B2-7	B3-5.5
Date extracted		06/24/15	06/24/15	06/19/15	06/19/15	06/19/15
Date analyzed	(mg/Kg)	06/24/15	06/24/15	06/24/15	06/24/15	06/24/15
% Moisture						
n-Propylbenzene	0.05	nd		nd	nd	nd
2-Chlorotoluene	0.05	nd		nd	nd	nd
4-Chlorotoluene	0.05	nd		nd	nd	nd
1,3,5-Trimethylbenzene	0.05	nd		nd	nd	nd
tert-Butylbenzene	0.05	nd		nd	nd	nd
1,2,4-Trimethylbenzene	0.05	nd		nd	nd	nd
sec-Butylbenzene	0.05	nd		nd	nd	nd
1,3-Dichlorobenzene	0.05	nd		nd	nd	nd
1,4-Dichlorobenzene	0.05	nd		nd	nd	nd
Isopropyltoluene	0.05	nd		nd	nd	nd
1,2-Dichlorobenzene	0.05	nd		nd	nd	nd
n-Butylbenzene	0.05	nd		nd	nd	nd
1,2-Dibromo-3-Chloropropane	0.05	nd		nd	nd	nd
1,2,4-Trichlorobenzene	0.05	nd		nd	nd	nd
Naphthalene	0.05	nd		nd	nd	nd
Hexachloro-1,3-butadiene	0.05	nd		nd	nd	nd
1,2,3-Trichlorobenzene	0.05	nd		nd	nd	nd
<b>Surrogate recoveries</b>						
Dibromofluoromethane		113%	107%	98%	109%	103%
Toluene-d8		101%	98%	93%	91%	96%
4-Bromofluorobenzene		110%	103%	104%	104%	105%

### Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 Acceptable Recovery limits: 65% TO 135%  
 Acceptable RPD limit: 35%

7/1/2015

Mr. Steve Loague  
ESN Northwest  
1210 Eastside St  
SE Suite 200  
Olympia WA 98501

Project Name: Cascade Village

Project #: 15-139176.2

Workorder #: 1506457

Dear Mr. Steve Loague

The following report includes the data for the above referenced project for sample(s) received on 6/24/2015 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Kelly Buettner  
Project Manager

**WORK ORDER #: 1506457**

Work Order Summary

<b>CLIENT:</b>	Mr. Steve Loague ESN Northwest 1210 Eastside St SE Suite 200 Olympia, WA 98501	<b>BILL TO:</b>	Mr. Steve Loague ESN Northwest 1210 Eastside St SE Suite 200 Olympia, WA 98501
<b>PHONE:</b>	360-459-4670	<b>P.O. #</b>	15-139176.2
<b>FAX:</b>	360-4595-3432	<b>PROJECT #</b>	15-139176.2 Cascade Village
<b>DATE RECEIVED:</b>	06/24/2015	<b>CONTACT:</b>	Kelly Buettner
<b>DATE COMPLETED:</b>	07/01/2015		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SG1-4	TO-15	10.6 "Hg	14.7 psi
02A	SG2-4	TO-15	10.4 "Hg	15 psi
03A	SG3-4	TO-15	24.1 "Hg	14.8 psi
04A	Lab Blank	TO-15	NA	NA
04B	Lab Blank	TO-15	NA	NA
05A	CCV	TO-15	NA	NA
05B	CCV	TO-15	NA	NA
06A	LCS	TO-15	NA	NA
06AA	LCSD	TO-15	NA	NA
06B	LCS	TO-15	NA	NA
06BB	LCSD	TO-15	NA	NA

CERTIFIED BY:   
 \_\_\_\_\_  
 Technical Director

DATE: 07/01/15

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,  
 TX NELAP - T104704343-14-7, UT NELAP CA009332014-5, VA NELAP - 460197, WA NELAP - C935  
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)  
 Accreditation number: CA300005, Effective date: 10/18/2014, Expiration date: 10/17/2015.

Eurofins Air Toxics Inc. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563  
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE**  
**EPA Method TO-15**  
**ESN Northwest**  
**Workorder# 1506457**

Three 1 Liter Summa Canister samples were received on June 24, 2015. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

**Receiving Notes**

Sample SG3-4 was received with significant vacuum remaining in the canister. The residual canister vacuum resulted in elevated reporting limits.

**Analytical Notes**

Dilution was performed on samples SG1-4, SG2-4 and SG3-4 due to the presence of high level target species.

**Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



## Summary of Detected Compounds

### EPA METHOD TO-15 GC/MS FULL SCAN

**Client Sample ID: SG1-4**

**Lab ID#: 1506457-01A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	82	1700	160	3100
Hexane	21	700	73	2400
Cyclohexane	21	290	71	1000
2,2,4-Trimethylpentane	21	490	96	2300
Benzene	21	470	66	1500
Heptane	21	670	84	2700
Toluene	21	6300	78	24000
Ethyl Benzene	21	890	89	3900
m,p-Xylene	21	4000	89	17000
o-Xylene	21	980	89	4200
Cumene	21	33	100	160
Propylbenzene	21	170	100	850
4-Ethyltoluene	21	780	100	3800
1,3,5-Trimethylbenzene	21	170	100	860
1,2,4-Trimethylbenzene	21	640	100	3100

**Client Sample ID: SG2-4**

**Lab ID#: 1506457-02A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	440	1200	830	2300
trans-1,2-Dichloroethene	110	350	440	1400
Hexane	110	510	390	1800
cis-1,2-Dichloroethene	110	6500	440	26000
Cyclohexane	110	260	380	900
2,2,4-Trimethylpentane	110	140	520	660
Benzene	110	330	350	1000
Heptane	110	400	450	1700
Trichloroethene	110	2200	590	12000
Toluene	110	4500	420	17000
Tetrachloroethene	110	78000	750	530000
Ethyl Benzene	110	790	480	3400
m,p-Xylene	110	3600	480	16000

## Summary of Detected Compounds EPA METHOD TO-15 GC/MS

**Client Sample ID: SG2-4**
**Lab ID#: 1506457-02A**

o-Xylene	110	940	480	4100
Propylbenzene	110	160	540	780
4-Ethyltoluene	110	740	540	3600
1,3,5-Trimethylbenzene	110	170	540	860
1,2,4-Trimethylbenzene	110	620	540	3000

**Client Sample ID: SG3-4**
**Lab ID#: 1506457-03A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,3-Butadiene	26	82	56	180
Ethanol	100	4000	190	7400
1,1-Dichloroethene	26	48	100	190
Acetone	260	540	600	1300
2-Propanol	100	140	250	330
trans-1,2-Dichloroethene	26	37	100	150
Hexane	26	1500	90	5200
cis-1,2-Dichloroethene	26	1700	100	6700
Cyclohexane	26	610	88	2100
2,2,4-Trimethylpentane	26	360	120	1700
Benzene	26	850	81	2700
Heptane	26	1100	100	4600
Trichloroethene	26	920	140	4900
4-Methyl-2-pentanone	26	33	100	130
Toluene	26	10000	96	38000
Tetrachloroethene	26	2900	170	19000
Ethyl Benzene	26	1500	110	6400
m,p-Xylene	26	6600	110	28000
o-Xylene	26	1600	110	7200
Cumene	26	58	120	280
Propylbenzene	26	300	120	1500
4-Ethyltoluene	26	1400	120	6800
1,3,5-Trimethylbenzene	26	300	120	1500
1,2,4-Trimethylbenzene	26	1100	120	5500



Air Toxics

Client Sample ID: SG1-4

Lab ID#: 1506457-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a062612	Date of Collection:	6/19/15 12:52:00 PM
Dil. Factor:	41.2	Date of Analysis:	6/26/15 04:54 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	21	Not Detected	100	Not Detected
Freon 114	21	Not Detected	140	Not Detected
Chloromethane	210	Not Detected	420	Not Detected
Vinyl Chloride	21	Not Detected	53	Not Detected
1,3-Butadiene	21	Not Detected	46	Not Detected
Bromomethane	210	Not Detected	800	Not Detected
Chloroethane	82	Not Detected	220	Not Detected
Freon 11	21	Not Detected	120	Not Detected
Ethanol	82	1700	160	3100
Freon 113	21	Not Detected	160	Not Detected
1,1-Dichloroethene	21	Not Detected	82	Not Detected
Acetone	210	Not Detected	490	Not Detected
2-Propanol	82	Not Detected	200	Not Detected
Carbon Disulfide	82	Not Detected	260	Not Detected
3-Chloropropene	82	Not Detected	260	Not Detected
Methylene Chloride	210	Not Detected	720	Not Detected
Methyl tert-butyl ether	21	Not Detected	74	Not Detected
trans-1,2-Dichloroethene	21	Not Detected	82	Not Detected
Hexane	21	700	73	2400
1,1-Dichloroethane	21	Not Detected	83	Not Detected
2-Butanone (Methyl Ethyl Ketone)	82	Not Detected	240	Not Detected
cis-1,2-Dichloroethene	21	Not Detected	82	Not Detected
Tetrahydrofuran	21	Not Detected	61	Not Detected
Chloroform	21	Not Detected	100	Not Detected
1,1,1-Trichloroethane	21	Not Detected	110	Not Detected
Cyclohexane	21	290	71	1000
Carbon Tetrachloride	21	Not Detected	130	Not Detected
2,2,4-Trimethylpentane	21	490	96	2300
Benzene	21	470	66	1500
1,2-Dichloroethane	21	Not Detected	83	Not Detected
Heptane	21	670	84	2700
Trichloroethene	21	Not Detected	110	Not Detected
1,2-Dichloropropane	21	Not Detected	95	Not Detected
1,4-Dioxane	82	Not Detected	300	Not Detected
Bromodichloromethane	21	Not Detected	140	Not Detected
cis-1,3-Dichloropropene	21	Not Detected	93	Not Detected
4-Methyl-2-pentanone	21	Not Detected	84	Not Detected
Toluene	21	6300	78	24000
trans-1,3-Dichloropropene	21	Not Detected	93	Not Detected
1,1,2-Trichloroethane	21	Not Detected	110	Not Detected
Tetrachloroethene	21	Not Detected	140	Not Detected
2-Hexanone	82	Not Detected	340	Not Detected



Client Sample ID: SG1-4

Lab ID#: 1506457-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a062612	Date of Collection:	6/19/15 12:52:00 PM
Dil. Factor:	41.2	Date of Analysis:	6/26/15 04:54 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	21	Not Detected	180	Not Detected
1,2-Dibromoethane (EDB)	21	Not Detected	160	Not Detected
Chlorobenzene	21	Not Detected	95	Not Detected
Ethyl Benzene	21	890	89	3900
m,p-Xylene	21	4000	89	17000
o-Xylene	21	980	89	4200
Styrene	21	Not Detected	88	Not Detected
Bromoform	21	Not Detected	210	Not Detected
Cumene	21	33	100	160
1,1,2,2-Tetrachloroethane	21	Not Detected	140	Not Detected
Propylbenzene	21	170	100	850
4-Ethyltoluene	21	780	100	3800
1,3,5-Trimethylbenzene	21	170	100	860
1,2,4-Trimethylbenzene	21	640	100	3100
1,3-Dichlorobenzene	21	Not Detected	120	Not Detected
1,4-Dichlorobenzene	21	Not Detected	120	Not Detected
alpha-Chlorotoluene	21	Not Detected	110	Not Detected
1,2-Dichlorobenzene	21	Not Detected	120	Not Detected
1,2,4-Trichlorobenzene	82	Not Detected	610	Not Detected
Hexachlorobutadiene	82	Not Detected	880	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: SG2-4

Lab ID#: 1506457-02A

EPA METHOD TO-15 GC/MS

File Name:	14062916	Date of Collection:	6/19/15 1:43:00 PM
Dil. Factor:	22.1	Date of Analysis:	6/29/15 02:14 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	110	Not Detected	550	Not Detected
Freon 114	110	Not Detected	770	Not Detected
Chloromethane	440	Not Detected	910	Not Detected
Vinyl Chloride	110	Not Detected	280	Not Detected
1,3-Butadiene	110	Not Detected	240	Not Detected
Bromomethane	110	Not Detected	430	Not Detected
Chloroethane	440	Not Detected	1200	Not Detected
Freon 11	110	Not Detected	620	Not Detected
Ethanol	440	1200	830	2300
Freon 113	110	Not Detected	850	Not Detected
1,1-Dichloroethene	110	Not Detected	440	Not Detected
Acetone	440	Not Detected	1000	Not Detected
2-Propanol	440	Not Detected	1100	Not Detected
Carbon Disulfide	110	Not Detected	340	Not Detected
3-Chloropropene	440	Not Detected	1400	Not Detected
Methylene Chloride	110	Not Detected	380	Not Detected
Methyl tert-butyl ether	110	Not Detected	400	Not Detected
trans-1,2-Dichloroethene	110	350	440	1400
Hexane	110	510	390	1800
1,1-Dichloroethane	110	Not Detected	450	Not Detected
2-Butanone (Methyl Ethyl Ketone)	440	Not Detected	1300	Not Detected
cis-1,2-Dichloroethene	110	6500	440	26000
Tetrahydrofuran	110	Not Detected	320	Not Detected
Chloroform	110	Not Detected	540	Not Detected
1,1,1-Trichloroethane	110	Not Detected	600	Not Detected
Cyclohexane	110	260	380	900
Carbon Tetrachloride	110	Not Detected	700	Not Detected
2,2,4-Trimethylpentane	110	140	520	660
Benzene	110	330	350	1000
1,2-Dichloroethane	110	Not Detected	450	Not Detected
Heptane	110	400	450	1700
Trichloroethene	110	2200	590	12000
1,2-Dichloropropane	110	Not Detected	510	Not Detected
1,4-Dioxane	440	Not Detected	1600	Not Detected
Bromodichloromethane	110	Not Detected	740	Not Detected
cis-1,3-Dichloropropene	110	Not Detected	500	Not Detected
4-Methyl-2-pentanone	110	Not Detected	450	Not Detected
Toluene	110	4500	420	17000
trans-1,3-Dichloropropene	110	Not Detected	500	Not Detected
1,1,2-Trichloroethane	110	Not Detected	600	Not Detected
Tetrachloroethene	110	78000	750	530000
2-Hexanone	440	Not Detected	1800	Not Detected

Client Sample ID: SG2-4

Lab ID#: 1506457-02A

EPA METHOD TO-15 GC/MS

File Name:	14062916	Date of Collection:	6/19/15 1:43:00 PM
Dil. Factor:	22.1	Date of Analysis:	6/29/15 02:14 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	110	Not Detected	940	Not Detected
1,2-Dibromoethane (EDB)	110	Not Detected	850	Not Detected
Chlorobenzene	110	Not Detected	510	Not Detected
Ethyl Benzene	110	790	480	3400
m,p-Xylene	110	3600	480	16000
o-Xylene	110	940	480	4100
Styrene	110	Not Detected	470	Not Detected
Bromoform	110	Not Detected	1100	Not Detected
Cumene	110	Not Detected	540	Not Detected
1,1,2,2-Tetrachloroethane	110	Not Detected	760	Not Detected
Propylbenzene	110	160	540	780
4-Ethyltoluene	110	740	540	3600
1,3,5-Trimethylbenzene	110	170	540	860
1,2,4-Trimethylbenzene	110	620	540	3000
1,3-Dichlorobenzene	110	Not Detected	660	Not Detected
1,4-Dichlorobenzene	110	Not Detected	660	Not Detected
alpha-Chlorotoluene	110	Not Detected	570	Not Detected
1,2-Dichlorobenzene	110	Not Detected	660	Not Detected
1,2,4-Trichlorobenzene	440	Not Detected	3300	Not Detected
Hexachlorobutadiene	440	Not Detected	4700	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: SG3-4

Lab ID#: 1506457-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a062611	Date of Collection:	6/19/15 2:29:00 PM
Dil. Factor:	51.0	Date of Analysis:	6/26/15 04:28 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	26	Not Detected	130	Not Detected
Freon 114	26	Not Detected	180	Not Detected
Chloromethane	260	Not Detected	530	Not Detected
Vinyl Chloride	26	Not Detected	65	Not Detected
1,3-Butadiene	26	82	56	180
Bromomethane	260	Not Detected	990	Not Detected
Chloroethane	100	Not Detected	270	Not Detected
Freon 11	26	Not Detected	140	Not Detected
Ethanol	100	4000	190	7400
Freon 113	26	Not Detected	200	Not Detected
1,1-Dichloroethene	26	48	100	190
Acetone	260	540	600	1300
2-Propanol	100	140	250	330
Carbon Disulfide	100	Not Detected	320	Not Detected
3-Chloropropene	100	Not Detected	320	Not Detected
Methylene Chloride	260	Not Detected	880	Not Detected
Methyl tert-butyl ether	26	Not Detected	92	Not Detected
trans-1,2-Dichloroethene	26	37	100	150
Hexane	26	1500	90	5200
1,1-Dichloroethane	26	Not Detected	100	Not Detected
2-Butanone (Methyl Ethyl Ketone)	100	Not Detected	300	Not Detected
cis-1,2-Dichloroethene	26	1700	100	6700
Tetrahydrofuran	26	Not Detected	75	Not Detected
Chloroform	26	Not Detected	120	Not Detected
1,1,1-Trichloroethane	26	Not Detected	140	Not Detected
Cyclohexane	26	610	88	2100
Carbon Tetrachloride	26	Not Detected	160	Not Detected
2,2,4-Trimethylpentane	26	360	120	1700
Benzene	26	850	81	2700
1,2-Dichloroethane	26	Not Detected	100	Not Detected
Heptane	26	1100	100	4600
Trichloroethene	26	920	140	4900
1,2-Dichloropropane	26	Not Detected	120	Not Detected
1,4-Dioxane	100	Not Detected	370	Not Detected
Bromodichloromethane	26	Not Detected	170	Not Detected
cis-1,3-Dichloropropene	26	Not Detected	120	Not Detected
4-Methyl-2-pentanone	26	33	100	130
Toluene	26	10000	96	38000
trans-1,3-Dichloropropene	26	Not Detected	120	Not Detected
1,1,2-Trichloroethane	26	Not Detected	140	Not Detected
Tetrachloroethene	26	2900	170	19000
2-Hexanone	100	Not Detected	420	Not Detected

Client Sample ID: SG3-4

Lab ID#: 1506457-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a062611	Date of Collection:	6/19/15 2:29:00 PM
Dil. Factor:	51.0	Date of Analysis:	6/26/15 04:28 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	26	Not Detected	220	Not Detected
1,2-Dibromoethane (EDB)	26	Not Detected	200	Not Detected
Chlorobenzene	26	Not Detected	120	Not Detected
Ethyl Benzene	26	1500	110	6400
m,p-Xylene	26	6600	110	28000
o-Xylene	26	1600	110	7200
Styrene	26	Not Detected	110	Not Detected
Bromoform	26	Not Detected	260	Not Detected
Cumene	26	58	120	280
1,1,2,2-Tetrachloroethane	26	Not Detected	180	Not Detected
Propylbenzene	26	300	120	1500
4-Ethyltoluene	26	1400	120	6800
1,3,5-Trimethylbenzene	26	300	120	1500
1,2,4-Trimethylbenzene	26	1100	120	5500
1,3-Dichlorobenzene	26	Not Detected	150	Not Detected
1,4-Dichlorobenzene	26	Not Detected	150	Not Detected
alpha-Chlorotoluene	26	Not Detected	130	Not Detected
1,2-Dichlorobenzene	26	Not Detected	150	Not Detected
1,2,4-Trichlorobenzene	100	Not Detected	760	Not Detected
Hexachlorobutadiene	100	Not Detected	1100	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	100	70-130





Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1506457-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a062607	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	6/26/15 01:01 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected



Client Sample ID: Lab Blank

Lab ID#: 1506457-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a062607	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	6/26/15 01:01 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	97	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1506457-04B

EPA METHOD TO-15 GC/MS

File Name:	14062906	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	6/29/15 08:49 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	5.0	Not Detected	25	Not Detected
Freon 114	5.0	Not Detected	35	Not Detected
Chloromethane	20	Not Detected	41	Not Detected
Vinyl Chloride	5.0	Not Detected	13	Not Detected
1,3-Butadiene	5.0	Not Detected	11	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	20	Not Detected	53	Not Detected
Freon 11	5.0	Not Detected	28	Not Detected
Ethanol	20	Not Detected	38	Not Detected
Freon 113	5.0	Not Detected	38	Not Detected
1,1-Dichloroethene	5.0	Not Detected	20	Not Detected
Acetone	20	Not Detected	48	Not Detected
2-Propanol	20	Not Detected	49	Not Detected
Carbon Disulfide	5.0	Not Detected	16	Not Detected
3-Chloropropene	20	Not Detected	63	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	5.0	Not Detected	18	Not Detected
trans-1,2-Dichloroethene	5.0	Not Detected	20	Not Detected
Hexane	5.0	Not Detected	18	Not Detected
1,1-Dichloroethane	5.0	Not Detected	20	Not Detected
2-Butanone (Methyl Ethyl Ketone)	20	Not Detected	59	Not Detected
cis-1,2-Dichloroethene	5.0	Not Detected	20	Not Detected
Tetrahydrofuran	5.0	Not Detected	15	Not Detected
Chloroform	5.0	Not Detected	24	Not Detected
1,1,1-Trichloroethane	5.0	Not Detected	27	Not Detected
Cyclohexane	5.0	Not Detected	17	Not Detected
Carbon Tetrachloride	5.0	Not Detected	31	Not Detected
2,2,4-Trimethylpentane	5.0	Not Detected	23	Not Detected
Benzene	5.0	Not Detected	16	Not Detected
1,2-Dichloroethane	5.0	Not Detected	20	Not Detected
Heptane	5.0	Not Detected	20	Not Detected
Trichloroethene	5.0	Not Detected	27	Not Detected
1,2-Dichloropropane	5.0	Not Detected	23	Not Detected
1,4-Dioxane	20	Not Detected	72	Not Detected
Bromodichloromethane	5.0	Not Detected	34	Not Detected
cis-1,3-Dichloropropene	5.0	Not Detected	23	Not Detected
4-Methyl-2-pentanone	5.0	Not Detected	20	Not Detected
Toluene	5.0	Not Detected	19	Not Detected
trans-1,3-Dichloropropene	5.0	Not Detected	23	Not Detected
1,1,2-Trichloroethane	5.0	Not Detected	27	Not Detected
Tetrachloroethene	5.0	Not Detected	34	Not Detected
2-Hexanone	20	Not Detected	82	Not Detected

Client Sample ID: Lab Blank

Lab ID#: 1506457-04B

EPA METHOD TO-15 GC/MS

File Name:	14062906	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	6/29/15 08:49 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	5.0	Not Detected	42	Not Detected
1,2-Dibromoethane (EDB)	5.0	Not Detected	38	Not Detected
Chlorobenzene	5.0	Not Detected	23	Not Detected
Ethyl Benzene	5.0	Not Detected	22	Not Detected
m,p-Xylene	5.0	Not Detected	22	Not Detected
o-Xylene	5.0	Not Detected	22	Not Detected
Styrene	5.0	Not Detected	21	Not Detected
Bromoform	5.0	Not Detected	52	Not Detected
Cumene	5.0	Not Detected	24	Not Detected
1,1,2,2-Tetrachloroethane	5.0	Not Detected	34	Not Detected
Propylbenzene	5.0	Not Detected	24	Not Detected
4-Ethyltoluene	5.0	Not Detected	24	Not Detected
1,3,5-Trimethylbenzene	5.0	Not Detected	24	Not Detected
1,2,4-Trimethylbenzene	5.0	Not Detected	24	Not Detected
1,3-Dichlorobenzene	5.0	Not Detected	30	Not Detected
1,4-Dichlorobenzene	5.0	Not Detected	30	Not Detected
alpha-Chlorotoluene	5.0	Not Detected	26	Not Detected
1,2-Dichlorobenzene	5.0	Not Detected	30	Not Detected
1,2,4-Trichlorobenzene	20	Not Detected	150	Not Detected
Hexachlorobutadiene	20	Not Detected	210	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	97	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1506457-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a062602	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/26/15 10:07 AM

Compound	%Recovery
Freon 12	96
Freon 114	97
Chloromethane	97
Vinyl Chloride	97
1,3-Butadiene	95
Bromomethane	97
Chloroethane	97
Freon 11	95
Ethanol	93
Freon 113	93
1,1-Dichloroethene	91
Acetone	96
2-Propanol	96
Carbon Disulfide	94
3-Chloropropene	104
Methylene Chloride	96
Methyl tert-butyl ether	98
trans-1,2-Dichloroethene	99
Hexane	100
1,1-Dichloroethane	100
2-Butanone (Methyl Ethyl Ketone)	104
cis-1,2-Dichloroethene	99
Tetrahydrofuran	98
Chloroform	99
1,1,1-Trichloroethane	99
Cyclohexane	105
Carbon Tetrachloride	99
2,2,4-Trimethylpentane	107
Benzene	96
1,2-Dichloroethane	96
Heptane	104
Trichloroethene	98
1,2-Dichloropropane	100
1,4-Dioxane	103
Bromodichloromethane	99
cis-1,3-Dichloropropene	104
4-Methyl-2-pentanone	103
Toluene	101
trans-1,3-Dichloropropene	103
1,1,2-Trichloroethane	101
Tetrachloroethene	98
2-Hexanone	102



Air Toxics

Client Sample ID: CCV

Lab ID#: 1506457-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a062602	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/26/15 10:07 AM

Compound	%Recovery
Dibromochloromethane	102
1,2-Dibromoethane (EDB)	102
Chlorobenzene	99
Ethyl Benzene	102
m,p-Xylene	107
o-Xylene	104
Styrene	106
Bromoform	102
Cumene	106
1,1,2,2-Tetrachloroethane	102
Propylbenzene	104
4-Ethyltoluene	104
1,3,5-Trimethylbenzene	104
1,2,4-Trimethylbenzene	104
1,3-Dichlorobenzene	100
1,4-Dichlorobenzene	102
alpha-Chlorotoluene	106
1,2-Dichlorobenzene	100
1,2,4-Trichlorobenzene	90
Hexachlorobutadiene	88

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	98	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1506457-05B

EPA METHOD TO-15 GC/MS

File Name:	14062902	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/29/15 06:57 AM

Compound	%Recovery
Freon 12	108
Freon 114	105
Chloromethane	100
Vinyl Chloride	94
1,3-Butadiene	99
Bromomethane	90
Chloroethane	89
Freon 11	96
Ethanol	114
Freon 113	107
1,1-Dichloroethene	105
Acetone	107
2-Propanol	102
Carbon Disulfide	104
3-Chloropropene	101
Methylene Chloride	105
Methyl tert-butyl ether	109
trans-1,2-Dichloroethene	104
Hexane	106
1,1-Dichloroethane	103
2-Butanone (Methyl Ethyl Ketone)	101
cis-1,2-Dichloroethene	99
Tetrahydrofuran	107
Chloroform	103
1,1,1-Trichloroethane	107
Cyclohexane	103
Carbon Tetrachloride	107
2,2,4-Trimethylpentane	101
Benzene	104
1,2-Dichloroethane	103
Heptane	109
Trichloroethene	109
1,2-Dichloropropane	103
1,4-Dioxane	110
Bromodichloromethane	103
cis-1,3-Dichloropropene	103
4-Methyl-2-pentanone	106
Toluene	103
trans-1,3-Dichloropropene	94
1,1,2-Trichloroethane	105
Tetrachloroethene	104
2-Hexanone	100



Air Toxics

Client Sample ID: CCV

Lab ID#: 1506457-05B

EPA METHOD TO-15 GC/MS

File Name:	14062902	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/29/15 06:57 AM

Compound	%Recovery
Dibromochloromethane	105
1,2-Dibromoethane (EDB)	103
Chlorobenzene	103
Ethyl Benzene	102
m,p-Xylene	107
o-Xylene	107
Styrene	110
Bromoform	105
Cumene	106
1,1,2,2-Tetrachloroethane	96
Propylbenzene	106
4-Ethyltoluene	107
1,3,5-Trimethylbenzene	110
1,2,4-Trimethylbenzene	107
1,3-Dichlorobenzene	103
1,4-Dichlorobenzene	101
alpha-Chlorotoluene	96
1,2-Dichlorobenzene	100
1,2,4-Trichlorobenzene	78
Hexachlorobutadiene	88

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	99	70-130





Air Toxics

Client Sample ID: LCS

Lab ID#: 1506457-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a062605	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/26/15 11:53 AM

Compound	%Recovery	Method Limits
Freon 12	98	70-130
Freon 114	100	70-130
Chloromethane	95	70-130
Vinyl Chloride	96	70-130
1,3-Butadiene	91	70-130
Bromomethane	70	70-130
Chloroethane	98	70-130
Freon 11	97	70-130
Ethanol	89	70-130
Freon 113	90	70-130
1,1-Dichloroethene	92	70-130
Acetone	88	70-130
2-Propanol	103	70-130
Carbon Disulfide	83	70-130
3-Chloropropene	91	70-130
Methylene Chloride	95	70-130
Methyl tert-butyl ether	95	70-130
trans-1,2-Dichloroethene	85	70-130
Hexane	98	70-130
1,1-Dichloroethane	99	70-130
2-Butanone (Methyl Ethyl Ketone)	102	70-130
cis-1,2-Dichloroethene	108	70-130
Tetrahydrofuran	97	70-130
Chloroform	97	70-130
1,1,1-Trichloroethane	98	70-130
Cyclohexane	102	70-130
Carbon Tetrachloride	97	70-130
2,2,4-Trimethylpentane	107	70-130
Benzene	98	70-130
1,2-Dichloroethane	97	70-130
Heptane	105	70-130
Trichloroethene	102	70-130
1,2-Dichloropropane	102	70-130
1,4-Dioxane	103	70-130
Bromodichloromethane	103	70-130
cis-1,3-Dichloropropene	101	70-130
4-Methyl-2-pentanone	110	70-130
Toluene	104	70-130
trans-1,3-Dichloropropene	101	70-130
1,1,2-Trichloroethane	99	70-130
Tetrachloroethene	98	70-130
2-Hexanone	110	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1506457-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a062605	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/26/15 11:53 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	102	70-130
1,2-Dibromoethane (EDB)	100	70-130
Chlorobenzene	97	70-130
Ethyl Benzene	100	70-130
m,p-Xylene	106	70-130
o-Xylene	105	70-130
Styrene	109	70-130
Bromoform	101	70-130
Cumene	105	70-130
1,1,2,2-Tetrachloroethane	104	70-130
Propylbenzene	108	70-130
4-Ethyltoluene	104	70-130
1,3,5-Trimethylbenzene	108	70-130
1,2,4-Trimethylbenzene	108	70-130
1,3-Dichlorobenzene	103	70-130
1,4-Dichlorobenzene	103	70-130
alpha-Chlorotoluene	100	70-130
1,2-Dichlorobenzene	94	70-130
1,2,4-Trichlorobenzene	88	70-130
Hexachlorobutadiene	89	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: LCS D

Lab ID#: 1506457-06AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a062606	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/26/15 12:21 PM

Compound	%Recovery	Method Limits
Freon 12	96	70-130
Freon 114	98	70-130
Chloromethane	92	70-130
Vinyl Chloride	95	70-130
1,3-Butadiene	90	70-130
Bromomethane	86	70-130
Chloroethane	99	70-130
Freon 11	95	70-130
Ethanol	95	70-130
Freon 113	88	70-130
1,1-Dichloroethene	89	70-130
Acetone	89	70-130
2-Propanol	100	70-130
Carbon Disulfide	82	70-130
3-Chloropropene	89	70-130
Methylene Chloride	95	70-130
Methyl tert-butyl ether	93	70-130
trans-1,2-Dichloroethene	80	70-130
Hexane	96	70-130
1,1-Dichloroethane	97	70-130
2-Butanone (Methyl Ethyl Ketone)	99	70-130
cis-1,2-Dichloroethene	106	70-130
Tetrahydrofuran	95	70-130
Chloroform	97	70-130
1,1,1-Trichloroethane	96	70-130
Cyclohexane	100	70-130
Carbon Tetrachloride	96	70-130
2,2,4-Trimethylpentane	105	70-130
Benzene	98	70-130
1,2-Dichloroethane	95	70-130
Heptane	100	70-130
Trichloroethene	98	70-130
1,2-Dichloropropane	99	70-130
1,4-Dioxane	100	70-130
Bromodichloromethane	102	70-130
cis-1,3-Dichloropropene	98	70-130
4-Methyl-2-pentanone	107	70-130
Toluene	101	70-130
trans-1,3-Dichloropropene	98	70-130
1,1,2-Trichloroethane	96	70-130
Tetrachloroethene	94	70-130
2-Hexanone	108	70-130

Client Sample ID: LCSD

Lab ID#: 1506457-06AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a062606	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/26/15 12:21 PM

Compound	%Recovery	Method Limits
Dibromochloromethane	97	70-130
1,2-Dibromoethane (EDB)	96	70-130
Chlorobenzene	94	70-130
Ethyl Benzene	96	70-130
m,p-Xylene	103	70-130
o-Xylene	102	70-130
Styrene	106	70-130
Bromoform	99	70-130
Cumene	102	70-130
1,1,2,2-Tetrachloroethane	100	70-130
Propylbenzene	104	70-130
4-Ethyltoluene	105	70-130
1,3,5-Trimethylbenzene	103	70-130
1,2,4-Trimethylbenzene	105	70-130
1,3-Dichlorobenzene	101	70-130
1,4-Dichlorobenzene	101	70-130
alpha-Chlorotoluene	104	70-130
1,2-Dichlorobenzene	101	70-130
1,2,4-Trichlorobenzene	103	70-130
Hexachlorobutadiene	100	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1506457-06B

EPA METHOD TO-15 GC/MS

File Name:	14062903	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/29/15 07:26 AM

Compound	%Recovery	Method Limits
Freon 12	108	70-130
Freon 114	108	70-130
Chloromethane	98	70-130
Vinyl Chloride	97	70-130
1,3-Butadiene	94	70-130
Bromomethane	92	70-130
Chloroethane	99	70-130
Freon 11	102	70-130
Ethanol	103	70-130
Freon 113	102	70-130
1,1-Dichloroethene	100	70-130
Acetone	99	70-130
2-Propanol	102	70-130
Carbon Disulfide	88	70-130
3-Chloropropene	95	70-130
Methylene Chloride	99	70-130
Methyl tert-butyl ether	92	70-130
trans-1,2-Dichloroethene	89	70-130
Hexane	101	70-130
1,1-Dichloroethane	98	70-130
2-Butanone (Methyl Ethyl Ketone)	103	70-130
cis-1,2-Dichloroethene	105	70-130
Tetrahydrofuran	100	70-130
Chloroform	99	70-130
1,1,1-Trichloroethane	101	70-130
Cyclohexane	100	70-130
Carbon Tetrachloride	106	70-130
2,2,4-Trimethylpentane	101	70-130
Benzene	102	70-130
1,2-Dichloroethane	100	70-130
Heptane	98	70-130
Trichloroethene	106	70-130
1,2-Dichloropropane	98	70-130
1,4-Dioxane	108	70-130
Bromodichloromethane	103	70-130
cis-1,3-Dichloropropene	96	70-130
4-Methyl-2-pentanone	103	70-130
Toluene	100	70-130
trans-1,3-Dichloropropene	89	70-130
1,1,2-Trichloroethane	103	70-130
Tetrachloroethene	100	70-130
2-Hexanone	102	70-130

Client Sample ID: LCS

Lab ID#: 1506457-06B

EPA METHOD TO-15 GC/MS

File Name:	14062903	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/29/15 07:26 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	104	70-130
1,2-Dibromoethane (EDB)	100	70-130
Chlorobenzene	98	70-130
Ethyl Benzene	101	70-130
m,p-Xylene	102	70-130
o-Xylene	106	70-130
Styrene	108	70-130
Bromoform	104	70-130
Cumene	105	70-130
1,1,2,2-Tetrachloroethane	93	70-130
Propylbenzene	104	70-130
4-Ethyltoluene	106	70-130
1,3,5-Trimethylbenzene	110	70-130
1,2,4-Trimethylbenzene	107	70-130
1,3-Dichlorobenzene	102	70-130
1,4-Dichlorobenzene	100	70-130
alpha-Chlorotoluene	105	70-130
1,2-Dichlorobenzene	101	70-130
1,2,4-Trichlorobenzene	94	70-130
Hexachlorobutadiene	100	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: LCS D

Lab ID#: 1506457-06BB

EPA METHOD TO-15 GC/MS

File Name:	14062904	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	6/29/15 07:53 AM

Compound	%Recovery	Method Limits
Freon 12	108	70-130
Freon 114	107	70-130
Chloromethane	96	70-130
Vinyl Chloride	96	70-130
1,3-Butadiene	95	70-130
Bromomethane	94	70-130
Chloroethane	103	70-130
Freon 11	103	70-130
Ethanol	105	70-130
Freon 113	100	70-130
1,1-Dichloroethene	102	70-130
Acetone	97	70-130
2-Propanol	104	70-130
Carbon Disulfide	91	70-130
3-Chloropropene	96	70-130
Methylene Chloride	98	70-130
Methyl tert-butyl ether	93	70-130
trans-1,2-Dichloroethene	88	70-130
Hexane	101	70-130
1,1-Dichloroethane	98	70-130
2-Butanone (Methyl Ethyl Ketone)	97	70-130
cis-1,2-Dichloroethene	105	70-130
Tetrahydrofuran	98	70-130
Chloroform	103	70-130
1,1,1-Trichloroethane	101	70-130
Cyclohexane	98	70-130
Carbon Tetrachloride	102	70-130
2,2,4-Trimethylpentane	100	70-130
Benzene	100	70-130
1,2-Dichloroethane	96	70-130
Heptane	99	70-130
Trichloroethene	106	70-130
1,2-Dichloropropane	99	70-130
1,4-Dioxane	106	70-130
Bromodichloromethane	103	70-130
cis-1,3-Dichloropropene	96	70-130
4-Methyl-2-pentanone	105	70-130
Toluene	101	70-130
trans-1,3-Dichloropropene	89	70-130
1,1,2-Trichloroethane	98	70-130
Tetrachloroethene	98	70-130
2-Hexanone	100	70-130

Client Sample ID: LCSD

Lab ID#: 1506457-06BB

EPA METHOD TO-15 GC/MS

File Name:	14062904	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/29/15 07:53 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	101	70-130
1,2-Dibromoethane (EDB)	99	70-130
Chlorobenzene	97	70-130
Ethyl Benzene	100	70-130
m,p-Xylene	99	70-130
o-Xylene	103	70-130
Styrene	107	70-130
Bromoform	102	70-130
Cumene	103	70-130
1,1,2,2-Tetrachloroethane	92	70-130
Propylbenzene	102	70-130
4-Ethyltoluene	105	70-130
1,3,5-Trimethylbenzene	106	70-130
1,2,4-Trimethylbenzene	105	70-130
1,3-Dichlorobenzene	99	70-130
1,4-Dichlorobenzene	100	70-130
alpha-Chlorotoluene	103	70-130
1,2-Dichlorobenzene	98	70-130
1,2,4-Trichlorobenzene	94	70-130
Hexachlorobutadiene	100	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	101	70-130