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2811 Fairview Avenue East, Suite 2000
Seattle, Washington 98102

May 21, 2019

Mr. Paul Klansnic
TB TS/RELP LLC
1425 4th Avenue Suite 200
Seattle, Washington 98101

SUBJECT: SUPPLEMENTAL VAPOR INTRUSION ASSESSMENT REPORT
Troy Laundry Property
300 Boren Avenue North and 399 Fairview Avenue North
Seattle, Washington
Project Number: 0731-004-05

Dear Mr. Klansnic:

SoundEarth Strategies, Inc. (SoundEarth) has prepared this Supplemental Vapor Intrusion Assessment Report to present the results of the 2019 indoor air vapor intrusion assessment that was conducted at the Troy Laundry Property located at 300 Boren Avenue North and 399 Fairview Avenue North in Seattle, Washington (the Property). The location of the Property is shown on Figure 1. The vapor intrusion assessment was performed in accordance with the Supplemental Vapor Intrusion Assessment Work Plan (VI Work Plan; SoundEarth 2019) previously submitted to and approved by the Washington State Department of Ecology (Ecology).

The purpose of the supplemental vapor intrusion assessment was to confirm the results from a previous indoor air sampling event which showed that concentrations of chemicals of concern (COCs) in the indoor ambient air do not present a risk to human health through the inhalation pathway. The vapor intrusion assessment work for the Property is currently managed under the authority of Agreed Order No. DE 8996 between Touchstone SLU LLC, TB TS/RELP LLC and Ecology.

The supplemental vapor intrusion assessment was performed to evaluate the potential vapor intrusion pathway at the Property, and to confirm that the interim action goal for indoor air has been achieved. The goal for indoor air at the Property is for concentrations of COCs to be below remediation levels at the point of compliance, as presented in the original VI Work Plan that was previously reviewed and approved by Ecology. The engineering control components at the Property include a vapor barrier, capping (foundation slab), air exchange system in the parking garage levels, and positive pressure in the elevator shaft, and building elevator lobbies.

2018 VAPOR INTRUSION ASSESSMENT

The initial vapor intrusion assessment was completed at the Property in March 2018 and is detailed in the Vapor Intrusion Assessment Report dated June 28, 2018 (SoundEarth 2018b). The scope of work included the following work elements:

- Prior to collecting air quality samples, SoundEarth completed a building survey of the South Tower and parking garage to evaluate the potential volatile organic compound sources or materials that may contribute to background indoor air contamination.
- Eighteen indoor air samples (IA01 through IA16, IA19, and IA20) and one outdoor air sample (OA01) were collected during the sampling event. Indoor air samples were collected from various locations throughout the parking garage levels P5 through P1, as well as in select stairways and the elevator shaft of the south tower (Figures 2 and 3).

Air samples were submitted to Friedman & Bruya, Inc. under standard chain-of-custody protocols for laboratory analysis. The air samples were analyzed for chlorinated volatile organic compounds (CVOCs; tetrachloroethene [PCE], trichloroethene [TCE], cis-1,2-dichloroethene [cis-1,2-DCE], trans-1,2-dichloroethene [trans-1,2-DCE], and vinyl chloride) and/or air-phase hydrocarbons (APHs) by US Environmental Protection Agency (EPA) Method TO-15. Analytical results for the indoor and outdoor air samples collected as part of the indoor air monitoring event indicated the following:

- Concentrations of CVOCs and APHs in the indoor and outdoor air samples were less than the MTCA Modified Method B Indoor Air Commercial Land Use Cleanup Remediation Levels, and were also below the more stringent MTCA Method B Indoor Air Cleanup Levels, as presented in Tables 1 and 2.

2019 SUPPLEMENTAL INDOOR AIR MONITORING EVENT

The scope of work for the supplemental vapor intrusion assessment, which was approved in advance by Ecology, was conducted in general accordance with Ecology's *DRAFT: Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action* and VI Work Plan. The scope of work included the following work elements:

- Prior to collecting air quality samples, SoundEarth completed a building survey of the South Tower and parking garage to evaluate the potential volatile organic compound sources or materials that may contribute to background indoor air contamination.
- Five indoor air samples (IA21 through IA25) were collected during the sampling event (Table 1 of this supplemental report). The supplemental indoor air sample locations are shown in Figures 2 and 3 and are described below:
 - Three indoor air samples were collected on the P5 parking level. The samples were collected as follows:
 - IA21, located in Stairway - 4.
 - IA22, located within the elevator shaft. This sample was collected during a 3-week period utilizing a passive air sampler.
 - IA23, located in Stairway - 1 adjacent to the south tower elevator.
 - Two indoor air samples were collected on the P1 parking level. The samples were collected as follows:
 - IA24, located in Stairway - 4.

- IA25, located in Stairway - 1, within the hallway leading to the lobby, just outside the door connecting the stairway to the lobby (above the garage).
- SoundEarth collected one outdoor air sample (OA02) from the exterior of the building. The sample was collected upwind at street level outside the HVAC intake on the north side of the building (Figure 3).

SoundEarth collected the indoor air samples on a weekend for all the samples except IA22, which was collected during normal weekday business hours and on the weekend over a period of 21 days. For the weekend sampling event, the parking levels were closed to minimize interference from unknown sources of CVOCs. The facilities managers simulated garage exhaust, air exchanges, and stairway use typical for weekday operations during the vapor intrusion sampling event. The sampling occurred in February 2019 on a day when the outdoor ambient air temperature was on average less than 40 degrees Fahrenheit for the 24-hour sample interval. A log of NOAA average temperature readings from the nearby University of Washington weather station (WAAQ) documenting approximate ambient air temperatures is included as Attachment A.

Each indoor air sample and the outdoor air sample were collected with a SUMMA canister fitted with a particulate filter to minimize interference associated with particulate matter from the parking levels. Friedman & Bruya, Inc. of Seattle, Washington, provided the 6-liter, individually certified SUMMA canisters for the air samples. The SUMMA canisters for indoor air samples were fitted with individually certified flow controllers calibrated by the laboratory for an approximate 24-hour sample collection. The SUMMA canisters were placed at a height of approximately 4 feet above the ground surface to approximate a potential worker's breathing level. Indoor air sample IA22 was collected within the elevator shaft using a passive Waterloo Membrane Sampler (WMS) provided by Eurofins Air Toxics, Inc., of Folsom, California.

A detailed discussion of the indoor air monitoring event is presented below.

Building Survey and Indoor Air Sampling Conditions

On February 15, 2019, SoundEarth performed a site walk of the Property parking garage levels to review the proposed locations of the indoor air and outdoor air samples, and perform a building survey. SoundEarth's observations included a review of current tenant operations in the parking garage levels P1 to P5; HVAC system; potential indoor air sources of contamination; and location of utilities (sewer, sumps, and cleanouts). SoundEarth did not observe any conditions outdoors, in the parking garage levels, or in the staircases between the parking garage levels that would suggest an intrinsic source for the CVOCs at the proposed indoor air sampling locations.

The HVAC system in the parking garage levels operated normally prior to sampling. The HVAC exhaust fans run continuously under normal operations. If necessary, carbon dioxide sensors in the parking garage levels modulate the exchange exhaust fans to maintain carbon monoxide levels to below acceptable levels. All cars were removed from the parking garage levels 26 hours prior to sampling. The HVAC system in the parking garage levels was manually adjusted during the sampling to simulate typical building conditions.

A detailed account of observations made during the building survey is included as Attachment B. Photographs of the building survey are included as Attachment C.

Sampling and Analysis

Sampling was conducted in accordance with the approved VI Work Plan (SoundEarth 2019). On Sunday, February 17, 2019, starting at 0058 hours (12:58 a.m.) SoundEarth installed indoor air samples IA21 and IA23 through IA25 in the P1 parking garage interior stairway north and south tower and P5 parking garage interior stairways north and south tower. Outdoor air sample OA02 was installed at the outdoor HVAC intake system on the north side of the building. The SUMMA cannister for OA02 was placed just inside the closed parking garage door, connected to the sampling area by 10 feet of Teflon sample tubing. Each air sample was taken with a 6-liter SUMMA canister. Each canister was retrieved on Monday, February 18, approximately 24 hours after installation. The SUMMA canisters (Samples IA21, IA23 through IA25, and OA02) were fitted with individually certified flow controllers calibrated by the laboratory for an approximate 24-hour sample collection. IA22 was sampled separately utilizing a WMS passive sampler over a 3-week time period at the request of Ecology. Sample IA22 was installed in the south tower elevator shaft on February 19 and was retrieved on March 12.

Air samples IA21, IA23 through IA25, and OA02 were submitted to Friedman & Bruya, Inc. under standard chain-of-custody protocols for laboratory analysis for CVOCs (PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride) by EPA Method TO-15. Air sample IA22 was submitted to Eurofins Air Toxics, Inc., of Folsom, California, under standard chain-of-custody protocols for laboratory analysis of CVOCs by EPA Modified Method TO-17. Sample analysis was performed in accordance with the VI Work Plan (SoundEarth 2019).

Simulation of Typical Building Conditions

During the supplemental indoor air sampling event, the buildings facility managers simulated typical building use conditions in accordance with the approved VI Work Plan (SoundEarth 2019) by simulating typical stairway usage and HVAC fan speeds. Based on garage fan use logs, all garage fans operate 24 hours per day, 7 days a week, at 15 hertz. The fans ramp up when the carbon monoxide sensors detect elevated levels. Parking garage fan speeds were previously recorded on Wednesday, November 7, and Thursday, November 8, 2018, to use as reference of typical building fan conditions. During the supplemental indoor air sampling event, a facility engineer manually adjusted the parking garage HVAC fan speeds to match those previously recorded, in order to mimic typical conditions and period where fan speeds increased to account for carbon monoxide buildup. A copy of the garage fan exhaust simulation tracking form is included as Attachment D.

Typical stairway usage was additionally simulated during the supplemental indoor air sampling event. The facility management had previously recorded the usage of Stairways 1 and 4 on Tuesday, November 13, 2018. During the supplemental indoor air sampling event, the building facility managers simulated the previously observed usage rates during the air sampling event by opening the P5 and P1 doorways of Stairway - 1 every 30 minutes and Stairway - 4 every 15 minutes between 8:00 a.m. to 6:00 p.m. Copies of the stairway usage simulation tracking forms are included as Attachment E.

INDOOR AIR MONITORING RESULTS

Analytical results for the indoor and outdoor air samples collected as part of the indoor air monitoring event indicated the following:

- Concentrations of CVOCs in the indoor and outdoor air samples were not detected above laboratory reporting limits and were less than MTCA Modified Method B Indoor Air Commercial Land Use Cleanup Remediation Levels. As required for this round of testing, all sampling was conducted when ambient average temperatures were under 40 degrees Fahrenheit. Analytical results for the indoor and outdoor air samples IA21, IA23 through IA25, and OA02 collected by SUMMA canisters as part of the indoor air monitoring event indicated the following:
 - Concentrations of CVOCs in all the SUMMA cannister samples were not detected above the applicable laboratory reporting limits, the Modified Method B Indoor Air Remediation Levels, or the more stringent MTCA Method B Indoor Air Cleanup Levels calculated for a reasonable maximum exposure for a commercial scenario assuming an exposure frequency of 5 days per week, 1 hour per day, for 52 weeks a year.
- Analytical results for indoor air sample IA22, collected by WMS passive sampler from the south tower elevator shaft over a 3-week period, are as follows:
 - Concentrations of CVOCs in passive air sample IA22 were not detected above the applicable laboratory reporting limits or the Modified Method B Indoor Air Remediation Levels.

Analytical results from the 2019 Supplemental Vapor Intrusion Assessment are as presented in Table 1, and the laboratory analytical reports are included as Attachment F.

DATA QUALITY CONTROL

A data quality control assessment was conducted on field samples and laboratory analytical results. The purpose of the review was to ensure the sample results were useable and met the objectives of the project.

Field Quality Control

A review of field notes showed that initial vacuum pressure in the Summa canisters ranged from 29.0 to 30.0 millimeters of mercury (mmHg). The final vacuum pressures, measured at the time these samples were retrieved, ranged from 6.1 to 7.5 mmHg.

Laboratory Quality Control

Data validation was conducted on current laboratory reports provided for the air sampling event. Analytical results were evaluated for holding times, blank contamination, and accuracy and precision using quality control limits provided by the laboratory at the time an analysis was performed. Analytical results reviewed included PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride for indoor and outdoor air samples. No data qualifiers were noted for any of the air samples submitted for analysis by EPA Method TO-15. Friedman & Bruya, Inc. laboratory conducted TO-15 instrument upgrades between the 2018 and 2019 indoor air sampling events, during which laboratory detection limits for CVOCs have been modified based on the criteria set forth in the Ecology Vapor Intrusion Guidance Table B-1 2015 update (Ecology

2009). A copy of a Friedman & Bruya, Inc. letter indicating the modification to their laboratory detection limits is included as Attachment G.

Because air sample IA22 was collected utilizing a WMS passive sampler, the sample collection and analysis were completed following EPA Modified Method TO-17 procedure. A laboratory narrative indicating modifications to the TO-17 method is included in Attachment F.

Based on the data validation results for the laboratory reports, the analytical results are acceptable to meet the objectives of the indoor air quality evaluation.

CONCLUSIONS

Concentration of CVOCs were not detected above laboratory reporting limits in any of the indoor air samples IA21 through IA25. Laboratory reporting limits for indoor air samples IA21 through IA25 were compared to MTCA Modified Method B Remediation Levels and the more stringent MTCA Method B Indoor Air Cleanup Levels, as shown in Table 1.

The indoor air monitoring analytical results for the five samples indicate that indoor air concentrations of CVOCs were below laboratory reporting limits as well as below the Modified Method B Indoor Air Remediation Level. Air sample analytical results, MTCA Method B Cleanup Levels, and the MTCA Modified Method B Remediation Levels are presented on Table 1.

Based on the results from the indoor air vapor assessment, the interim action goal for indoor air has been achieved and the following conclusions can be drawn:


- Indoor air quality in the parking levels, stairwell, and the elevator shaft is protective of human health for the inhalation exposure pathway.
- The results from the vapor intrusion assessment confirm the effectiveness of the interim cleanup action and confirm that there are no impacts to indoor air quality on the Property. Furthermore, since the concentrations of CVOCs are less than laboratory reporting limits and the applicable Modified Method B Remediation Levels, no additional sampling is warranted or required under the Ecology-approved VI Work Plan.

CLOSING

SoundEarth appreciates the opportunity to work with you on this project. Please contact the undersigned at 206-306-1900 if you have any questions or require additional information.

Respectfully,

SoundEarth Strategies, Inc.



Logan Schumacher, LG
Project Geologist



Thomas Cammarata, LG, LHG
Senior Geochemist

Attachments: Figure 1, Property Location Map
Figure 2, Parking Garage Level P5 – Indoor Air Sample Locations
Figure 3, Parking Garage Level P1 – Indoor Air Sample Locations
Table 1, Summary of Indoor and Outdoor Air Analytical Results for CVOCs
Table 2, Summary of Indoor and Outdoor Air Analytical Results for APHs
A, Sampling Event NOAA Weather Conditions (WAAQ)
B, Building Survey Form
C, Photographs
D, Simulated Normal Operating Conditions Log (Exhaust Fans)
E, Simulated Normal Operating Conditions Log (Stairway Doors)
F, Laboratory Analytical Reports
Friedman & Bruya, Inc. #902235
Eurofins Air Toxics, Inc. #1903365
G, Friedman & Bruya, Inc. TO-15 Detection Limits Update

REFERENCES:

- SoundEarth Strategies, Inc. (SoundEarth). 2012a. *Draft Remedial Investigation Report, Troy Laundry Property, 307 Fairview Avenue North, Seattle, Washington*. May 2.
- _____. 2012b. *Draft Feasibility Study Report, Troy Laundry Property, 307 Fairview Avenue North, Seattle, Washington*. August 9.
- _____. 2012c. *Draft Addendum—Supplemental Remedial Investigation Report, Troy Laundry Property, 307 Fairview Avenue North, Seattle, Washington*. December 17.
- _____. 2013. *Interim Action Plan, Troy Laundry Property, 307 Fairview Avenue North, Seattle, Washington*. August 21.
- _____. 2016. *Interim Action Progress Report, Troy Laundry Property, 307 Fairview Avenue North, Seattle, Washington*. January 22.
- _____. 2018a. *Vapor Intrusion Assessment Work Plan, Troy Laundry Property, 307 Fairview Avenue North, Seattle, Washington*. January 25.
- _____. 2018b. *Vapor Intrusion Assessment Report, Troy Laundry Property, 307 Fairview Avenue North, Seattle, Washington*. June 28.
- _____. 2019. *Supplemental Vapor Intrusion Assessment Work Plan, Troy Laundry Property, 307 Fairview Avenue North, Seattle, Washington*. February 12.
- Washington State Department of Ecology (Ecology). 2009. *DRAFT: Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action*. Publication No. 09-09-047. October. Revised February 2016.

TJC/JRF:rt/dnm/cms

FIGURES



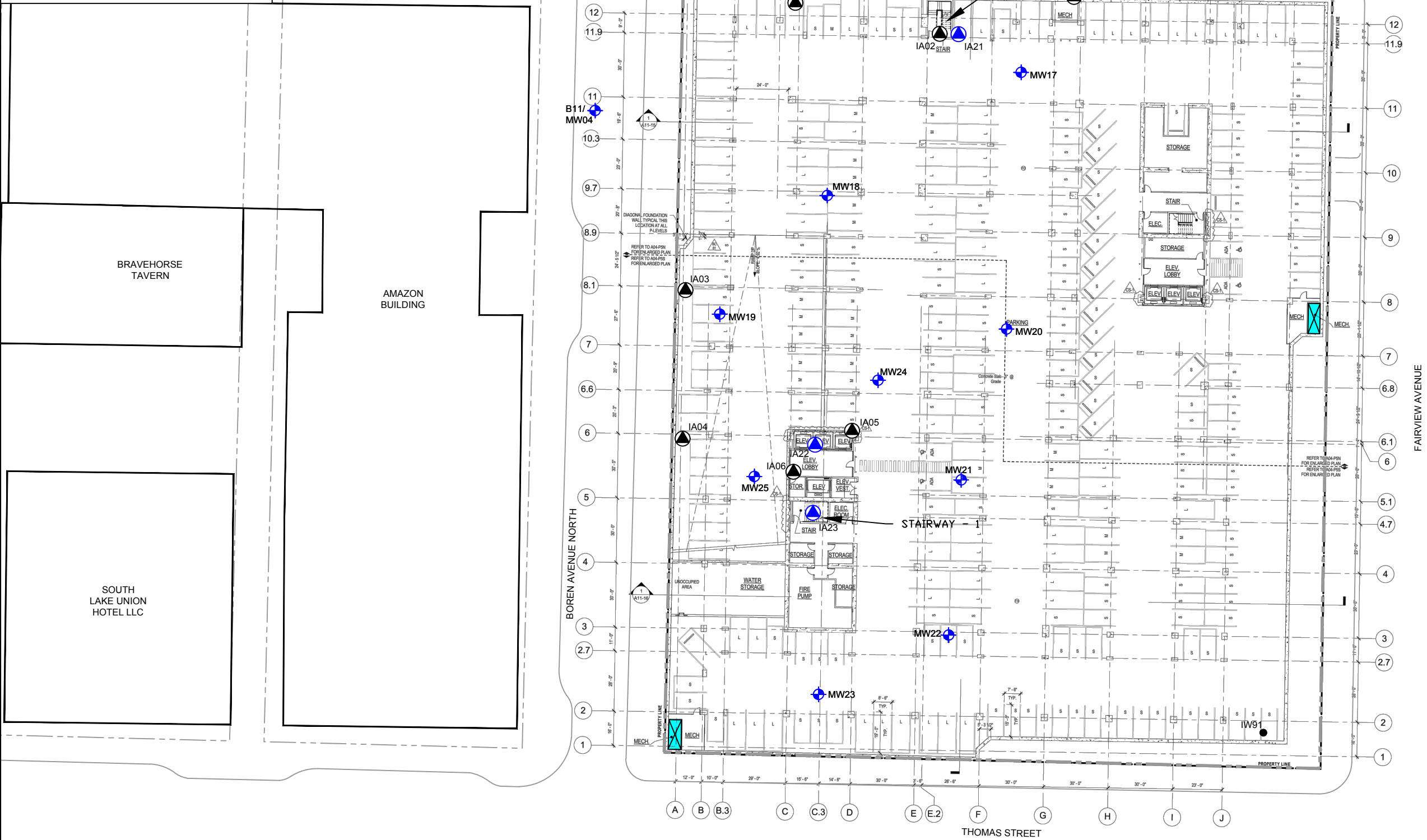
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LEGEND

- PROPERTY BOUNDARY
- PARCEL BOUNDARY
- ◆ MONITORING WELL
- INJECTION WELL
- INDOOR AIR SAMPLING LOCATION (MARCH 2018)
- INDOOR AIR SAMPLING LOCATION (FEBRUARY 2019)
- ▣ EXHAUST VENT

N

0 25 50
APPROXIMATE SCALE IN FEET



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TROY LAUNDRY PROPERTY
307 FAIRVIEW AVENUE NORTH
SEATTLE, WASHINGTON
SOUNDEARTH PROJECT #0731-004

FIGURE 2
PARKING GARAGE LEVEL P5 -
INDOOR AIR SAMPLE LOCATIONS

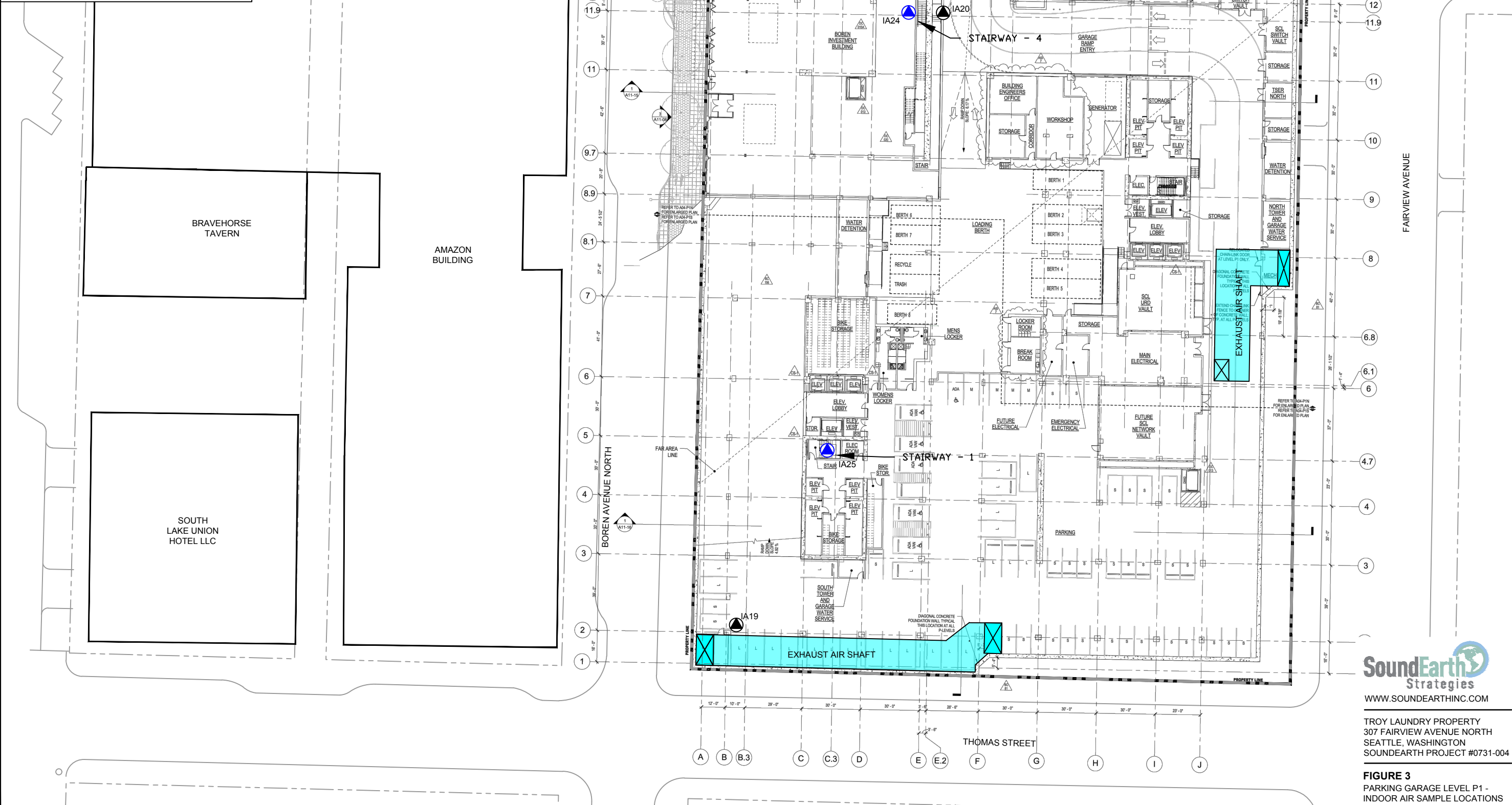
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LEGEND

- PROPERTY BOUNDARY
- PARCEL BOUNDARY
- INDOOR AIR SAMPLING LOCATION (MARCH 2018)
- OUTDOOR AIR SAMPLING LOCATION (MARCH 2018)
- INDOOR AIR SAMPLING LOCATION (FEBRUARY 2019)
- OUTDOOR AIR SAMPLING LOCATION (FEBRUARY 2019)
- ▣ EXHAUST VENT

N

0 25 50
APPROXIMATE SCALE IN FEET



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FIGURE 3
PARKING GARAGE LEVEL P1 -
INDOOR AIR SAMPLE LOCATIONS

TABLES



Table 1
Summary of Indoor and Outdoor Air Analytical Results for CVOCs
Troy Laundry Property
300 Boren Avenue North and 399 Fairview Avenue North
Seattle, Washington

Sample ID	Sample Name	Sample Location	Sampled By	Sample Type	Sample Date	Analytical Results ⁽¹⁾ (µg/m ³)					
						PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	
2018 Indoor Air Sampling Event											
OA01	OA01-20180304	Outdoor - HVAC Intake	SoundEarth	Outdoor Air (24-hour)	03/04/18-03/05/18	<1.7	<0.27	<0.2	<0.2	<0.13	
IA01	IA01-20180304	P5 - North wall		Indoor Air (24-hour)		--	--	--	--	--	
IA02	IA02-20180304	P5 - Interior Stairway - North				6.2	0.27	<0.2	<0.2	<0.13	
IA03	IA03-20180304	P5 - West wall				<1.7	<0.27	<0.2	<0.2	<0.13	
IA04	IA04-20180304	P5 - West wall				<1.7	<0.27	<0.2	<0.2	<0.13	
IA05	IA05-20180307	P5 - South Tower Parking Elevator Shaft			03/07/18-03/08/18	<1.7	<0.27	<0.2	<0.2	<0.13	
IA06	IA06-20180304	P5- Elevator lobby		03/04/18-03/05/18	<1.7	<0.27	<0.2	<0.2	<0.13		
IA07	IA07-20180304	North wall			<1.7	<0.27	<0.2	<0.2	<0.13		
IA08	IA08-20180304	P4 - West wall			<1.7	<0.27	<0.2	<0.2	<0.13		
IA09	IA09-20180304	P4 - West wall			<1.7	<0.27	<0.2	<0.2	<0.13		
IA10	IA10-20180304	P4 - South wall			<1.7	<0.27	<0.2	<0.2	<0.13		
IA11	IA11-20180304	P3 - West wall			<1.7	<0.27	<0.2	<0.2	<0.13		
IA12	IA12-20180304	P3 - West wall			<1.7	<0.27	<0.2	<0.2	<0.13		
IA13	IA13-20180304	P3 - East wall			--	--	--	--	--		
IA14	IA14-20180304	P2 - West wall			--	--	--	--	--		
IA15	IA15-20180304	P2 - West wall			<1.7	<0.27	<0.2	<0.2	<0.13		
IA16	IA16-20180304	P2 - South wall			<1.7	<0.27	<0.2	<0.2	<0.13		
IA19	IA19-20180304	P1 - South wall			<1.7	<0.27	<0.2	<0.2	<0.13		
IA20	IA20-20180304	P1 - Interior Stairway - North			2.4	0.34	<0.2	<0.2	0.13		
2019 Supplemental Indoor Air Sampling Event											
OA02	OA02-20190217	Outdoor - HVAC Intake	SoundEarth		Outdoor Air (24-hour)	02/17/19-02/18/19	<6.8	<0.27	<0.4	<0.4	<0.26
IA21	IA21-20190217	P5 - Interior Stairway - North		Indoor Air (24-hour)	<6.8		<0.27	<0.4	<0.4	<0.26	
IA22	IA22-20190219	P5 - South Tower Parking Elevator Shaft		Indoor Air (3-week)	02/19/19-03/12/19	<0.42	<0.64	<0.87	<2.1	<5.5	
IA23	IA23-20190217	P5 - Interior Stairway - South Tower		Indoor Air (24-hour)	02/17/19-02/18/19	<6.8	<0.27	<0.4	<0.4	<0.26	
IA24	IA24-20190217	P1 - Interior Stairway - North				<6.8	<0.27	<0.4	<0.4	<0.26	
IA25	IA25-20190217	P1 - Interior Stairway - South Tower				<6.8	<0.27	<0.4	<0.4	<0.26	
MTCA Method B Indoor Air Cleanup Levels						9.62⁽²⁾	0.37⁽²⁾	NE	NE	0.28⁽²⁾	
Modified Method B Indoor Air Remediation Levels⁽³⁾						323.08⁽³⁾	20.49⁽³⁾	NE	NE	9.55⁽³⁾	

NOTES:

Bold indicates laboratory detection limit exceeds MTCA Method B Indoor Air Cleanup Level but less than the Modified Method B Indoor Air Remediation Level.

Sample analysis performed by Friedman & Bruya, Inc., Seattle, Washington, or Eurofins Air toxics, Inc. of Folsom, California.

⁽¹⁾Analyzed by EPA Method TO-15 or Modified Method TO-17.

⁽²⁾MTCA Method B Indoor Air Cleanup Levels, Noncancer, DRAFT: Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, October 2009 and updated in February 2016.

⁽³⁾Modified Method B Indoor Air Remediation Levels, calculated from MTCA Equation 750-2 and assumes an exposure frequency of 5 days/week, 1 hour/day, and 52 weeks a year.

-- = not tested

< = not detected at a concentration exceeding the laboratory reporting limit

µg/m³ = micrograms per cubic meter

CVOC = chlorinated volatile organic compound

DCE = dichloroethene

EPA = US Environmental Protection Agency

MTCA = Washington State Model Toxics Control Act

NE = not established

PCE = tetrachloroethene

SoundEarth = SoundEarth Strategies, Inc.

TCE = trichloroethene



Table 2
Summary of Indoor and Outdoor Air Analytical Results for APHs
Troy Laundry Property
300 Boren Avenue North and 399 Fairview Avenue North
Seattle, Washington

Sample ID	Sample Name	Sample Location	Sampled By	Sample Type	Sample Date	Analytical Results ⁽¹⁾ (µg/m ³)				
						APH EC5-8 aliphatics	APH EC9-12 aliphatics	APH EC9-10 aromatics		
2018 Indoor Air Sampling Event										
OA01	OA01-20180304	Outdoor - HVAC Intake	SoundEarth	Outdoor Air (24-hour)	03/04/18–03/05/18	54	<35	<25		
IA01	IA01-20180304	P5 - North wall		Indoor Air (24-hour)		03/04/18–03/05/18	67	<35	<25	
IA02	IA02-20180304	P5 - Interior Stairway - North					130	36	<25	
IA03	IA03-20180304	P5 - West wall					49	<35	<25	
IA04	IA04-20180304	P5 - West wall					--	--	--	
IA05	IA05-20180307	P5 - South Tower Parking Elevator Shaft			--		--	--		
IA06	IA06-20180304	P5- Elevator lobby		Indoor Air (24-hour)	03/04/18–03/05/18	--	--	--		
IA07	IA07-20180304	North wall				--	--	--		
IA08	IA08-20180304	P4 - West wall				69	<35	<25		
IA09	IA09-20180304	P4 - West wall				--	--	--		
IA10	IA10-20180304	P4 - South wall				--	--	--		
IA11	IA11-20180304	P3 - West wall				84	35	<25		
IA12	IA12-20180304	P3 - West wall				--	--	--		
IA13	IA13-20180304	P3 - East wall				140	<35	<25		
IA14	IA14-20180304	P2 - West wall				65	<35	<25		
IA15	IA15-20180304	P2 - West wall				62	<35	<25		
IA16	IA16-20180304	P2 - South wall				--	--	--		
IA19	IA19-20180304	P1 - South wall				--	--	--		
IA20	IA20-20180304	P1 - Interior Stairway - North				86	47	<25		
MTCA Method B Indoor Air Cleanup Levels⁽²⁾						2,700⁽²⁾	140⁽²⁾	180⁽²⁾		
Modified Method B Indoor Remediation Levels⁽³⁾						113,400⁽³⁾	5,880⁽³⁾	7,560⁽³⁾		

NOTES:

Bold indicates concentration exceeds laboratory detection limits.

Sample analysis performed by Friedman & Bruya, Inc., Seattle, Washington.

⁽¹⁾Analyzed by Method MA-APH

⁽²⁾MTCA Method B Indoor Air Cleanup Levels, Noncancer, DRAFT: Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, October 2009 and updated in February 2016.

⁽³⁾Modified Method B Indoor Remediation Levels, calculated from MTCA Equation 750-2 and assumes an exposure frequency of 5 days/week, 1 hour/day, and 52 weeks a year.

-- = not tested

< = not detected at a concentration exceeding the laboratory reporting limit

µg/m³ = micrograms per cubic meter

APH = air-phase hydrocarbons

MTCA = Washington State Model Toxics Control Act

SoundEarth = SoundEarth Strategies, Inc.

ATTACHMENT A
SAMPLING EVENT NOAA WEATHER CONDITIONS (WAAQ)



- Home
- Current Hazards ▾
- Current Conditions ▾
- Forecasts ▾
- Hydrology ▾
- Climate ▾
- Weather Safety ▾
- Additional Info ▾
- Contact Us ▾

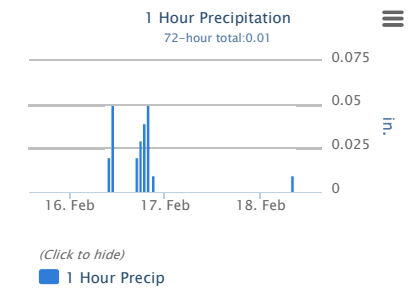
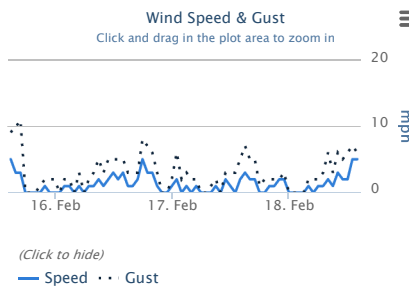
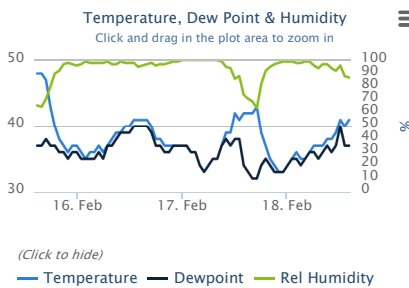
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Weather Conditions For:
 UNIVERSITY OF WASHINGTON, WA. UWASH (WAAQ)
 Elev: 190 ft.; Lat/Lon: 47.65/-122.31
 Current Time: Feb 18 2:58 pm PST
[Get Yearly Precip Total \(non QA/QC'd data\)](#)
[Get Water Year Precip Total \(non QA/QC'd data\)](#)

← swipe



Date (PST)	Temp (F)	Dew (F)	Relative Humidity (%)	Wind Direction	Wind Speed (MPH)	Sea Level Pressure (mb)	Precip Accumulated (inches)	1 Hour Precip (inches)	3 Hour Precip (inches)	6 Hour Precip (inches)	24 Hour Precip (inches)
18 Feb 1:55 pm	41	37	87	SE	5G6	1027.9	0.01				
18 Feb 12:55 pm	40	37	88	SE	5G7	1028.4	0.01			0.01	
18 Feb 11:55 am	41	40	96	S	2G6	1029.0	0.01			0.01	
18 Feb 10:55 am	39	37	92	SSE	2G5	1029.3	0.01			0.01	
18 Feb 9:55 am	38	36	94	SE	3G6	1029.0	0.01		0.01	0.01	
18 Feb 8:55 am	38	37	97	SE	1G3	1028.8	0.01		0.01	0.01	
18 Feb 7:55 am	37	36	97	SSE	2G6	1028.4	0.01	0.01	0.01	0.01	
18 Feb 6:55 am	37	35	94	SE	1G3	1028.3	0.00				
18 Feb 5:55 am	37	36	96	SE	1G2	1028.2	0.00				
18 Feb 4:55 am	36	36	99	E	CALM	1027.8	0.00				
18 Feb 3:55 am	35	35	99	ESE	1G2	1027.5	0.00				
18 Feb 2:55 am	35	34	98	E	CALM	1027.5	0.00				
18 Feb 1:55 am	36	35	98	E	CALM	1027.5	0.00				
18 Feb 12:55 am	35	35	99	E	CALM	1027.2	0.00				
17 Feb 11:55 pm	34	34	99	E	CALM	1026.8	0.00				
17 Feb 10:55 pm	33	33	99	NE	2G3	1026.3	0.00				
17 Feb 9:55 pm	33	33	98	NW	2G2	1026.0	0.00				
17 Feb 8:55 pm	34	33	97	ENE	1G2	1025.4	0.00				
17 Feb 7:55 pm	35	34	95	NNE	1G2	1025.1	0.00				
17 Feb 6:55 pm	37	35	92	WSW	CALM	1024.5	0.00				
17 Feb 5:55 pm	39	34	82	NNW	CALM	1024.0	0.00				
17 Feb 4:55 pm	43	32	64	N	2G5	1023.2	0.00				
17 Feb 3:55 pm	42	32	69	NNW	2G5	1023.0	0.00				
17 Feb 2:55 pm	42	33	71	NNW	3G7	1022.6	0.15				0.08
17 Feb 1:55 pm	42	34	74	N	2G5	1022.2	0.15				0.08
17 Feb 12:55 pm	41	38	88	NW	CALM	1021.8	0.15				0.08
17 Feb 11:55 am	42	38	86	SSE	1G3	1021.8	0.15				0.08
17 Feb 10:55 am	39	37	94	SE	2G3	1021.4	0.15				0.08
17 Feb 9:55 am	39	38	95	ENE	CALM	1020.8	0.15				0.13
17 Feb 8:55 am	37	37	99	ENE	1G2	1020.1	0.15				0.15
17 Feb 7:55 am	35	35	100	E	CALM	1019.1	0.15				0.15
17 Feb 6:55 am	35	35	100	ESE	CALM	1018.2	0.15				0.15
17 Feb 5:55 am	34	34	100	ENE	CALM	1017.7	0.15				0.15
17 Feb 4:55 am	33	33	100	NNE	1G2	1016.7	0.15				0.15
17 Feb 3:55 am	34	34	100	ESE	CALM	1015.9	0.15				0.15
17 Feb 2:55 am	36	36	100	ESE	1G3	1015.6	0.15				0.15
17 Feb 1:55 am	36	36	100	ESE	CALM	1014.9	0.15		0.01		0.15

17 Feb 12:55 am	37	37	100	SE	2G6	1014.3	0.15			0.06	0.15
16 Feb 11:55 pm	37	37	100	NE	1G2	1013.8	0.15			0.10	0.15
16 Feb 10:55 pm	37	37	99	SSW	CALM	1013.3	0.15		0.01	0.13	0.15
16 Feb 9:55 pm	37	37	99	NNW	CALM	1012.8	0.15			0.06	0.15
16 Feb 8:55 pm	37	36	98	NNW	1G3	1012.3	0.15	0.01		0.10	0.08
16 Feb 7:55 pm	37	36	97	N	3G6	1011.9	0.14	0.05		0.12	0.07
16 Feb 6:55 pm	38	37	97	N	3G7	1011.5	0.09	0.04	0.09	0.02	0.09
16 Feb 5:55 pm	38	37	96	NNW	5G8	1010.8	0.05			0.03	0.05
16 Feb 4:55 pm	40	39	98	WNW	2G3	1010.4	0.02	0.02			0.02
16 Feb 3:55 pm	41	40	97	NE	1G3	1010.2	0.00				
16 Feb 2:55 pm	41	40	96	NE	1G3	1010.1	0.07			0.07	0.06
16 Feb 1:55 pm	41	40	95	ESE	3G5	1010.0	0.07			0.07	0.06
16 Feb 12:55 pm	41	40	98	SSE	2G5	1010.2	0.07		0.05	0.07	0.06
16 Feb 11:55 am	40	39	98	SE	3G5	1010.4	0.07		0.07	0.07	0.06
16 Feb 10:55 am	40	39	98	SE	2G5	1010.1	0.07	0.05	0.07	0.07	0.06
16 Feb 9:55 am	39	39	99	SE	1G3	1009.8	0.02	0.02	0.02	0.02	0.01
16 Feb 8:55 am	39	38	97	SE	2G5	1009.5	0.00				
16 Feb 7:55 am	38	37	97	ESE	1G3	1009.0	0.00				
16 Feb 6:55 am	37	37	99	NE	1G2	1008.3	0.00				
16 Feb 5:55 am	36	35	98	E	CALM	1008.0	0.00				
16 Feb 4:55 am	37	36	98	NNE	1G3	1007.5	0.00				
16 Feb 3:55 am	36	35	98	E	CALM	1007.1	0.00				
16 Feb 2:55 am	36	35	98	NW	1G2	1006.8	0.00				
16 Feb 1:55 am	35	35	99	NNE	1G2	1006.5	0.00				
16 Feb 12:55 am	36	35	97		CALM	1006.1	0.00				
15 Feb 11:55 pm	37	36	96	NE	CALM	1005.9	0.00				
15 Feb 10:55 pm	37	36	97	NE	CALM	1005.9	0.00				
15 Feb 9:55 pm	36	35	98	NNW	1G2	1005.6	0.00				
15 Feb 8:55 pm	37	36	97	NE	CALM	1005.5	0.00				
15 Feb 7:55 pm	38	36	92	ENE	CALM	1005.3	0.00				
15 Feb 6:55 pm	40	37	90	ENE	CALM	1005.2	0.00				
15 Feb 5:55 pm	43	37	80	SW	CALM	1005.0	0.00				
15 Feb 4:55 pm	47	38	71	S	3G11	1004.6	0.00				
15 Feb 3:55 pm	48	37	65	SSW	3G10	1004.5	0.00				
15 Feb 2:55 pm	48	37	66	S	5G9	1003.9	0.01				



US Dept of Commerce
 National Oceanic and Atmospheric Administration
 National Weather Service
 Salt Lake City, UT
 Comments, Questions? Please Contact Us.

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**ATTACHMENT B
BUILDING SURVEY FORM**



SoundEarth Strategies, Inc.
 2811 Fairview Avenue East, Suite 2000
 Seattle, Washington 98102

Client & Site Name/Number: <u>True Laundry</u>	SoundEarth Project Number: <u>0731-004</u>	Date: <u>2/15/19</u>
Site Address: <u>300 Fairview Ave N, Seattle, WA</u>	Purpose of Visit/Task #: <u>2019 IA</u>	Field Report Prepared by: <u>LDS</u>

1030 to

Building Survey Form

Address: 300 Fairview Ave N, Seattle, WA

Tenant/Occupant Name: Amazon Phone: ---

Owner's Name: Touchstone Phone: 206-357-2305

Owner's Address: 2025 1st Ave Suite 1212 Seattle, WA

Point of Contact: Paul Klisarc Phone: 206-357-2305

Contact Information: ---

Weather conditions at time of indoor air sampling event:
Building Survey
Sunny, 30's

A. General Building Information

Attach plan view or sketch of building floor plan

Building Year Constructed: 2016

Building Type: Residential / Office / Commercial / Industrial / Government / School
 Warehouse

Building Occupants: Adults ? Children under 6 ? Children 6-15 ?
 Women Age 18-40 ?

Building Use: Office, Commercial, Parking garage

Square Footage: ~17,000

Ceiling Height: 10'

Number of Stories: ---

Number of Elevators: 2x Bays 6 total plus service elevator

General Description of Building Construction Materials:

Reinforced Concrete

Foundation Type: Basement / Crawl Space / Slab

Foundation Materials: Poured Concrete / Cinder Blocks / Earthen / Wood Pilings /

Other (Specify _____)

Foundation Wall Material: Poured Concrete / Cinder Blocks / Earthen / Wood / Stone

If there is a basement, please answer questions in Section B. If there is not a basement, skip to Section C.

A. Subfloor / Basement Information *P2 to P5*

Is the basement finished? Y / N

Does anyone live in the basement as a primary residence or use the basement daily? Y / N

Basement floor type: Dirt / Concrete / Other *PS pavers*

(describe): _____

Is the basement generally: wet / dry / damp?

Is there a sump in the basement? Y / N

If yes, please describe the size, the construction, where it is, and whether or not there is a sump and how it is activated: Multiple sumps for SW conveyance

What was the PID reading on the air above the sump grate? _____

Does the basement have cracks? Y / N If yes, PID reading: _____

Drainage point in floor? Y / N If yes, PID reading: 0.0

Sump or sump pump? Y / N If yes, PID reading: 0.0

Pipes or utility conduits through floor or outside walls? Y / N If yes, PID reading: _____

Is the basement painted? Y / N

If yes, when 2016 and with: latex / oil-based paint / stain *Painted on columns.*

Does the basement have flooring over the foundation? Y / N

If yes, what type: tile / carpet / wood / pergo / other, specify _____

Was glue used for installing the flooring? Y / N

Is there new furniture in the basement? Y / N If yes, describe type and date received

Are there odors in the basement? Y / N If yes, describe _____

PI

A. First Floor Information (Complete for each additional floor)

What are the walls constructed of? _____ Cinder block / sheet rock / paneling / other, specify

Are the walls painted? Y / N

If yes, when 2016 and with: latex / oil-based paint / stain

Is there flooring in the first floor? Y / N Some

If yes, what type tile / carpet / wood / pergo / other, specify Carpet in elevator lobbies

Was glue used for installing the flooring? Y / N

Is there new furniture on the first floor? Y / N

If yes, describe type and date received _____

Are there pipes or utility conduits through the outside walls or floor? Y / N

If yes, PID reading _____

Are there odors on the first floor? If yes, describe _____

E. Heating and Ventilation Systems:

What type of heating system(s) are used in the building? (circle all that apply)

Heat Pump / Furnace Hot Air Radiation / Steam Radiation / Unvented Kerosene Heater
Wood Stove / Electric Baseboard

Other, specify None obsv'd in parking garage

What type of fuel(s) are used in the building? (circle all that apply):

Natural Gas / Electric / Fuel Oil / Wood / Coal / Solar / Propane / Kerosene

Other, specify _____

What type of mechanical ventilation systems are present and/or currently operating in the building? (circle all that apply)

Mechanical Fans / Open Windows / Individual Air Conditioning Units / Kitchen Range Hood
Bathroom Ventilation / Fan Air-to-Air Heat Exchanger

Other, specify _____

H. Potential Sources of Indoor Chemical Contaminants:

Which of these items are present in the building? (Check all that apply)

Potential VOC Source	Location of Source	Removed 48 hours prior to sampling (Yes/No/NA)
Paints		
Gas-powered equipment		
Gasoline storage cans		
Cleaning solvents (thinner)		
Air fresheners		
Oven cleaners		
Carpet/upholstery cleaners		
Hairspray		
Nail polish/polish remover		
Bathroom cleaner		
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tank		
Wood stove		
Fireplace		
Perfume/colognes		
Hobby supplies (e.g., solvents, paints, lacquers, glues, photographic darkroom chemicals)		
Scented trees, wreaths, potpourri, etc.		
Polish / wax		
Insecticide / pesticide		
Kerosene		
Gun cleaner stored in the building		
Building occupants using solvents at work		
Other	Oil stains on garage floor (from parked cars)	NO

--	--	--

I. Other Potential Sources of Indoor or Outdoor Air Contamination

Outside Sources of Contamination (check all that apply):

Garbage Dumpsters / Heavy Motor Traffic / Landing Dock in Use / Construction Activities
Airport flight path / Railyard or railcar traffic

Nearby Industries, specify Common

UST/AST (gasoline/heating fuel/other, specify)

Is there a known spill or release outside or inside the building? If yes, was it:

Oil / Natural gas / Kerosene / Heating oil / Used vehicle oil / Solvents / Pesticide or insecticide
other, describe

Describe any additional information about the release (amount, when it occurred, action taken to clean up, etc.):

**Instructions for Occupants of Building Prior to Sampling Event
(to be followed starting at least 48 hours prior to and during the sampling event)**

- Do not open windows, fireplace openings or vents. ✓
- Do not keep doors open. ✓ *with normal regular use*
- Do not operate ventilation fans or air conditioning. ✓ *with normal normal conditions*
- Do not use air fresheners or odor eliminators. ✓
- Do not smoke inside. ✓
- Do not use wood stoves, fireplace or auxiliary heating equipment (e.g., kerosene heater).
- Do not use paints or varnishes. ✓
- Do not use cleaning products (e.g., bathroom cleaners, furniture polish, appliance cleaners, all-purpose cleaners, floor cleaners). ✓
- Do not use cosmetics, including hair spray, nail polish, nail polish remover, perfume, etc.
- Do not partake in indoor hobbies that use solvents. ✓
- Do not apply pesticides. ✓
- Do not store containers of gasoline, oil or petroleum-based or other solvents within the house or attached garage (except for fuel oil tanks). ✓
- Do not operate or store automobiles in an attached garage. ✓ *24 hours prior*

Restrictions start: 2/16/14 @ 12 AM

Sampling event starts: 2/17/14 @ 12 AM

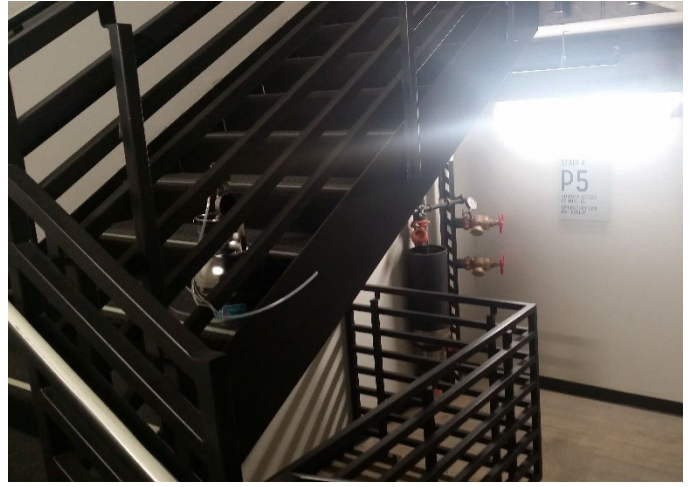
Sampling and Restrictions end: 2/18/14 @ 12 AM

Please call Logan at 206-484-7189 with any questions or concerns.

**ATTACHMENT C
PHOTOGRAPHS**



Photograph 1. Indoor air sample IA21, installed in Stairway 4 on Parking Level P5.



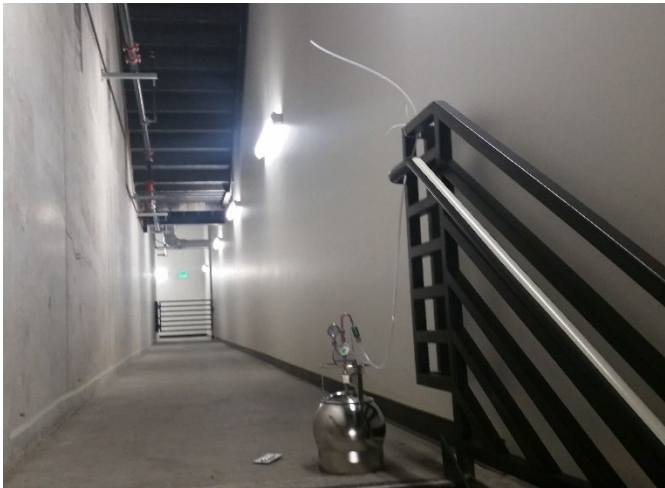
Photograph 2. Indoor air sample IA21, showing sample tubing installed in breathing zone.



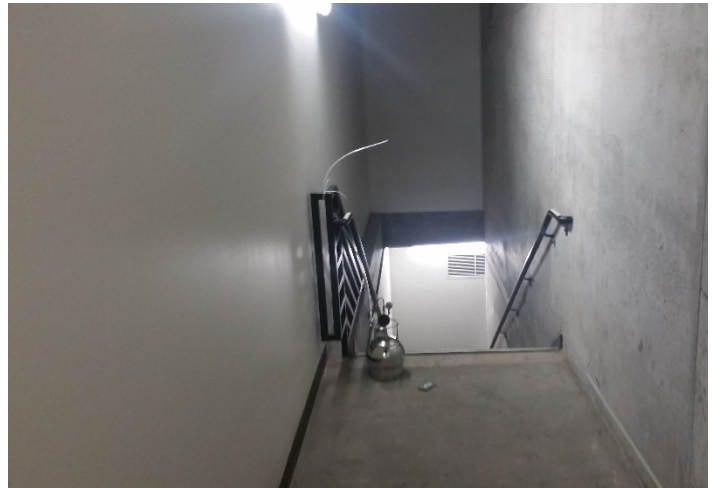
Photograph 3. Indoor air sample IA23, installed in Stairway 1 on Parking Level P5.



Photograph 4. Indoor air sample IA23, showing sample tubing installed in breathing zone.



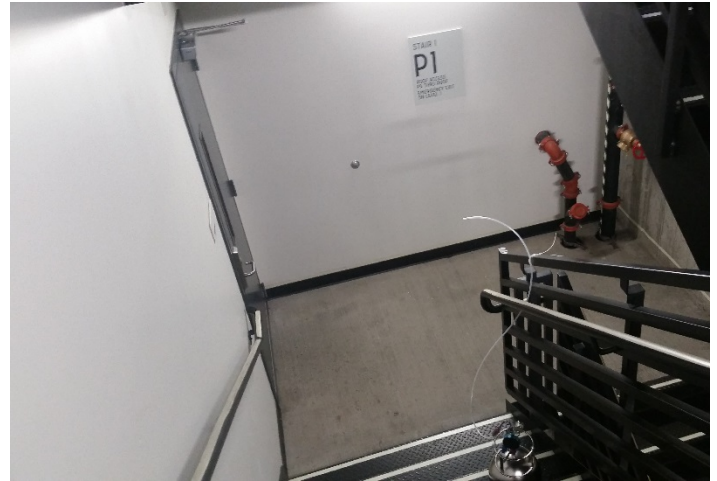
Photograph 5. Indoor air sample IA24, installed in Stairway 4 hallway on Parking Level P1.



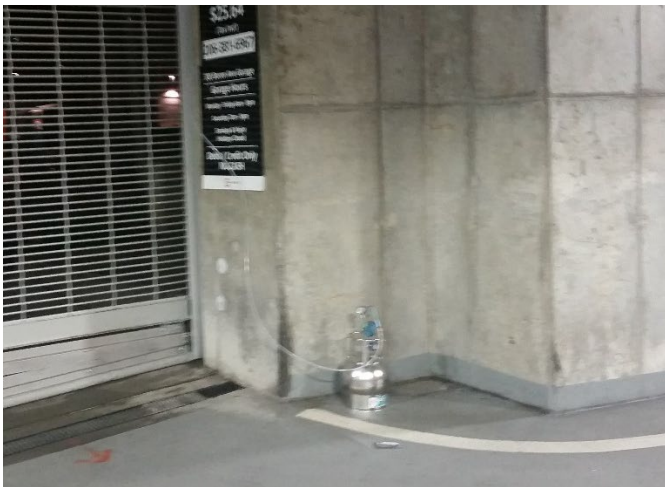
Photograph 6. Indoor air sample IA24, showing sample tubing installed in breathing zone.



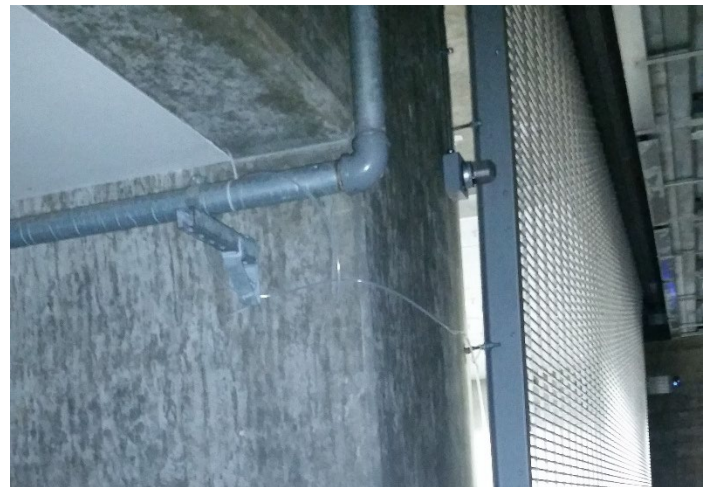
Photograph 7. Indoor air sample IA25, installed in Stairway 1 on Parking Level P1.



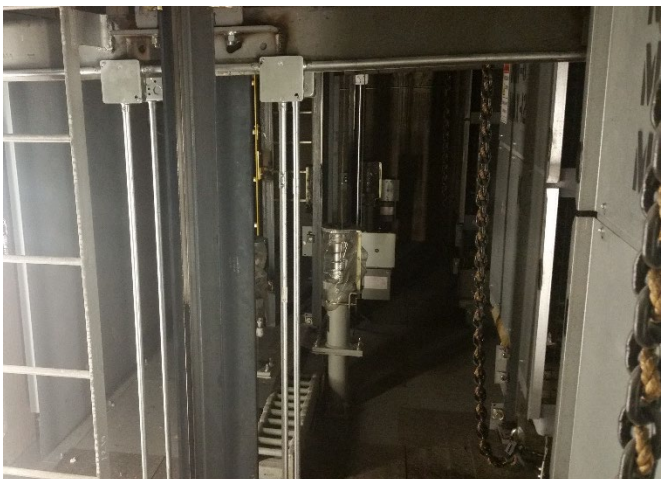
Photograph 8. Indoor air sample IA25, showing sample tubing installed in breathing zone.



Photograph 9. Outdoor air sample OA02, installed at south garage door, with tubing extending to the exterior.



Photograph 10. Teflon sample tubing running from air sample OA02 to the vicinity of the HVAC intake south of the building.



Photograph 11. Passive WMS air sample IA22 installed in the south tower elevator shaft.



Photograph 12. Close-up view of passive WMS air sample IA22.

ATTACHMENT D
SIMULATED NORMAL OPERATING CONDITIONS LOG
(EXHAUST FANS)

ATTACHMENT E
SIMULATED NORMAL OPERATING CONDITIONS LOG
(STAIRWAY DOORS)

Troy Block

Seattle Washington

Garage Stairwell usage simulation

STAIR 1 - LEVEL 1 EXITING INTO SOUTH TOWER LOBBY -

Each opening will consist of: (A) **From the parking garage** open the stairway-1 door on P5 for 2 seconds then let close naturally, but **do not enter the stairway and stay away from the sampler**. (B) **take the elevator to the lobby**, then **from the lobby** open the stairway-1 door for 2 seconds then let close naturally, but **do not enter the stairway and stay away from the sampler**.

DATE: 2/17/19

TIME	COUNT	CYCLE COMPLETE (INITIAL)
8:00 AM	.clear	✓
8:30 AM	clear	✓
9:00 AM	clear	✓
9:30 AM	clear	✓
10:00 AM	clear, door doesn't close all the way	✓
10:30 AM	clear	✓
11:00 AM	clear	✓
11:30 AM	clear	✓
NOON	clear	✓
12:30 PM	clear	✓
1:00 PM	clear	✓
1:30 PM	clear	✓
2:00 PM	clear	✓
2:30 PM	clear	✓
3:00 PM	clear	✓
3:30 PM	clear	✓
4:00 PM	clear	✓
4:30 PM	clear	✓
5:00 PM	clear	✓
5:30 PM	clear	✓
6:00 PM	clear	✓

SIMULATION completed by: Khalid Elmi : Security Officer
PRINT NAME & TITLE

Date: 2/17/19

Comment: This door doesn't close all the way most of the time. It takes about a couple seconds to shut if opened all the way.

Troy Block

Seattle Washington

Garage Stairwell usage simulation

STAIR 4 - NORTH STAIRWAY - EXITING TO GARAGE ENTRY AND HARRISON STREET

Each opening will consist of: (A) From the parking garage open the stairway-4 door on P5 for 2 seconds then let close naturally, but do not enter the stairway and stay away from the sampler. (B) take the elevator to the lobby to exit the building, then from the exterior on Harrison Street open the exterior stairway-4 door next to the parking garage entrance for 2 seconds then let close naturally, but do not enter the hallway/stairway and stay away from the sampler.

DATE: 2/17/19

TIME	COUNT	CYCLE COMPLETE (INITIAL)
8:00 AM	clear	
8:15 AM	clear	
8:30 AM	clear	
8:45 AM	clear	
9:00 AM	clear	
9:15 AM	clear	
9:30 AM	clear	
9:45 AM	clear	
10:00 AM	clear	
10:15 AM	clear	
10:30 AM	clear	
10:45 AM	clear	
11:00 AM	clear	
11:15 AM	clear	
11:30 AM	clear	
11:45 AM	clear	
NOON	clear	
12:15 PM	clear	
12:30 PM	clear	
12:45 PM	clear	
1:00 PM	clear	
1:15 PM	clear	
1:30 PM	clear	
1:45 PM	clear	
2:00 PM	clear	
2:15 PM	clear	
2:30 PM	clear	

Comment: This door shut everytime, and it only took one second or less to do so.

2:45 PM	clear	
3:00 PM	clear	
3:15 PM	clear	
3:30 PM	clear	
3:45 PM	clear	
4:00 PM	clear	
4:15 PM	clear	
4:30 PM	clear	
4:45 PM	clear	
5:00 PM	clear	
5:15 PM	clear	
5:30 PM	clear	
5:45 PM	clear	
6:00 PM	clear	

SIMULATION completed by:

Khalid Elmi: Security Officer
PRINT NAME & TITLE

Date:

2/17/19

ATTACHMENT F
LABORATORY ANALYTICAL REPORTS

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 22, 2019

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 February 18, 2019 from the SOU_0731-004_ 20190218, F&BI 902235 project. There are 9 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: Tom Cammarata
SOU0222R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 18, 2019 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0731-004_ 20190218, F&BI 902235 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>SoundEarth Strategies</u>
902235 -01	IA21-20190217
902235 -02	IA23-20190217
902235 -03	IA24-20190217
902235 -04	IA25-20190217
902235 -05	OA02-20190217

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA21-20190217	Client:	SoundEarth Strategies
Date Received:	02/18/19	Project:	SOU_0731-004_ 20190218, F&BI 902235
Date Collected:	02/17/19	Lab ID:	902235-01
Date Analyzed:	02/19/19	Data File:	021818.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	ppbv
Vinyl chloride	<0.26	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
Trichloroethene	<0.27	<0.05
Tetrachloroethene	<6.8	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA23-20190217	Client:	SoundEarth Strategies
Date Received:	02/18/19	Project:	SOU_0731-004_ 20190218, F&BI 902235
Date Collected:	02/17/19	Lab ID:	902235-02
Date Analyzed:	02/19/19	Data File:	021819.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	ppbv
Vinyl chloride	<0.26	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
Trichloroethene	<0.27	<0.05
Tetrachloroethene	<6.8	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA24-20190217	Client:	SoundEarth Strategies
Date Received:	02/18/19	Project:	SOU_0731-004_ 20190218, F&BI 902235
Date Collected:	02/17/19	Lab ID:	902235-03
Date Analyzed:	02/19/19	Data File:	021820.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	BAT

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

Compounds:	Concentration	
	ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
Trichloroethene	<0.27	<0.05
Tetrachloroethene	<6.8	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	IA25-20190217	Client:	SoundEarth Strategies
Date Received:	02/18/19	Project:	SOU_0731-004_ 20190218, F&BI 902235
Date Collected:	02/17/19	Lab ID:	902235-04
Date Analyzed:	02/19/19	Data File:	021821.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	ppbv
Vinyl chloride	<0.26	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
Trichloroethene	<0.27	<0.05
Tetrachloroethene	<6.8	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	OA02-20190217	Client:	SoundEarth Strategies
Date Received:	02/18/19	Project:	SOU_0731-004_ 20190218, F&BI 902235
Date Collected:	02/17/19	Lab ID:	902235-05
Date Analyzed:	02/19/19	Data File:	021822.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	BAT

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

Compounds:	Concentration	
	ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
Trichloroethene	<0.27	<0.05
Tetrachloroethene	<6.8	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0731-004_ 20190218, F&BI 902235
Date Collected:	Not Applicable	Lab ID:	09-0287 mb
Date Analyzed:	02/19/19	Data File:	021817.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	ppbv
Vinyl chloride	<0.26	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
Trichloroethene	<0.27	<0.05
Tetrachloroethene	<6.8	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/22/19

Date Received: 02/18/19

Project: SOU_0731-004_20190218, F&BI 902235

**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	121	70-130
trans-1,2-Dichloroethene	ppbv	5	124	70-130
cis-1,2-Dichloroethene	ppbv	5	126	70-130
Trichloroethene	ppbv	5	101	70-130
Tetrachloroethene	ppbv	5	104	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.

902235

SAMPLE CHAIN OF CUSTODY

ME 02/18/19

Report To Logan S., Tom C.

Company SoundEarth Strategies

Address 2811 Fairview Ave E Ste 2000

City, State, ZIP Seattle, WA

Phone _____ Email _____

SAMPLERS (signature) [Signature]

PROJECT NAME 0731-004 Troy Laundry

PO # _____

NOTES: *CVOCS = PCE, TCE, CIS-1,2-DCE, Tris-1,2-DCE and VC.

INVOICE TO _____

Page # 1 of 1

TURNAROUND TIME

Standard
 RUSH

Rush charges authorized by: _____

SAMPLE DISPOSAL

Archive Samples
 Other _____

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
IA21-20190217	01	20554	07848	(IA) / SG	2/17/19 to 2/18/19	29.0	0058	6.1	0102			X			
IA23-20190217	02	18573	06602	(IA) / SG		29.5	0101	7.5	0109			X			
IA24-20190217	03	4088	07853	(IA) / SG		30.0	0104	6.8	0117			X			
IA25-20190217	04	21446	06603	(IA) / SG		29.9	0106	7.0	0125			X			
0A02-20190217	05	18576	06604	(IA) / SG		29.7	0109	6.8	0132			X			
			LDS	IA / SG											
			2/8/19	IA / SG											Samples received at 16 °C
				IA / SG											

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: <u>[Signature]</u>	Logan Schomacher	SoundEarth	2/19/19	1138
Received by: <u>[Signature]</u>	Eric [Signature]	F&B	2/19/19	1130
Relinquished by:				
Received by:				

3/21/2019

Mr. Logan Schumacher
SoundEarth Strategies, Inc
2811 Fairview Avenue East
Suite 2000
Seattle WA 98102

Project Name: Troy Laundry Property
Project #: 0731-004
Workorder #: 1903365

Dear Mr. Logan Schumacher

The following report includes the data for the above referenced project for sample(s) received on 3/15/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Passive S.E. WMS 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 Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. 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 #: 1903365

Work Order Summary

CLIENT: Mr. Logan Schumacher
SoundEarth Strategies, Inc
2811 Fairview Avenue East
Suite 2000
Seattle, WA 98102

PHONE: 206-306-1900
FAX: 206-306-1907
DATE RECEIVED: 03/15/2019
DATE COMPLETED: 03/21/2019

BILL TO: Mr. Logan Schumacher
SoundEarth Strategies, Inc
2811 Fairview Avenue East
Suite 2000
Seattle, WA 98102

P.O. # 0731-004
PROJECT # 0731-004 Troy Laundry Property
CONTACT: Kelly Buettner

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>
01A	IA22-20190219	Passive S.E. WMS
02A	Trip Blank	Passive S.E. WMS
03A	Lab Blank	Passive S.E. WMS
04A	LCS	Passive S.E. WMS
04AA	LCSD	Passive S.E. WMS

CERTIFIED BY:



Technical Director

DATE: 03/21/19

LABORATORY NARRATIVE
WMS Passive SE by Mod EPA TO-17
SoundEarth Strategies, Inc
Workorder# 1903365

Two WMS-SE samples were received on March 15, 2019. The laboratory analyzed the charcoal sorbent bed of the passive sampler following modified method EPA TO-17. The VOCs were chemically extracted using carbon disulfide and an aliquot of the extract was injected into a GC/MS for identification and quantification of volatile organic compounds (VOCs).

The mass of each target compound adsorbed by the sampler was converted to units of concentration using the sample deployment time and the sampling rate for each VOC. If sampling rates were calculated by the lab or the manufacturer, the concentration result has been flagged as an estimated value. Results are not corrected for desorption efficiency.

Please note that 1,1,2,2-Tetrachloroethane (1,1,2,2-PCA) can degrade into Trichloroethene (TCE) during storage on the charcoal-based sorbent used in the WMS device. Samples containing 1,1,2,2-PCA may yield reduced concentrations of 1,1,2,2-PCA and elevated concentrations of TCE.

The reference method used for this procedure is EPA TO-17, which describes the collection of VOCs in ambient air using sorbents and analysis by GC/MS. Because TO-17 describes active sample collection using a pump and thermal desorption as the preparation step, several modifications are required. Modifications to TO-17 are listed in the table below:

<i>Requirement</i>	<i>TO-17</i>	<i>ATL Modifications</i>
Sample Collection	Pump pulls measured air volume through sorbent tube	VOCs in air adsorbed onto sorbent bed passively through diffusion
Sample Preparation	Thermal extraction	Solvent extraction
Sorbent tube conditioning	Condition newly packed tubes prior to use	Charcoal-based sorbent is a single use media and conditioning is conducted by vendor.
Instrumentation	Thermal desorption introduction system	Liquid injection introduction system
Internal Standard	Gas-phase internal standard introduced on the tube or focusing trap during analysis	Liquid-phase internal standard introduced on the tube at the time of extraction
Media and sample storage	<4 deg C, 30 days	Media shelf life is determined by vendor; sample hold-time is 6 months for the RAD130 and WMS. Sample preservation requirements are storage in a cool, solvent-free refrigerator and optional use of ice during shipping.
Internal Standard Recovery	+/-40% of daily CCV area	-50% to +100% of daily CCV area

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

To calculate ug/m³ concentrations in the Lab Blank and Trip Blank, a sampling duration of 30220 minutes was applied. The assumed temperature used for the uptake rate is listed on the data page. If the field temperatures were provided, the rate was adjusted in the same manner as the field samples.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicate 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.

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

N - The identification is based on presumptive evidence.

C - Estimated concentration due to calculated sampling rate

CN - See case narrative explanation.

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



Air Toxics

**Summary of Detected Compounds
VOC BY PASSIVE SAMPLER - GC/MS**

Client Sample ID: IA22-20190219

Lab ID#: 1903365-01A

No Detections Were Found.

Client Sample ID: Trip Blank

Lab ID#: 1903365-02A

No Detections Were Found.



Air Toxics

Client Sample ID: IA22-20190219

Lab ID#: 1903365-01A

VOC BY PASSIVE SAMPLER - GC/MS

File Name:	18031814sim	Date of Collection: 3/12/19 6:03:00 AM
Dil. Factor:	1.00	Date of Analysis: 3/18/19 01:04 PM
		Date of Extraction: 3/18/19

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Vinyl Chloride	0.20	5.5	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.10	2.1	Not Detected	Not Detected
cis-1,2-Dichloroethene	0.050	0.87	Not Detected	Not Detected
Trichloroethene	0.050	0.64	Not Detected	Not Detected
Tetrachloroethene	0.050	0.42	Not Detected	Not Detected

Temperature = 77.0F , duration time = 30220 minutes.

Container Type: WMS-SE

Surrogates	%Recovery	Method Limits
Toluene-d8	94	70-130



Air Toxics

Client Sample ID: Trip Blank

Lab ID#: 1903365-02A

VOC BY PASSIVE SAMPLER - GC/MS

File Name:	18031815sim	Date of Collection:	3/12/19
Dil. Factor:	1.00	Date of Analysis:	3/18/19 01:29 PM
		Date of Extraction:	3/18/19

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Vinyl Chloride	0.20	5.5	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.10	2.1	Not Detected	Not Detected
cis-1,2-Dichloroethene	0.050	0.87	Not Detected	Not Detected
Trichloroethene	0.050	0.64	Not Detected	Not Detected
Tetrachloroethene	0.050	0.42	Not Detected	Not Detected

Temperature = 77.0F , duration time = 30220 minutes.

Container Type: WMS-SE

Surrogates	%Recovery	Method Limits
Toluene-d8	94	70-130

Client Sample ID: Lab Blank

Lab ID#: 1903365-03A

VOC BY PASSIVE SAMPLER - GC/MS

File Name:	18031805sim	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	3/18/19 09:20 AM
		Date of Extraction:	3/18/19

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Vinyl Chloride	0.20	5.5	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.10	2.1	Not Detected	Not Detected
cis-1,2-Dichloroethene	0.050	0.87	Not Detected	Not Detected
Trichloroethene	0.050	0.64	Not Detected	Not Detected
Tetrachloroethene	0.050	0.42	Not Detected	Not Detected

Temperature = 77.0F , duration time = 30220 minutes.

Container Type: WMS-SE

Surrogates	%Recovery	Method Limits
Toluene-d8	92	70-130

Client Sample ID: LCS

Lab ID#: 1903365-04A

VOC BY PASSIVE SAMPLER - GC/MS

File Name:	18031803sim	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	3/18/19 08:29 AM
		Date of Extraction:	3/18/19

Compound	%Recovery	Method Limits
Vinyl Chloride	83	50-140
trans-1,2-Dichloroethene	86	70-130
cis-1,2-Dichloroethene	83	70-130
Trichloroethene	95	70-130
Tetrachloroethene	91	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	93	70-130

Client Sample ID: LCSD

Lab ID#: 1903365-04AA

VOC BY PASSIVE SAMPLER - GC/MS

File Name:	18031804sim	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	3/18/19 08:55 AM
		Date of Extraction:	3/18/19

Compound	%Recovery	Method Limits
Vinyl Chloride	69	50-140
trans-1,2-Dichloroethene	86	70-130
cis-1,2-Dichloroethene	83	70-130
Trichloroethene	97	70-130
Tetrachloroethene	90	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	93	70-130

Passive Sorbent Chain of Custody

WO#:

1903365

Case Seal #: _____

Company: Sand Earth Strategies Project #: 0731-004 P.O.# 0731-004
 Project Manager: Logan Schumacher Project Name: Troy Laundry Property
 Contact phone/email: (206) 484-7189 Collected by: Logan Schumacher

Lab ID	Sample Identification	Sampler ID	Date of Deployment (mm/dd/yy)	Time of Deployment (hr:min)	Date of Retrieval (mm/dd/yy)	Time of Retrieval (hr:min)	Sample Matrix (check one)				Reporting Units (circle)			Turn Around Time:		
							Indoor/Outdoor Air	Soil Gas	Workplace Monitoring	Other (Trap Blank)	ppbv	ug/m3	ppmv	mg/m3	ug	ng
01A	IA22-20190219	1844-AN-R-039	02/14/19	0623	03/12/19	0603	X									
02A	Trap Blank	1844-AN-R-040	-	-	-	-	X				X					Trap Blank.
CD5 3/12/19																

Relinquished by: <u>[Signature]</u>	Date: <u>3/12/19</u>	Time: <u>1300</u>	Received by: <u>[Signature]</u>	Date: <u>3/12/19</u>	Time: <u>0945</u>	Notes to Lab: * CVOCs = PCE, TCE, cis-1,2-DCE, trans-1,2-DCE and Vinyl Chloride.
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	

Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples.

Lab Use Only					
Shipper Name: <u>Red Ex</u>	Custody Seals Intact?	Yes	No	None	Sample Condition Upon Receipt: <u>Good</u> SDR
Air bill #:	Temperature (°C)			<u>NA</u>	

ATTACHMENT G
FRIEDMAN & BRUYA, INC. TO-15 DETECTION LIMITS UPDATE

Logan Schumacher

From: Eric Young <eyoung@friedmanandbruya.com>
Sent: Tuesday, February 26, 2019 2:33 PM
To: Logan Schumacher
Subject: TO15 Reporting Limits

Hello Logan,

In late 2018, we upgraded our TO15 instrument to a cryogen free system. The reporting limits we established for the new instrument were based on routinely meeting the criteria set forth in the WADOE VI Table (2015). Reporting limits for samples analyzed prior to implementation of the cryo-free system may differ slightly. If you have further questions, please let me know.

Regards,

Eric Young

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119
Office - (206)285-8282
Cell - (206)683-1731



Virus-free. www.avg.com