

**LIMITED SUBSURFACE SAMPLING AND TESTING**

Highland Cleaners  
4820 Northeast 4<sup>th</sup> Street  
Renton, Washington

**WASHINGTON RESTAURANT PROPERTIES LLP &  
AMERICAN UNITED LIFE INSURANCE COMPANY**

# ENVIRONMENTAL ASSOCIATES, INC.

1380 - 112<sup>th</sup> Avenue Northeast, Suite 300  
Bellevue, Washington 98004  
(425) 455-9025 Office  
(888) 453-5394 Toll Free  
(425) 455-2316 Fax

February 17, 2021

JN-29108-2

American United Life Insurance Company

&

Washington Restaurant Properties, LLP  
c/o Mr. Jack Standeford  
CBRE  
1420 5<sup>th</sup> Avenue, 17<sup>th</sup> Floor  
Seattle, Washington 98101  
Phone: 206-830-6493  
Email: [jack.standeford@cbre.com](mailto:jack.standeford@cbre.com)

Subject:       **LIMITED SUBSURFACE SAMPLING AND TESTING**  
                  **Highland Cleaners**  
                  **4820 Northeast 4th Street**  
                  **Renton, Washington 98059**

Environmental Associates, Inc. (EAI) has performed preliminary sampling and testing of subsurface soils, groundwater, and soil-vapor at selected localities within and behind the on-site dry cleaner. The purpose of this limited work was to attempt to assess whether previous use of dry cleaning solvents which included tetrachloroethene (PCE) had potentially impacted subsurface materials. This report, prepared in accordance with the terms of our proposal dated January 22, 2021, summarizes our approach to the project along with results and conclusions.

The contents of this report are confidential and are intended solely for your use and the use of your representatives. No other distribution or discussion of this report will take place without your prior approval in writing.

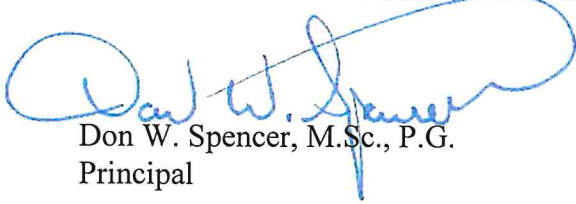


*Washington Restaurant Properties, LLP*  
*February 17, 2021*

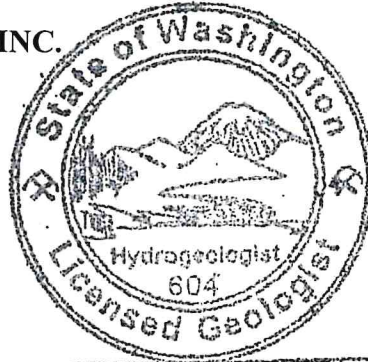
*JN-29108-2*  
*Page - 2*

We appreciate the opportunity to be of service on this assignment. If you have any questions or if we may be of additional service, please do not hesitate to contact us.

Respectfully submitted,  
**ENVIRONMENTAL ASSOCIATES, INC.**



Don W. Spencer, M.Sc., P.G.  
Principal



**DON W. SPENCER**

License: 604 (Washington)  
License: 11464 (Oregon)  
License: 876 (California)  
License: 5195 (Illinois)  
License: 0327 (Mississippi)  
REPA: 418290

---

# LIMITED SUBSURFACE SAMPLING AND TESTING

Highland Cleaners  
4820 Northeast 4th Street  
Renton, Washington 98059

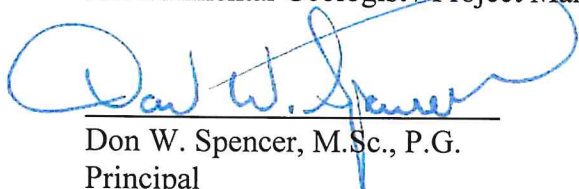
Prepared for:

American United Life Insurance Company  
&  
Washington Restaurant Properties, LLP  
c/o CBRE  
1420 5<sup>th</sup> Avenue, 17<sup>th</sup> Floor  
Seattle, Washington 98101

Questions regarding this investigation, the conclusions reached and the recommendations given should be addressed to one of the following undersigned.

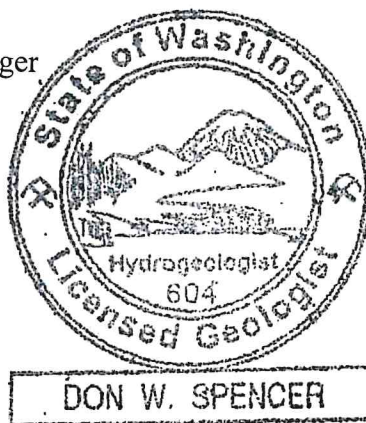


Eric Zuern  
Environmental Geologist / Project Manager



Don W. Spencer, M.Sc., P.G.  
Principal

License: 604 (Washington)  
License: 11464 (Oregon)  
License: 876 (California)  
License: 5195 (Illinois)  
License: 0327 (Mississippi)  
REPA: 418290



Reference Job Number: JN 29108-2

February 17, 2021

---

# TABLE OF CONTENTS

---

<b>INTRODUCTION/SCOPE OF WORK</b> .....	<b>5</b>
Site/Project Description .....	5
Background .....	5
<b>FINDINGS</b> .....	<b>6</b>
Subsurface Investigation .....	6
Soil Boring Sampling .....	6
Soil and Groundwater Sampling Procedure .....	6
Soil-Vapor Sampling Procedure .....	7
Subsurface Conditions .....	7
Laboratory Analysis .....	8
<b>CONCLUSIONS/RECOMMENDATIONS</b> .....	<b>9</b>
<b>LIMITATIONS</b> .....	<b>10</b>
<b>PLATES</b>	
Plate 1 - Vicinity/Topographic Map	
Plate 2 - Site Plan	
Plate 3 - Sampling Plan	
Plates 4-7 - Boring Logs	
<b>TABLES</b>	
Table 1 - Chlorinated VOCs Soil Sampling Results	
Table 2 - Chlorinated VOCs Groundwater Sampling Results	
Table 3 - Chlorinated VOCs Soil-Vapor Sampling Results	
<b>APPENDICES</b>	
Laboratory Reports	

---

## **INTRODUCTION/SCOPE OF WORK**

### **SITE/PROJECT DESCRIPTION**

The subject property addressed by this study is comprised of a single parcel (tax parcel number 1023059032) covering approximately 0.58 acres of land. Existing improvements consist principally of a single-story building enclosing approximately 12,800 square feet of space which was reportedly constructed in 1999. The property is currently occupied by various businesses including a tea café, dry cleaner, hair salon, restaurant, and other small businesses. The study documented in this report focused on the dry cleaning tenant space which has operated at that location for over ten years. The approximate location of the site is shown on the Vicinity/Topographic Map, Plate 1, appended herewith.

### **Background**

In October 2009, EAI presented a Phase I Environmental Site Assessment encompassing the subject site and several nearby parcels to Symetra Life Insurance Company. That report identified the following "Recognized Environmental Conditions" (RECs) as defined by ASTM at that time:

- On-site dry cleaning operations which have been active for approximately ten (10) years.
- Historic use and storage of heating oil on the property.

Regarding the dry cleaning operation, EAI recommended that if any degree of confidence was desired by the client as to whether the dry cleaner had potentially impacted subsurface materials, limited subsurface sampling and testing at multiple localities would be undertaken to make a site-specific determination. EAI was not contracted for further exploration work at that time. The reader is referred to the above-referenced report in all cases where expanded details and understandings are desired.

During recent interviews with the current on-site dry cleaner operator, EAI was informed that he had operated within the subject tenant space since 2007 and had replaced the previous dry cleaning equipment which utilized PCE with a newer, non-chlorinated solvent based machine in 2019.

### **Current Study**

Your expressed interests to conduct a preliminary evaluation of subsurface soil, groundwater, and soil-vapor beneath the site as memorialized in EAI's proposal dated January 22, 2021, formed the basis for the following scope of work:

- Drill and sample four (4) soil borings in accessible locations within and behind the on-site dry cleaner. A fifth boring was proposed to be made adjacent to the former dry cleaning equipment however access to that locality was declined by the current tenant. Soil and groundwater samples were obtained from each boring and a log of subsurface conditions encountered was prepared for each boring by the EAI project geologist. Three (3) soil-vapor samples were also collected from beneath the floor slab of the cleaner.
- Laboratory analysis of selected soil, groundwater, and soil-vapor samples for chlorinated volatile organic compounds (cVOCs).
- Preparation of this summary report documenting the methodology and results of the investigation.

---

## **FINDINGS**

### **SUBSURFACE INVESTIGATION**

#### **Soil Boring Sampling**

Four (4) borings were made on February 5, 2021 at the approximate locations noted as B1, B2, B3, and B4 as shown on the attached Sampling Plan, Plate 3. Sampling locations were limited to accessible interior areas as provided by the tenant as well as outside the back door (eastern exterior) of the dry cleaner. Depending upon location, subsurface density, and the occurrence of groundwater, the soil borings were extended to depths between 8 to 11 feet below ground surface (bgs). Recoverable groundwater was encountered within each of the borings.

#### **Soil and Groundwater Sampling Procedure**

Under the observation of the EAI field geologist, a limited-access push probe drill was brought into position over each of the boring localities. Following set-up preparations, the push-probe boring/sampling technique consisted of advancing a plastic lined sampler into the ground. The sampler was then withdrawn at 4 foot depth intervals and the liner was removed and cut open for examination and transfer of the soil sample to laboratory prepared glassware by EPA method 5035 as well as 4 ounce sterilized jars.

As groundwater was encountered in the borings, a temporary well screen was installed after soil sampling had been completed in an attempt to sample the groundwater. Small diameter plastic tubing was extended from a peristaltic pump into each temporary well screen to recover groundwater samples.

Soil and groundwater samples were transferred from the sampler directly to sterilized laboratory prepared glassware which were then stored in an iced chest maintained at approximately 4 degrees centigrade at the site and taken to the laboratory in this condition in an effort to preserve sample integrity.

Each sample container was clearly labeled as to boring and sample number/depth, project, etc. EPA-recommended sample-management protocol was observed at each stage of the project. During drilling, a field log was made by EAI for each boring. Information recorded versus corresponding depth included soil classification (Unified Soil Classification System), color, texture, relative moisture, odors (if present), etc.

### **Soil-Vapor Sampling Procedure**

In an effort to evaluate soil-vapor beneath the floor slab, sampling “pins” (essentially a hollow small-diameter steel spike) were extended through the concrete slab floor at locations noted as VP-1, VP-2, and VP-3 on the attached Sampling Plan, Plate 3 (VP-2 and VP-3 being placed adjacent to borings B-3 and B4 respectively) and a soil-vapor sample from immediately beneath the floor slab was collected through the temporary sampling pin and tubing at each location.

Laboratory-prepared “summa canisters” (vacuum cylinders drawing at a predetermined rate) were utilized to collect samples of the subsurface (sub-slab) soil-vapor at the specified locations. Utilizing flow controllers and gauge-vacuum provided by Friedman & Bruya, Inc. of Seattle, Washington, soil-vapor was collected over a span of several minutes.

Each sample container was recorded as to sample number/location, date, time, project, etc. EPA-recommended sample-management protocol was observed at each stage of the project.

### **Subsurface Conditions**

Soils encountered within the borings generally consisted of various combinations of silts, sands, and gravels. Some organic debris (wood, plant material) was observed within select borings at approximately 6 feet bgs. Additionally, some brick material was observed at approximately 6 feet bgs in boring B4 indicating potential fill materials may extend to that depth beneath the site. Groundwater was encountered at depths between 7 to 8 feet bgs.

## **LABORATORY ANALYSIS**

Laboratory analysis of soil and groundwater samples was conducted by Environmental Service Network (ESN), Olympia, Washington, while soil-vapor analysis was conducted by Friedman & Bruya, Inc., Seattle, Washington, both being WDOE-accredited analytical laboratories. Select soil, groundwater, and soil-vapor samples were submitted for analysis of chlorinated volatile organic compounds (cVOCs).

As summarized in Table 1 attached to this report, PCE was detected in soils at approximately 3 feet below ground surface (bgs) sampled from B2 (boiler room) and B3 (adjacent to former PCE dry cleaning machine) at concentrations of **0.11** and **2.8** parts per million (ppm), respectively. Those concentrations are above the MTCA Method-A compliance limit (for unrestricted land use) currently established for PCE (published as **0.05** ppm). No detections of PCE or other chlorinated solvents were reported in soil samples from greater depths from those borings or other localities explored.

Referring to Table 2 appended to this report, PCE was detected in groundwater sampled from B3 at 4.9 parts per billion (ppb). That concentration is slightly under (i.e. compliant with) the MTCA Method-A cleanup level for groundwater, currently established at 5 ppb. No other detections of PCE or other chlorinated solvents were reported in the groundwater samples analyzed.

As depicted in Table 3 attached to this report as well as in the appended laboratory data, PCE was detected in soil-vapor sampled from vapor points VP-2 and VP-3 (adjacent to borings B3 and B4 respectively) at concentrations exceeding the applicable MTCA Method-B screening limit for that compound. Additionally, the degradation product trichloroethene (TCE) was reported in vapor from VP-2 at a concentration exceeding its applicable screening limit.

---

## **CONCLUSIONS / RECOMMENDATIONS**

Relying solely upon the results of limited sampling and laboratory testing documented in this study, soils and soil-vapor contain chlorinated solvents above their applicable compliance/screening limits. Based on the data developed thus far, EAI concludes that prior use and storage of PCE-based dry cleaning solvents have impacted the subsurface beneath the dry cleaner.

In analyzing the data developed thus far, the following points are apparent:

- PCE encountered thus far in soils at certain locations tested (B2 and B3) appears vertically limited to a relatively shallow zone situated at depths of three (3) feet but less than six (6) feet. Impacted soils were not observed behind the back of the shop or at the central section of the tenant space however full delineation of the soil contamination to the north and south was not authorized or feasible at this time, nor was such definition envisioned as an objective within the proposed scope of work for this preliminary investigation.
- The PCE occurrences in soil appear to be the source of PCE found in soil-vapor collecting from beneath the floor slab. In regard to the soil-vapor containing TCE being encountered beneath the site above applicable screening limits, that detection suggests that some residual volume of TCE-impacted soil may conceivably exist at an as-yet unsampled locality below the property.
- Groundwater tested from three of the four borings did not show detectable concentrations of solvents. The single detection of PCE in groundwater at B3 (4.9 ppb) would be considered compliant with the WDOE cleanup guideline value (5 ppb) for that analyte. Groundwater occurrence encountered beneath the site is considered indicative of a “perched” zone and not of “regional” groundwater which lies at substantially greater depth.
- As mentioned earlier, the dry cleaning business ceased the use of PCE in 2019, thus eliminating such use as a continuing direct source of release for that contaminant.
- “Limiting factors” influencing further exploration of the contamination within the dry cleaner at this time included access restrictions posed by the current tenant and his operating equipment. Depending on the scope of work, substantive additional evaluation within the dry cleaner may be deemed infeasible at this time or until such a time when access is permitted or improved.

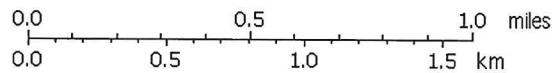
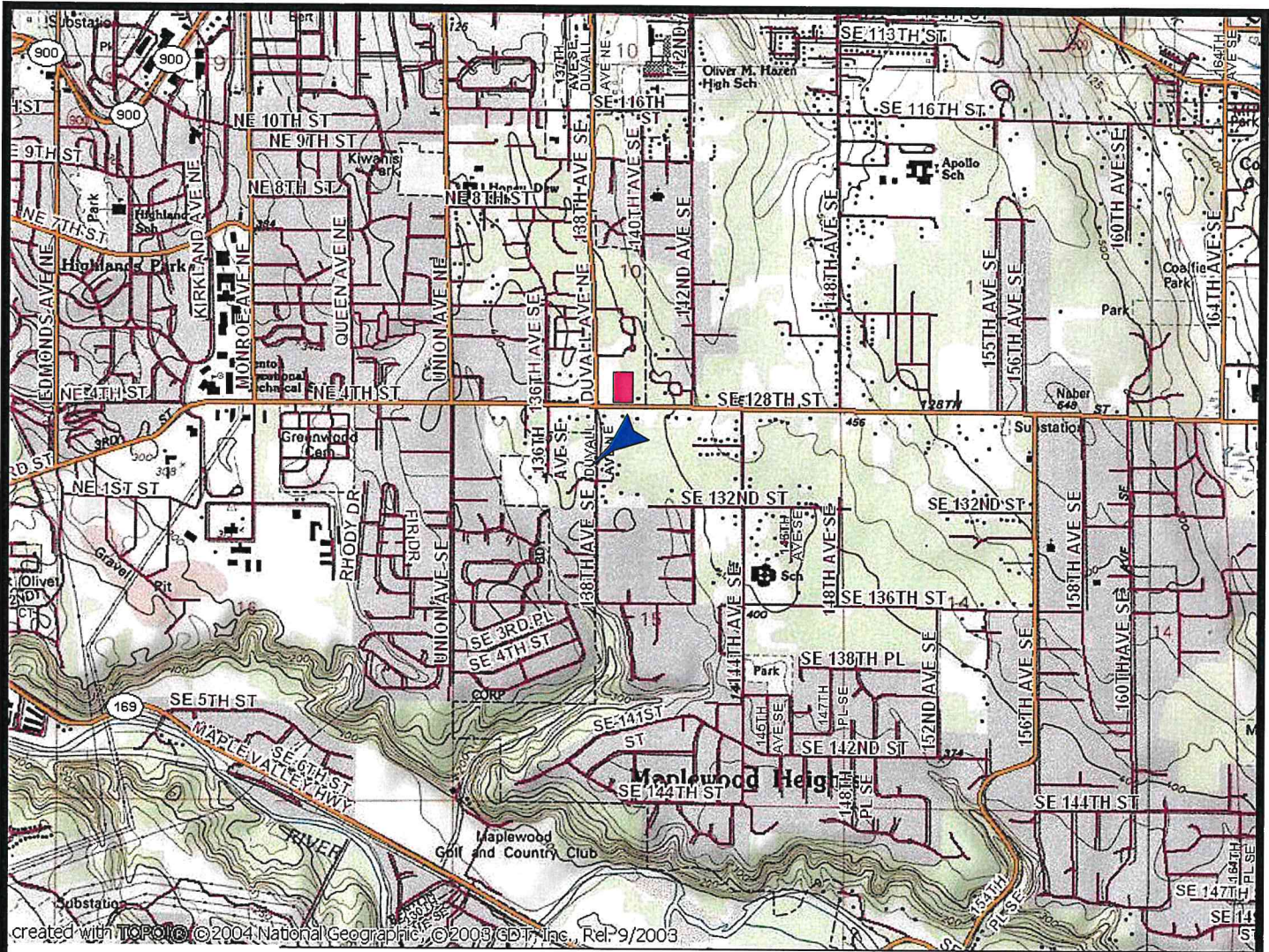
As EAI is not aware of any requirements currently being imposed on the property owner and/or dry cleaner operator to immediately remediate the contamination encountered during this study, EAI recommends at a minimum that the property owner conduct sampling and testing of air from various locations within and outside the building in an effort to determine whether subsurface vapors are migrating above the floor slab into potential occupied spaces. At such a time when further exploration is deemed feasible (i.e. unimpeded access provided, etc.), such a time may be appropriate to attempt remedial management actions including potential excavation of shallow impacted soils beneath the shop floor. In such a case, EAI would then recommend that additional sampling and testing of subsurface materials occur prior to such remedial actions in an effort to characterize the full extent of contamination before a remedial plan is fully developed.

Finally, to achieve lawful compliance with Chapter 173-340-300, WAC et seq, copies of this report along with any future reports regarding the environmental conditions encountered be forwarded to the Northwest Regional Office of the Department of Ecology (Bellevue, Washington) by the property owner. Upon request, EAI can assist the parties in this regard.

---

## **LIMITATIONS**

This report has been prepared for the exclusive use of the Washington Restaurant Properties LLP as well as American United Life Insurance Company and their several representatives for specific application to this site. Our work for this project was conducted in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area, and in accordance with the terms and conditions set forth in our proposal dated January 22, 2021. The findings and conclusions of this study rely solely upon the results of WDOE-certified laboratory testing of selected soil, groundwater, and soil-vapor samples obtained from separated boring localities and conditions may vary between those localities or at other locations, media, depths, or date. No other warranty, expressed or implied, is made. If new information is developed in future site work which may include excavations, borings, studies, etc., Environmental Associates, Inc., must be retained to reevaluate the conclusions of this report and to provide amendments as required.



**Approximate Site Location**



**Inferred Approximate Direction of Deep Seated Groundwater Flow**



**ENVIRONMENTAL ASSOCIATES, INC.**

1380 - 112th Avenue N.E., Ste. 300  
Bellevue, Washington 98004

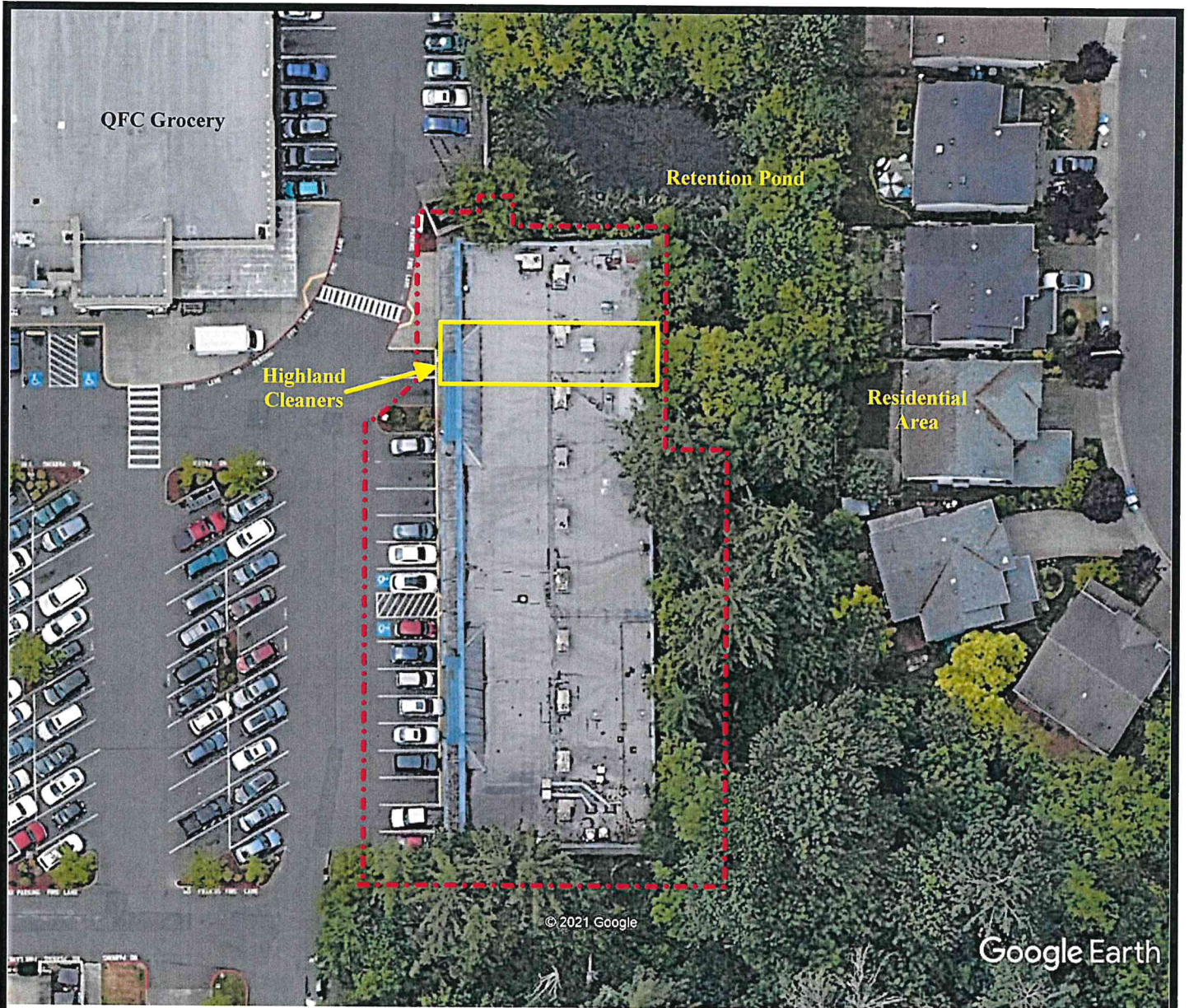
**VICINITY/TOPOGRAPHIC MAP**

Highland Cleaners  
4820 Northeast 4th Street  
Renton, Washington

Job Number:  
JN 29108-2

Date:  
February 2021

Plate:  
1



..... Approximate Parcel Boundary



Inferred Approximate Direction of Regional Groundwater Flow



**ENVIRONMENTAL  
ASSOCIATES, INC.**

1380 - 112th Avenue N.E., Ste. 300  
Bellevue, Washington 98004

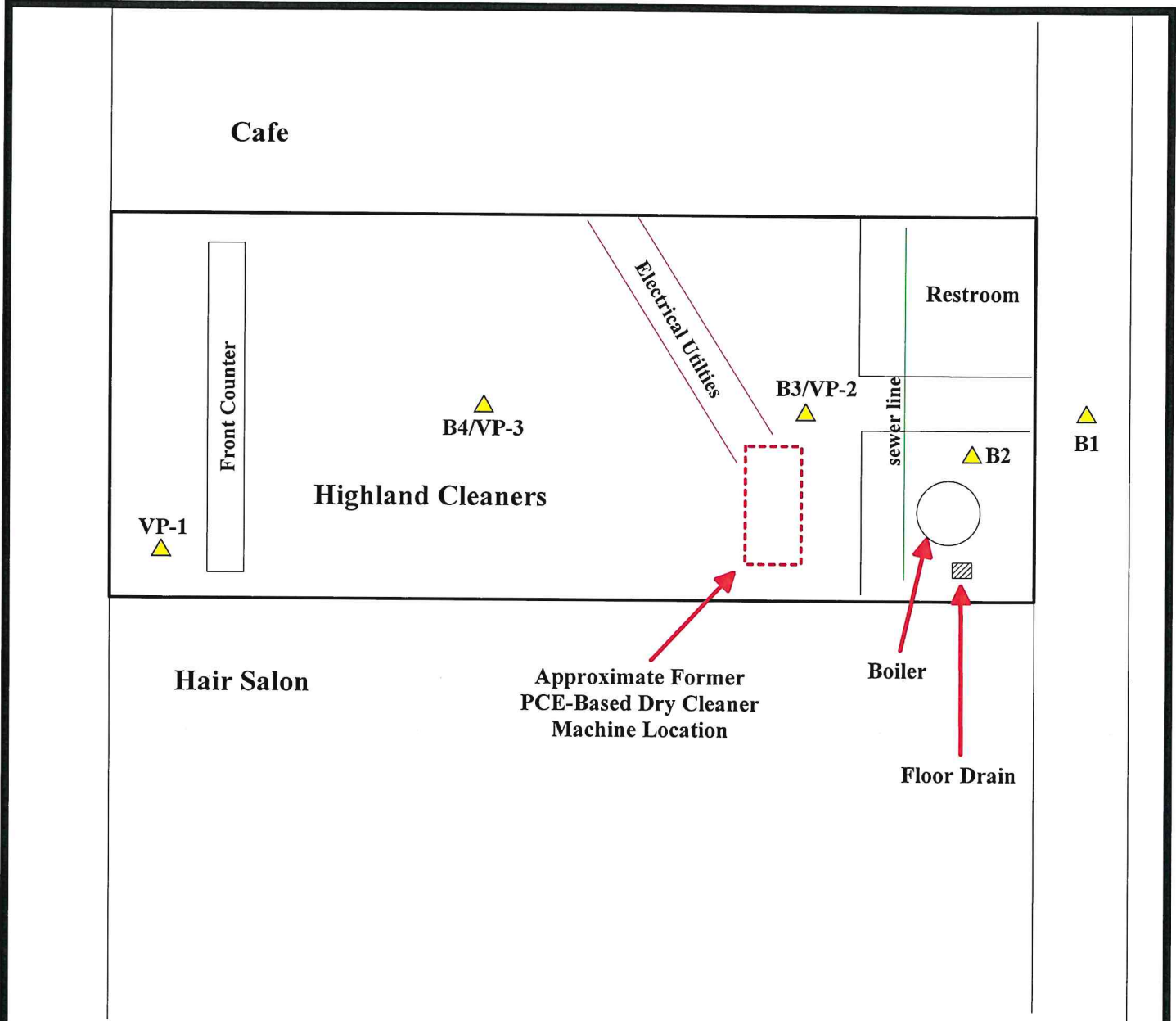
## SITE PLAN

Highland Cleaners  
4820 Northeast 4th Street  
Renton, Washington

Job Number:  
JN 29108-2

Date:  
February 2021


Plate:  
2



▲ Approximate Boring/Vapor Probe Location



map not to scale



**ENVIRONMENTAL ASSOCIATES, INC.**  
 1380 - 112th Avenue N.E., Ste. 300  
 Bellevue, Washington 98004

**SAMPLING PLAN**

Highland Cleaners  
 4820 Northeast 4th Street  
 Renton, Washington

Job Number: JN 29108-2	Date: February 2021	Plate: 3
---------------------------	------------------------	-------------

# BORING: B1

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION
0	screen 6' to 11' below ground surface				
5		Dry		SM/ GP	No Recovery Brown silt, sand, and gravels, dry, no odors or discolorations, PID=0
10		Moist		GM	Brown silt and gravels, dense, moist, no odors or discolorations, PID=0
11		Wet		SP/ GP	Grey dense sand and gravels, wet, no odors or discolorations PID=0
15					Boring refusal at 11 feet below grade on February 5, 2021.
20					
25					
30					
35					
40					



**ENVIRONMENTAL  
ASSOCIATES, INC.**

1380 - 112th Avenue N.E., Ste. 300  
Bellevue, Washington 98004

## Boring: B1

Highland Cleaners  
4820 Northeast 4th Street  
Renton, Washington

Job Number:

JN 29108-2

Date:

February 2021

Logged by:

EAZ

Plate:

4

# BORING: B2

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION
0	screen 6' to 11' below ground surface				
1					No Recovery
2		Dry		SP/ GP	Brown/grey sand and gravels, dense, dry, no odors or discolorations, PID=0
3					
4					
5		Dry		GM	Brown silt and gravels, wood debris, dry, organic odor, PID=0.5
6		Moist			
7					
8					
9				SP/ GP	Brown/grey sand and gravels, moist, no odors or discolorations PID=0
10		Moist			Brown sand and gravels, dense, moist, no odors or discolorations PID=0
11					Boring refusal at 11 feet below grade on February 5, 2021.
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					



**ENVIRONMENTAL  
ASSOCIATES, INC.**

1380 - 112th Avenue N.E., Ste. 300  
Bellevue, Washington 98004

## Boring: B2

Highland Cleaners  
4820 Northeast 4th Street  
Renton, Washington

Job Number:

JN 29108-2

Date:

February 2021

Logged by:

EAZ

Plate:

5

# BORING: B3

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION
0	screen 3' to 8' below ground surface				
1-4		Dry		SP/ GP	No Recovery Brown/grey sand and gravels, dry, no odors or discolorations, PID=0
5-7		Dry ▽ Wet		SM/ GP	Brown silty sand and gravels, organic material, dry, organic odor, PID=1.1
8-10					Brown/grey sand, silts, and gravels, wet, no odors or discolorations PID=0.1
10					Boring terminated at 8 feet below grade on February 5, 2021.
15					
20					
25					
30					
35					
40					



**ENVIRONMENTAL  
ASSOCIATES, INC.**

1380 - 112th Avenue N.E., Ste. 300  
Bellevue, Washington 98004

## Boring: B3

Highland Cleaners  
4820 Northeast 4th Street  
Renton, Washington

Job Number:

JN 29108-2

Date:

February 2021

Logged by:

EAZ

Plate:

6

# BORING: B4

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION
0	screen 3' to 8' below ground surface	Dry		SP/ GP	No Recovery Brown to grey silty sand and gravels, dry, no odors or discolorations, PID=0 to 0.3
5		Moist Wet		SM/ GP	Brown/grey silty sand and gravels, brick debris, moist, organic odor, PID=0.6 Brown silt and gravels, moist, no odors or discolorations PID=0.1
10					Boring terminated at 8 feet below grade on February 5, 2021.
15					
20					
25					
30					
35					
40					



**ENVIRONMENTAL  
ASSOCIATES, INC.**

1380 - 112th Avenue N.E., Ste. 300  
Bellevue, Washington 98004

## Boring: B4

Highland Cleaners  
4820 Northeast 4th Street  
Renton, Washington

Job Number:

JN 29108-2

Date:

February 2021

Logged by:

EAZ

Plate:

7

**TABLE 1- Chlorinated VOCs - Soil Sampling Results**  
**All results and limits in parts per million (ppm)**

Sample	Tetrachloroethene (PCE)	Trichloroethene (TCE)	(cis) 1,2 Dichloroethene	(trans) 1,2 Dichloroethene	Vinyl Chloride
B1-3	ND	ND	ND	ND	ND
B2-3	<i>0.11</i>	ND	ND	ND	ND
B2-6	ND	ND	ND	ND	ND
B3-3	<i>2.8</i>	ND	ND	ND	ND
B3-6	ND	ND	ND	ND	ND
B4-3	ND	ND	ND	ND	ND
B4-4	ND	ND	ND	ND	ND
B4-6	ND	ND	ND	ND	ND
Reporting Limit <sup>3</sup>	0.02	0.02	0.05	0.05	0.02
Cleanup Level for Unrestricted Land Use (Method-A) <sup>4</sup>	0.05	0.03	---	---	---
Cleanup Level - (Method-B) <sup>5</sup>	480	12	160	1600.0	0.667

Notes:  
 1 - "ND" denotes analyte not detected at or above listed Reporting Limit.  
 2 - "NA" denotes sample not analyzed for specific analyte.  
 3- "Reporting Limit" represents the laboratory lower quantitation limit.  
 4- Method A soil cleanup levels for unrestricted land use as published in the Model Toxics Control Act (MTCA) 173-340-WAC, Table 740-1.  
 5- Method-B soil cleanup levels for the "direct contact pathway", as published in Ecology's CLARC May 2014 database.

\* - Methylene Chloride contamination is suspected laboratory contamination

Bold and Italics denotes concentrations above existing MTCA Method A or B soil cleanup levels.

**TABLE 2- Chlorinated VOCs - Groundwater Sampling Results**  
**All results and limits in parts per billion (ppb)**

<b>Boring</b>	<b>Tetrachloroethene (PCE)</b>	<b>Trichloroethene (TCE)</b>	<b>(cis) 1,2 Dichloroethene</b>	<b>(trans) 1,2 Dichloroethene</b>	<b>Vinyl Chloride</b>
B1	ND	ND	ND	ND	ND
B2	ND	ND	ND	ND	ND
B3	4.9	ND	ND	ND	ND
B4	ND	ND	ND	ND	ND
Reporting Limit <sup>3</sup>	1	1	1	1	0.2
Existing Cleanup Level <sup>4</sup>	5 (A)	5 (A)	16 (B)	160 (B)	0.2 (A)

Notes:

- 1 - "ND" denotes analyte not detected at or above listed Reporting Limit.
- 2- "NA" denotes sample not analyzed for specific analyte.
- 3- "Reporting Limit" represents the laboratory lower quantitation limit.
- 4- Method A or B groundwater cleanup levels as published in the Model Toxics Control Act (MTCA) 173-340-WAC, amended May 2014.

Bold and Italics denotes concentrations above existing MTCA Method A groundwater cleanup levels.

**TABLE 3 - Chlorinated VOCs - Soil Vapor Sampling Results**  
 All results and limits in micro-grams per cubic meter (ug/M<sup>3</sup>)

Sample Name	Location	Tetrachloroethene (PCE)	Trichloroethene (TCE)	Chloroethane	1,1-Dichloroethane	1,2-Dichloroethane (EDC)	1,1-Dichloroethene	1,1,1-Trichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride
VP-1	Front of the dry cleaner shop, customer pickup area	<36	<0.57	<14	<2.1	<0.21	<2.1	<2.9	<2.1	<2.1	<1.4
B3/VP-2	Adjacent to dry cleaning equipment and material storage	<i>150,000 ve</i>	<i>640</i>	<110	<17	<1.7	<17	<23	<17	<17	<11
B4/VP-3	Mid-point of tenant space, clothing rack storage/work area	<i>1,200 ve</i>	<0.58	<14	<2.2	<0.22	<2.1	<2.9	<2.1	<2.1	<1.4
WDOE - Soil Vapor Screening Levels <sup>1</sup>		320	11	152,000	52	3.2	3,000	76,000	---	---	9.5

**Bold and Italics** indicate concentrations of compounds that exceed the WDOE Standard Method-B Air Target Compliance Levels.

- 1 - Soil gas screening level that concentrations in the soil gas just beneath a building expected to not result in exceedance of the air cleanup level in the overlying structure, per the WDOE's Guidance For Evaluating Soil Vapor Intrusion .
- ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.
- fb - The analyte was detected in the method blank.

## **APPENDIX A**

Lab Data



3155 NE Sunset Blvd, Suite A  
Renton, WA 98056  
Phone: 425.207.8345  
Email: [lab@esnanalytical.com](mailto:lab@esnanalytical.com)  
Web: [www.esnanalytical.com](http://www.esnanalytical.com)

February 15, 2021

Mr. Eric Zuern  
Environmental Associates, Inc.  
1380 112<sup>th</sup> Ave NE #300  
Bellevue, WA 98004

Dear Eric,

Please find enclosed analytical data report for PROJECT: HIGHLAND CLEANERS, Project Number: 29108-2 located in Renton, WA. Eight soil samples and four water samples were analyzed for Chlorinated VOC by EPA Method 8260 on February 8-12, 2021.

The results of the analyses are summarized and included on this report. Applicable detection limits and QA/QC data are included.

ESN Analytical appreciates the opportunity to have provided services for this project. If you have any further questions about the data report, please give us a call at 425-207-8345.

Thank you so much and it was a pleasure working with your company on this project. We are looking forward to the next opportunity to work together.

Sincerely,

A handwritten signature in black ink, appearing to read 'Dely Grace Agoy', is written over a light blue horizontal line.

Dely Grace Agoy  
Senior Chemist  
425-207-8345  
[delygrace.agoy@esnanalytical.com](mailto:delygrace.agoy@esnanalytical.com)



3155 NE Sunset Blvd, Suite A  
Renton, WA 98056  
Phone: 425.207.8345  
Email: [lab@esnanalytical.com](mailto:lab@esnanalytical.com)  
Web: [www.esnanalytical.com](http://www.esnanalytical.com)

# ANALYTICAL DATA REPORT

## Project: HIGHLAND CLEANERS

Project Number: 29108-2

Location: Renton, WA

Submitted to: ENVIROMENTAL ASSOCIATES, INC.  
Project Manager: Eric Zuern  
Sample Collector: Eric Zuern

### Sample Matrix: Water, Soil

#### Sample ID:

Soil	Water
B1-3	B1
B2-3	B2
B2-6	B3
B3-3	B4
B3-6	
B4-3	
B4-4	
B4-6	



3155 NE Sunset Blvd, Suite A  
Renton, WA 98056  
Phone: 425.207.8345  
Email: [lab@esnanalytical.com](mailto:lab@esnanalytical.com)  
Web: [www.esnanalytical.com](http://www.esnanalytical.com)

## CONTENTS

---

1. SAMPLE INFORMATION .....	1
2. TEST RESULTS .....	2
3. CHAIN OF CUSTODY .....	3



3155 NE Sunset Blvd, Suite A  
 Renton, WA 98056  
 Phone: 425.207.8345  
 Email: [lab@esnanalytical.com](mailto:lab@esnanalytical.com)  
 Web: [www.esnanalytical.com](http://www.esnanalytical.com)

## SAMPLE INFORMATION

SAMPLE ID	ESN Analytical Project Number	SAMPLING DATE	Sampling Time	Depth	Matrix	Analysis
B1-3	S210208.1R*	02/05/21	0939	3'	S	8260-Chlorinated
B1	S210208.1R*	02/05/21	1005	6'-11'	W	8260-Chlorinated
B2-3 (add-on)	S210208.1O*	02/05/21	1033	3'	S	8260-Chlorinated
B2-6	S210208.1R*	02/05/21	1044	6'	S	8260-Chlorinated
B2	S210208.1R*	02/05/21	1108	6'-11'	W	8260-Chlorinated
B3-3	S210208.1R*	02/05/21	1131	3'	S	8260-Chlorinated
B3-6	S210208.1R*	02/05/21	1137	6'	S	8260-Chlorinated
B3	S210208.1R*	02/05/21	1148	3'-8'	W	8260-Chlorinated
B4-3 (add-on)	S210208.1O*	02/05/21	1222	3'	S	8260-Chlorinated
B4-4	S210208.1R*	02/05/21	1226	4'	S	8260-Chlorinated
B4-6	S210208.1R*	02/05/21	1231	6'	S	8260-Chlorinated
B4	S210208.1R*	02/05/21	1240	3'-8'	W	8260-Chlorinated

R- Analysis was performed at Renton Laboratory

O-Analysis was performed at Olympia Laboratory



3155 NE Sunset Blvd, Suite A  
 Renton, WA 98056  
 Phone: 425.207.8345  
 Email: [lab@esnanalytical.com](mailto:lab@esnanalytical.com)  
 Web: [www.esnanalytical.com](http://www.esnanalytical.com)

## TEST RESULTS

Sampling Date; February 05, 2021

### Analysis of Chlorinated Volatile Organic Compounds in Soil by Method 8260D

Analytical Results										
	RL	MB	LCS	LCS	B1-3	B2-6	B3-3	B3-6	B4-4	B4-6
	(mg/Kg)									
Date extracted		02/09/21	02/09/21	02/09/21	02/05/21	02/05/21	02/05/21	02/05/21	02/05/21	02/05/21
Date analyzed		02/09/21	02/09/21	02/09/21	02/09/21	02/09/21	02/09/21	02/09/21	02/09/21	02/09/21
% Moisture					10%	12%	20%	11%	9%	11%
Dichlorodifluoromethane	0.05	nd			nd	nd	nd	nd	nd	nd
Chloromethane	0.05	nd			nd	nd	nd	nd	nd	nd
Vinyl chloride	0.02	nd	65%	71%	nd	nd	nd	nd	nd	nd
Chloroethane	0.05	nd			nd	nd	nd	nd	nd	nd
Trichlorofluoromethane	0.05	nd			nd	nd	nd	nd	nd	nd
1,1-Dichloroethene	0.05	nd	75%	78%	nd	nd	nd	nd	nd	nd
Methylene chloride	0.05	nd			nd	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd			nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.05	nd			nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.05	nd			nd	nd	nd	nd	nd	nd
2,2-Dichloropropane	0.05	nd			nd	nd	nd	nd	nd	nd
Chloroform	0.05	nd	90%	103%	nd	nd	nd	nd	nd	nd
Bromochloromethane	0.05	nd			nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.05	nd			nd	nd	nd	nd	nd	nd
1,2-Dichloroethane (EDC)	0.05	nd	87%	100%	nd	nd	nd	nd	nd	nd
1,1-Dichloropropene	0.05	nd			nd	nd	nd	nd	nd	nd
Carbon tetrachloride	0.05	nd			nd	nd	nd	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	91%	95%	nd	nd	nd	nd	nd	nd
1,2-Dichloropropane	0.05	nd	85%	98%	nd	nd	nd	nd	nd	nd
Bromodichloromethane	0.05	nd			nd	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	0.05	nd			nd	nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	0.05	nd			nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.05	nd			nd	nd	nd	nd	nd	nd
1,3-Dichloropropane	0.05	nd			nd	nd	nd	nd	nd	nd
Dibromochloromethane	0.05	nd			nd	nd	nd	nd	nd	nd
Tetrachloroethene (PCE)	0.02	nd	81%	88%	nd	nd	2.8	nd	nd	nd
Chlorobenzene	0.05	nd	89%	106%	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.05	nd			nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.05	nd			nd	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	0.05	nd			nd	nd	nd	nd	nd	nd
2-Chlorotoluene	0.05	nd			nd	nd	nd	nd	nd	nd
4-Chlorotoluene	0.05	nd			nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.05	nd			nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.05	nd			nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.05	nd			nd	nd	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	0.05	nd			nd	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	0.05	nd			nd	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	0.05	nd			nd	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	0.05	nd			nd	nd	nd	nd	nd	nd
Surrogate recoveries										
Dibromofluoromethane		98%	100%	107%	107%	89%	97%	84%	90%	83%
Toluene-d8		92%	95%	93%	100%	91%	99%	103%	97%	95%
4-Bromofluorobenzene		104%	104%	104%	116%	94%	109%	99%	104%	99%

Data Qualifiers and Analytical Comments  
 nd - not detected at listed reporting limits  
 Acceptable Recovery limits: 65% TO 135%  
 Acceptable RPD limit: 35%

Analyst: Loan H



3155 NE Sunset Blvd, Suite A  
 Renton, WA 98056  
 Phone: 425.207.8345  
 Email: [lab@esnanalytical.com](mailto:lab@esnanalytical.com)  
 Web: [www.esnanalytical.com](http://www.esnanalytical.com)

**Analysis of Chlorinated Volatile Organic Compounds in Water by Method 8260D**

Analytical Results

	RL	MB	LCS	LCSD	B1	B2	B3	B4
Date analyzed	(ug/L)	02/08/21	02/08/21	02/08/21	02/08/21	02/08/21	02/08/21	02/08/21
Dichlorodifluoromethane	1.0	nd			nd	nd	nd	nd
Chloromethane	1.0	nd			nd	nd	nd	nd
Vinyl chloride	0.2	nd	83%	91%	nd	nd	nd	nd
Chloroethane	1.0	nd			nd	nd	nd	nd
Trichlorofluoromethane	1.0	nd			nd	nd	nd	nd
1,1-Dichloroethene	1.0	nd	75%	78%	nd	nd	nd	nd
Methylene chloride	1.0	nd			nd	nd	nd	nd
trans-1,2-Dichloroethene	1.0	nd			nd	nd	nd	nd
1,1-Dichloroethane	1.0	nd			nd	nd	nd	nd
cis-1,2-Dichloroethene	1.0	nd	89%	97%	nd	nd	nd	nd
2,2-Dichloropropane	1.0	nd			nd	nd	nd	nd
Chloroform	1.0	nd	91%	95%	nd	nd	nd	nd
Bromochloromethane	1.0	nd			nd	nd	nd	nd
1,1,1-Trichloroethane	1.0	nd			nd	nd	nd	nd
1,2-Dichloroethane (EDC)	1.0	nd	87%	91%	nd	nd	nd	nd
1,1-Dichloropropene	1.0	nd			nd	nd	nd	nd
Carbon tetrachloride	1.0	nd			nd	nd	nd	nd
Trichloroethene (TCE)	1.0	nd	87%	95%	nd	nd	nd	nd
1,2-Dichloropropane	1.0	nd	88%	90%	nd	nd	nd	nd
Bromodichloromethane	1.0	nd			nd	nd	nd	nd
cis-1,3-Dichloropropene	1.0	nd			nd	nd	nd	nd
trans-1,3-Dichloropropene	1.0	nd			nd	nd	nd	nd
1,1,2-Trichloroethane	1.0	nd			nd	nd	nd	nd
1,3-Dichloropropane	1.0	nd			nd	nd	nd	nd
Dibromochloromethane	1.0	nd			nd	nd	nd	nd
Tetrachloroethene (PCE)	1.0	nd	87%	78%	nd	nd	4.9	nd
Chlorobenzene	1.0	nd	90%	85%	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	1.0	nd			nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1.0	nd			nd	nd	nd	nd
1,2,3-Trichloropropane	1.0	nd			nd	nd	nd	nd
2-Chlorotoluene	1.0	nd			nd	nd	nd	nd
4-Chlorotoluene	1.0	nd			nd	nd	nd	nd
1,3-Dichlorobenzene	1.0	nd			nd	nd	nd	nd
1,4-Dichlorobenzene	1.0	nd			nd	nd	nd	nd
1,2-Dichlorobenzene	1.0	nd			nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	1.0	nd			nd	nd	nd	nd
1,2,4-Trichlorobenzene	1.0	nd			nd	nd	nd	nd
Hexachloro-1,3-butadiene	1.0	nd			nd	nd	nd	nd
1,2,3-Trichlorobenzene	1.0	nd			nd	nd	nd	nd
<b>Surrogate recoveries</b>								
Dibromofluoromethane		97%	100%	111%	97%	102%	98%	94%
Toluene-d8		94%	96%	87%	98%	95%	91%	92%
4-Bromofluorobenzene		107%	103%	104%	108%	99%	104%	104%

Data Qualifiers and Analytical Comments

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

Analyst: Loan H



3155 NE Sunset Blvd, Suite A  
 Renton, WA 98056  
 Phone: 425.207.8345  
 Email: [lab@esnanalytical.com](mailto:lab@esnanalytical.com)  
 Web: [www.esnanalytical.com](http://www.esnanalytical.com)

### Additional Analysis Test Results

#### Analysis of Chlorinated Volatile Organic Compounds in Soil by Method 8260D

##### Analytical Results

	RL	MB	LCS	LCS	B2-3	B4-3
Date extracted	(mg/Kg)	02/12/21	02/12/21	02/12/21	02/05/21	02/05/21
Date analyzed		02/12/21	02/12/21	02/12/21	02/12/21	02/12/21
% Moisture					12%	10%
Dichlorodifluoromethane	0.05	nd			nd	nd
Chloromethane	0.05	nd			nd	nd
Vinyl chloride	0.02	nd	103%	94%	nd	nd
Chloroethane	0.05	nd			nd	nd
Trichlorofluoromethane	0.05	nd			nd	nd
1,1-Dichloroethene	0.05	nd	75%	68%	nd	nd
Methylene chloride	0.05	nd			nd	nd
trans-1,2-Dichloroethene	0.05	nd			nd	nd
1,1-Dichloroethane	0.05	nd			nd	nd
cis-1,2-Dichloroethene	0.05	nd			nd	nd
2,2-Dichloropropane	0.05	nd			nd	nd
Chloroform	0.05	nd	76%	66%	nd	nd
Bromochloromethane	0.05	nd			nd	nd
1,1,1-Trichloroethane	0.05	nd			nd	nd
1,2-Dichloroethane (EDC)	0.05	nd	82%	70%	nd	nd
1,1-Dichloropropene	0.05	nd			nd	nd
Carbon tetrachloride	0.05	nd			nd	nd
Trichloroethene (TCE)	0.02	nd	127%	112%	nd	nd
1,2-Dichloropropane	0.05	nd	125%	106%	nd	nd
Bromedichloromethane	0.05	nd			nd	nd
cis-1,3-Dichloropropene	0.05	nd			nd	nd
trans-1,3-Dichloropropene	0.05	nd			nd	nd
1,1,2-Trichloroethane	0.05	nd			nd	nd
1,3-Dichloropropane	0.05	nd			nd	nd
Dibromochloromethane	0.05	nd			nd	nd
Tetrachloroethene (PCE)	0.02	nd	117%	102%	<b>0.11</b>	nd
Chlorobenzene	0.05	nd	130%	115%	nd	nd
1,1,1,2-Tetrachloroethane	0.05	nd			nd	nd
1,1,2,2-Tetrachloroethane	0.05	nd			nd	nd
1,2,3-Trichloropropane	0.05	nd			nd	nd
2-Chlorotoluene	0.05	nd			nd	nd
4-Chlorotoluene	0.05	nd			nd	nd
1,3-Dichlorobenzene	0.05	nd			nd	nd
1,4-Dichlorobenzene	0.05	nd			nd	nd
1,2-Dichlorobenzene	0.05	nd			nd	nd
1,2-Dibromo-3-Chloropropane	0.05	nd			nd	nd
1,2,4-Trichlorobenzene	0.05	nd			nd	nd
Hexachloro-1,3-butadiene	0.05	nd			nd	nd
1,2,3-Trichlorobenzene	0.05	nd			nd	nd

##### Surrogate recoveries

Dibromofluoromethane	129%	124%	116%	121%	123%
Toluene-d8	97%	99%	97%	94%	94%
4-Bromofluorobenzene	101%	105%	107%	95%	100%

##### Data Qualifiers and Analytical Comments

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

Analyst: Jennifer A.



3155 NE Sunset Blvd, Suite A  
 Renton, WA 98056  
 Phone: 425.207.8345  
 Email: [lab@esnanalytical.com](mailto:lab@esnanalytical.com)  
 Web: [www.esnanalytical.com](http://www.esnanalytical.com)

# CHAIN-OF-CUSTODY RECORD

CLIENT: \_\_\_\_\_ DATE: 7/27/21 PAGE 1 OF 1  
 ADDRESS: \_\_\_\_\_ PROJECT NAME: \_\_\_\_\_  
 PHONE: \_\_\_\_\_ EMAIL: \_\_\_\_\_ LOCATION: \_\_\_\_\_  
 CLIENT PROJECT #: \_\_\_\_\_ PROJECT MANAGER: \_\_\_\_\_ COLLECTOR: \_\_\_\_\_ DATE OF COLLECTION: 7/27/21

Sample Number	Depth	Time	Sample Type	Container Type	TPH-HClD	TPH-DIESEL AND OIL	TPH-GASOLINE	BTEX #260	VOC #260	VOC #260CL	SEMIVOC #270	PAH's #270	PCB's #082	CL PESTICIDES #081	PCBA B Metals	MTCA 5 Metals	PB	ASBESTOS PLM	GR0 Suite 830-1	DR0 Suite 830-1	WO Suite 830-1	
1.																						
2.																						
3.																						
4.																						
5.																						
6.																						
7.																						
8.																						
9.																						
10.																						
11.																						
12.																						
13.																						
14.																						
15.																						
16.																						
17.																						
18.																						

REINQUISHED BY (Signature) \_\_\_\_\_ DATE/TIME 1:15  
 RECEIVED BY (Signature) \_\_\_\_\_ DATE/TIME 2:52  
 REINQUISHED BY (Signature) \_\_\_\_\_ DATE/TIME 1:15  
 RECEIVED BY (Signature) \_\_\_\_\_ DATE/TIME 1:15

LABORATORY NOTES:  
 TOTAL NUMBER OF CONTAINERS: 14  
 CHAIN OF CUSTODY SEALS Y/N/N/A: 14  
 SEALS INTACT? Y/N/N/A: 14  
 RECEIVED GOOD COND./COLD: 14

Turn Around Time: 24 HR 48 HR 5 DAY  
 Website: [www.esnnw.com](http://www.esnnw.com)  
 E-Mail: [lab@esnnw.com](mailto:lab@esnnw.com)

1210 Eastside Street SE, Suite 200  
 Olympia, Washington 98501  
 Phone: 360-459-4670  
 Fax: 360-459-3432

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 12, 2021

Eric Zuern, Project Manager  
Environmental Associates, Inc.  
1380 112th Ave. NE, 300  
Bellevue, WA 98004

Dear Mr Zuern:

Included are the results from the testing of material submitted on February 5, 2021 from the Highland Cleaners PO 29108-2, F&BI 102114 project. There are 7 pages included in this report.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl  
Project Manager

Enclosures  
EAI0212R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 5, 2021 by Friedman & Bruya, Inc. from the Environmental Associates Highland Cleaners PO 29108-2, F&BI 102114 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Environmental Associates</u>
102114 -01	VP-1
102114 -02	B4/VP-3
102114 -03	B3/VP-2

The tetrachloroethene concentration in samples B4/VP-3 and B3/VP-2 exceeded the calibration range of the instrument. The data were flagged accordingly.

All other quality control requirements were acceptable.

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-1	Client:	Environmental Associates
Date Received:	02/05/21	Project:	Highland Cleaners PO 29108-2
Date Collected:	02/05/21	Lab ID:	102114-01 1/5.3
Date Analyzed:	02/11/21	Data File:	021023.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	AS

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

Compounds:	Concentration	
	ug/m3	ppbv
Vinyl chloride	<1.4	<0.53
Chloroethane	<14	<5.3
1,1-Dichloroethene	<2.1	<0.53
trans-1,2-Dichloroethene	<2.1	<0.53
1,1-Dichloroethane	<2.1	<0.53
cis-1,2-Dichloroethene	<2.1	<0.53
1,2-Dichloroethane (EDC)	<0.21	<0.053
1,1,1-Trichloroethane	<2.9	<0.53
Trichloroethene	<0.57	<0.11
1,1,2-Trichloroethane	<0.29	<0.053
Tetrachloroethene	<36	<5.3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	B4/VP-3	Client:	Environmental Associates
Date Received:	02/05/21	Project:	Highland Cleaners PO 29108-2
Date Collected:	02/05/21	Lab ID:	102114-02 1/5.4
Date Analyzed:	02/11/21	Data File:	021024.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	AS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	82	70	130

Compounds:	Concentration	
	ug/m3	ppbv
Vinyl chloride	<1.4	<0.54
Chloroethane	<14	<5.4
1,1-Dichloroethene	<2.1	<0.54
trans-1,2-Dichloroethene	<2.1	<0.54
1,1-Dichloroethane	<2.2	<0.54
cis-1,2-Dichloroethene	<2.1	<0.54
1,2-Dichloroethane (EDC)	<0.22	<0.054
1,1,1-Trichloroethane	<2.9	<0.54
Trichloroethene	<0.58	<0.11
1,1,2-Trichloroethane	<0.29	<0.054
Tetrachloroethene	1,200 ve	170 ve

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	B3/VP-2	Client:	Environmental Associates
Date Received:	02/05/21	Project:	Highland Cleaners PO 29108-2
Date Collected:	02/05/21	Lab ID:	102114-03 1/42
Date Analyzed:	02/11/21	Data File:	021025.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	AS

	%	Lower	Upper
Surrogates:	Recovery:	Limit:	Limit:
4-Bromofluorobenzene	82	70	130

Compounds:	Concentration	
	ug/m3	ppbv
Vinyl chloride	<11	<4.2
Chloroethane	<110	<42
1,1-Dichloroethene	<17	<4.2
trans-1,2-Dichloroethene	<17	<4.2
1,1-Dichloroethane	<17	<4.2
cis-1,2-Dichloroethene	<17	<4.2
1,2-Dichloroethane (EDC)	<1.7	<0.42
1,1,1-Trichloroethane	<23	<4.2
Trichloroethene	640	120
1,1,2-Trichloroethane	<2.3	<0.42
Tetrachloroethene	150,000 ve	22,000 ve

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Environmental Associates
Date Received:	Not Applicable	Project:	Highland Cleaners PO 29108-2
Date Collected:	Not Applicable	Lab ID:	01-239 MB
Date Analyzed:	02/10/21	Data File:	021011.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	AS

	%	Lower	Upper
Surrogates:	Recovery:	Limit:	Limit:
4-Bromofluorobenzene	94	70	130

Compounds:	Concentration	
	ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
Chloroethane	<2.6	<1
1,1-Dichloroethene	<0.4	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
1,1-Dichloroethane	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01
1,1,1-Trichloroethane	<0.55	<0.1
Trichloroethene	<0.11	<0.02
1,1,2-Trichloroethane	<0.055	<0.01
Tetrachloroethene	<6.8	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/12/21

Date Received: 02/05/21

Project: Highland Cleaners PO 29108-2, F&BI 102114

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

Laboratory Code: 102090-03 1/5.4 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Vinyl chloride	ug/m3	<1.4	<1.4	nm
Chloroethane	ug/m3	<14	<14	nm
1,1-Dichloroethene	ug/m3	<2.1	<2.1	nm
trans-1,2-Dichloroethene	ug/m3	<2.1	<2.1	nm
1,1-Dichloroethane	ug/m3	<2.2	<2.2	nm
cis-1,2-Dichloroethene	ug/m3	<2.1	<2.1	nm
1,2-Dichloroethane (EDC)	ug/m3	<0.22	<0.22	nm
1,1,1-Trichloroethane	ug/m3	<2.9	<2.9	nm
Trichloroethene	ug/m3	<0.58	<0.58	nm
1,1,2-Trichloroethane	ug/m3	<0.29	<0.29	nm
Tetrachloroethene	ug/m3	<37	<37	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Acceptance Criteria
			Recovery LCS	
Vinyl chloride	ug/m3	35	103	70-130
Chloroethane	ug/m3	36	104	70-130
1,1-Dichloroethene	ug/m3	54	103	70-130
trans-1,2-Dichloroethene	ug/m3	54	100	70-130
1,1-Dichloroethane	ug/m3	55	100	70-130
cis-1,2-Dichloroethene	ug/m3	54	101	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	102	70-130
1,1,1-Trichloroethane	ug/m3	74	104	70-130
Trichloroethene	ug/m3	73	100	70-130
1,1,2-Trichloroethane	ug/m3	74	102	70-130
Tetrachloroethene	ug/m3	92	99	70-130

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.
- c - The presence of the analyte may be due to carryover from previous sample injections.
- cf - The sample was centrifuged prior to analysis.
- d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.
- dv - Insufficient sample volume was available to achieve normal reporting limits.
- f - The sample was laboratory filtered prior to analysis.
- fb - The analyte was detected in the method blank.
- fc - The analyte is a common laboratory and field contaminant.
- hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.
- hs - Headspace was present in the container used for analysis.
- ht - The analysis was performed outside the method or client-specified holding time requirement.
- ip - Recovery fell outside of control limits due to sample matrix effects.
- j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.
- J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.
- jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.
- js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- lc - The presence of the analyte is likely due to laboratory contamination.
- L - The reported concentration was generated from a library search.
- nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.
- pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.
- ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.
- vo - The value reported fell outside the control limits established for this analyte.
- x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

SAMPLE CHAIN OF CUSTODY

02-05-21

102114

Report To Eric Zorn

Company Environmental Associates Inc.

Address 1380 112th Ave NE #3000

City, State, ZIP Bellevue WA 98004

Phone 425-455-9025 Email jk@environmentalassociatesinc.com

Page # 1 of 1

TURNAROUND TIME

Standard

CRUSH / W & L TAT

Rush charges authorized by:

SAMPLE DISPOSAL

Default: Clean after 3 days

Archive (Fee may apply)

SAMPLERS (signature) Eric Zorn

PO # 29108-2

PROJECT NAME & ADDRESS Highland (Leases)

NOTES: Invoice: Washington Restaurant Property Jack Standard c/o Jack Standard 1920 5th Ave, 17th Floor Seattle, WA 98101

INVOICE TO I will send billings party to you.

SAMPLE INFORMATION

Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. (uHg)	Field Initial Time	Final Vac. (uHg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium	Notes
<del>VP-1</del>	01	4176	224	IA / SG	2-5-21	30	8:54	4	9:01			X			
B4/VP-3	02	8531	220	IA / SG	1	30	9:04	4	9:12			X			
B3/VP-2	03	4175	225	IA / SG	30	9:06	4	9:13			X				
				IA / SG											
				IA / SG											
				IA / SG											
				IA / SG											
				IA / SG											
				IA / SG											

ANALYSIS REQUESTED

Samples received at 18 °C

SIGNATURE

Relinquished by:

Received by:

Relinquished by: Elizabeth Webber-Brays

Received by:

PRINT NAME

Eric Zorn

Elizabeth Webber-Brays

COMPANY

EAI

EIB

DATE

2-5-21

2/5/21

TIME

4:05

1605

Friedman & Bruya, Inc.  
3012 16th Avenue West  
Seattle, WA 98119-2039  
Ph. (206) 285-8232  
Fax (206) 283-5044