Associated Environmental Group, LLC

September 24, 2018

Ms. Tahni Madden
1149 Market Street, MS-10-06
Tacoma, Washington 98402-3515

**RE: TECHNICAL MEMORANDUM – Vapor Assessment**
***Franciscan Medical Clinic***
4550 Fauntleroy Way SW
Seattle, Washington 98126-3471
AEG Project No. 18-172

Dear Ms. Madden:

Associated Environmental Group, LLC (AEG) has prepared this Technical Memorandum for the purpose of presenting a summary of the vapor assessment activities performed at the Franciscan Medical Clinic, located at the above-referenced address in Seattle, Washington (Site). Indoor air sampling was performed by NOW Environmental Services (NOW), and AEG performed soil gas and sub-slab vapor sampling at the Site. This sampling effort was performed to determine if vapors noted by clinic staff warranted mitigation measures, and whether they were potentially sourced from the adjacent Shell station to the west (currently undergoing cleanup activities). Figure 1, *Site Vicinity Map*, presents the general vicinity of the Site. The Site's current layout and boring locations are illustrated in Figure 2, *Site Map*, and Figure 3, *Basement Layout*.

**Indoor Air Sampling – NOW Environmental, May 2018**

On May 3, 2018, NOW collected two indoor air samples from within the Storage Room and Exam Room No. 3. According to NOW's report, samples were collected in the pressurized mode, which air is drawn through the inlet and sampling system with a pump. The air is pumped into an initially evacuated 6-liter SUMMA® passivated (or equivalent) stainless-steel canister by the sample, which regulates the rate and duration of sampling. At the end of the sampling the period, the canisters were pressurized to about 1 atmospheres absolute. Sampling duration for this assessment was for eight hours for 64 various compounds.

The samples were analyzed using gas chromatography/mass spectrometry (GC/MS) under an established quality assurance/quality control (QA/QC) program. Laboratory analytical procedures have been developed based on the concepts contain in both TO-15 and 8260B. The TO-15 method is an EPA-recognized sampling concept for volatile organic compound (VOC) sampling and speciation. This method of sampling was chosen because a relatively large sample volume can be collected, and multiple dilutions and re-analyses can occur to ensure identification and



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quantification of target VOCs within the working range of the method. The quantitation limits were set at 5 parts per billion or less. Samples were collected for an estimated 8-hour period beginning 11:19 am and completed 7:20 pm.

Analytical results of the samples indicated the presence of Gasoline-Range Organics (GRO) and multiple VOCs at concentrations exceeding their respective Model Toxics Control Act (MTCA) Method B indoor air cleanup levels. Detected constituents with corresponding screening levels are summarized in Table 1, *Summary of Indoor Air Analytical Results*.

On May 23, 2018, NOW returned to the Site and collected two indoor air samples from within Exam Room No. 3 and the Back Office Pod. This sampling event was a follow-up to the previous event, and since that time, the HVAC system in the building was left running 24 hours a day versus turning it off at night. The samples were again collected in 6-liter, 8-hour regulated Summa canisters, and analyzed for the presence of GRO and VOCs via Method TO-15. Analytical results of the samples indicated the presence of GRO and multiple VOCs at concentrations exceeding their respective MTCA Method B indoor air cleanup levels. Detected constituents with corresponding screening levels are summarized in Table 1, *Summary of Indoor Air Analytical Results*.

NOW's indoor air sampling locations are illustrated on Figure 4, *Indoor Air Sampling Locations*.

**Soil Gas Borings and Sub-Slab Vapor Sampling – July 26, 2018**

On July 26, 2018, AEG advanced five soil gas borings (SGV-1 through SGV-5) west of the clinic structure to approximately 13 feet below ground surface (bgs), and eight sub-slab vapor points (SS1 through SS8) within the western side of the basement of the clinic structure.

For the soil gas borings, a direct-push post-run tubing (PRT) expendable tip was mounted on the specialized rod and probed directly to the desired depth of approximately 13 feet bgs, which was estimated to be the same elevation as the bottom of the concrete slab-on-grade sub-slab sampling within the building basement. Once the rod was pushed to the desired depth, the rod was slightly retracted to open the base of the PRT rod to soil gas vapors. Once it was retracted, an o-ring PRT coupler was threaded with nylon tubing to the specialized tip to assure the vapors being collected were not coming from the upper atmosphere. A hydrated bentonite seal was created between the upper end of the casing and the nylon tube at the surface to make a secondary seal as well as where the rod penetrated the ground. One volume of tubing air was removed using a peristaltic pump and Masterflex tubing at the surface in the pump head. At the same time, the casing was water bathed to look for obvious visual leaks. No water was observed to move into the casing area after the Summa canister was attached. A 1-liter (L) Summa canister with a 10-minute regulator was attached after removing the Masterflex tubing and turned on until the vacuum reached approximately 4 inches of mercury left in the canister for quality assurance for transport to the laboratory. After the desired vacuum was reached, the Summa was detached from the tubing and


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sealed with a brass endcap. The borehole was decommissioned with bentonite to approximately 3 inches from the surface where concrete was mixed and filled to finish grade.

For sub-slab vapor samples, the concrete slab was drilled out to subgrade level to allow for sampling just below the slab (typically about 1 to 2 feet bgs). A tube was placed in the hole and sealed using a bentonite seal to the concrete. A water bath was used to check for leaks in the bentonite seal. Once no leaks were found, a 1-L Summa canister with a 10-minute regulator was opened after the tube was purged for one volume of air.

Groundwater was not encountered in any of the borings. The boring/sample locations are illustrated on Figure 3, *Basement Layout*.

Soil gas and sub-slab vapor samples were analyzed for the presence of air-phase hydrocarbons (APH) and VOCs via Method TO-15. Analytical results of the vapor samples indicated the presence of APHs and multiple VOCs at concentrations exceeding their respective MTCA Method B sub-slab screening levels. Detected constituents with corresponding screening levels are summarized in Table 2, *Summary of Soil Vapor Analytical Results*.

## CONCLUSIONS AND RECOMMENDATIONS

Based on the vapor assessment work performed to date at the Site, conclusions and recommendations include the following:

- GRO, APH, and gasoline-related VOCs are present in indoor air, sub-slab vapor, and soil gas at concentrations exceeding their respective MTCA Method B indoor air cleanup levels and sub-slab screening levels. The source of these constituents is likely from the adjacent Shell station where one or more releases from underground storage tank (UST) systems have occurred to date, and free product is present in the groundwater.
- Vapors are migrating/intruding by way of differential subsurface pressures when HVAC systems are functioning at their normal duty loads within the Franciscan Medial Clinic.
- These vapors are impacting the Clinic and should be mitigated.
- AEG recommends installation of a Soil Vapor Extraction system with a manifolded vapor point depressurization system within the western access road that will intercept the vapors prior to reaching the building basement wall or sub-slab areas currently impacted.

AEG recommends submittal of this memorandum to the Washington State Department of Ecology (Ecology) for review, and conducting a follow-up meeting with Ecology to discuss the cleanup status of the adjacent Shell station and Ecology's interpretation of the data contained herein.


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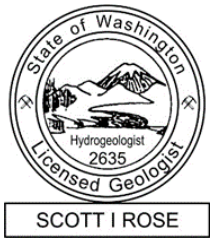
If you have comments or questions please contact our office at your convenience at 360.352.9835.

Sincerely,

**Associated Environmental Group, LLC**

Scott Rose, L.H.G.
Senior Hydrogeologist




Shawn Lombardini L.G.
Project Geologist


Attachments: Figure 1 – *Site Vicinity Map*
Figure 2 – *Site Map*
Figure 3 – *Basement Layout*
Figure 4 – *Indoor Air Sample Locations (Basement Level)*

Table 1 – *Summary of Indoor Air Analytical Results*
Table 2 – *Summary of Soil Vapor Analytical Results*

Appendix A – *Site Photographs*
Appendix B – *Laboratory Results*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# FIGURES

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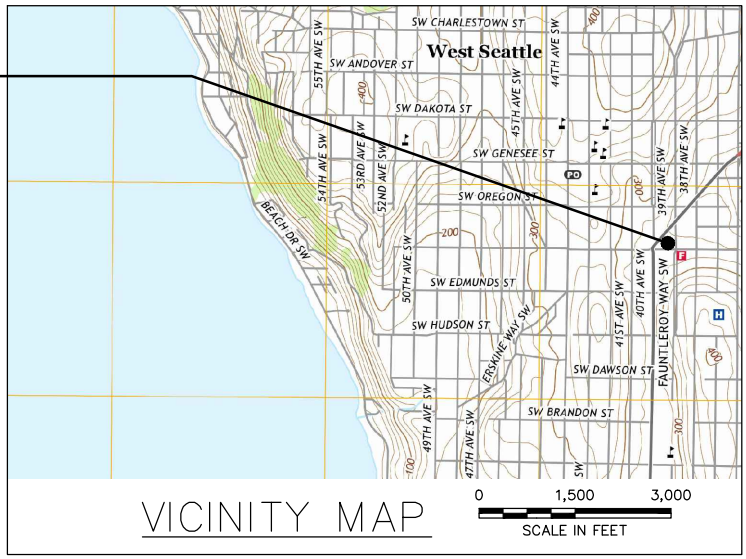
| FILENAME | DRAWN BY | | CHECKED BY | | APPROVED BY | | PROJECT NUMBER |
|---|---|---|---|---|---|---|---|
| 18-172_18Q3.DWG | ICD | 8/8/2018 | SL | 8/8/2018 | SL | 8/8/2018 | 18-172 |

N
W E
S

PROJECT LOCATION




VICINITY MAP

## NOTES

1. THE LOCATIONS OF ALL FEATURES SHOWN ARE APPROXIMATE
2. THIS DRAWING IS FOR INFORMATION PURPOSES. IT IS INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED IN AN ATTACHED DOCUMENT.

## REFERENCE

DRAWING CREATED FROM AERIAL PHOTOGRAPH AND NOTES PROVIDED BY AEG, LLC.
VICINITY IMAGE SOURCE: U.S. GEOLOGICAL SURVEY–2017, 7.5 MINUTE QUADRANGLE MAP
DUWAMISH HEAD, WASHINGTON

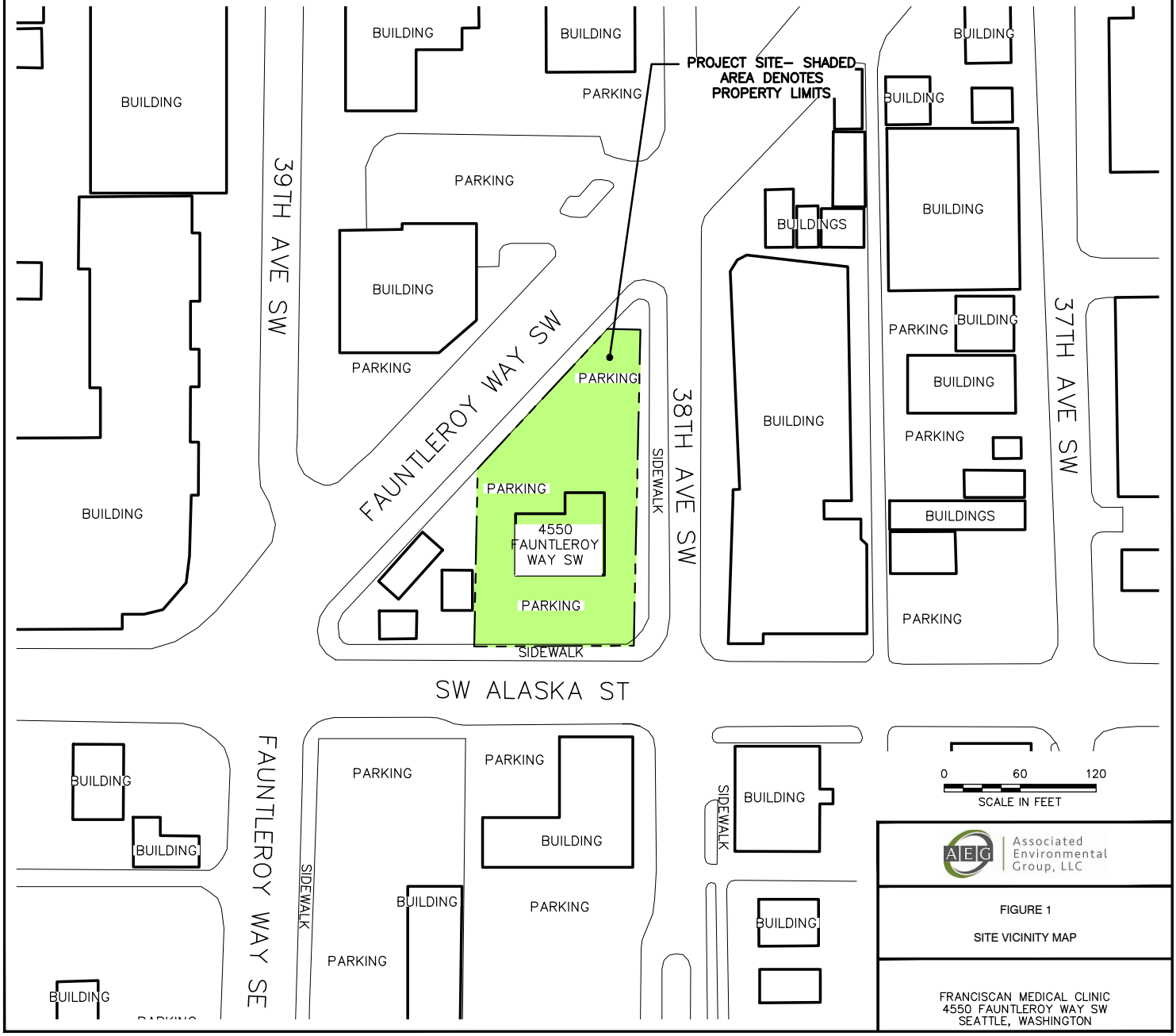



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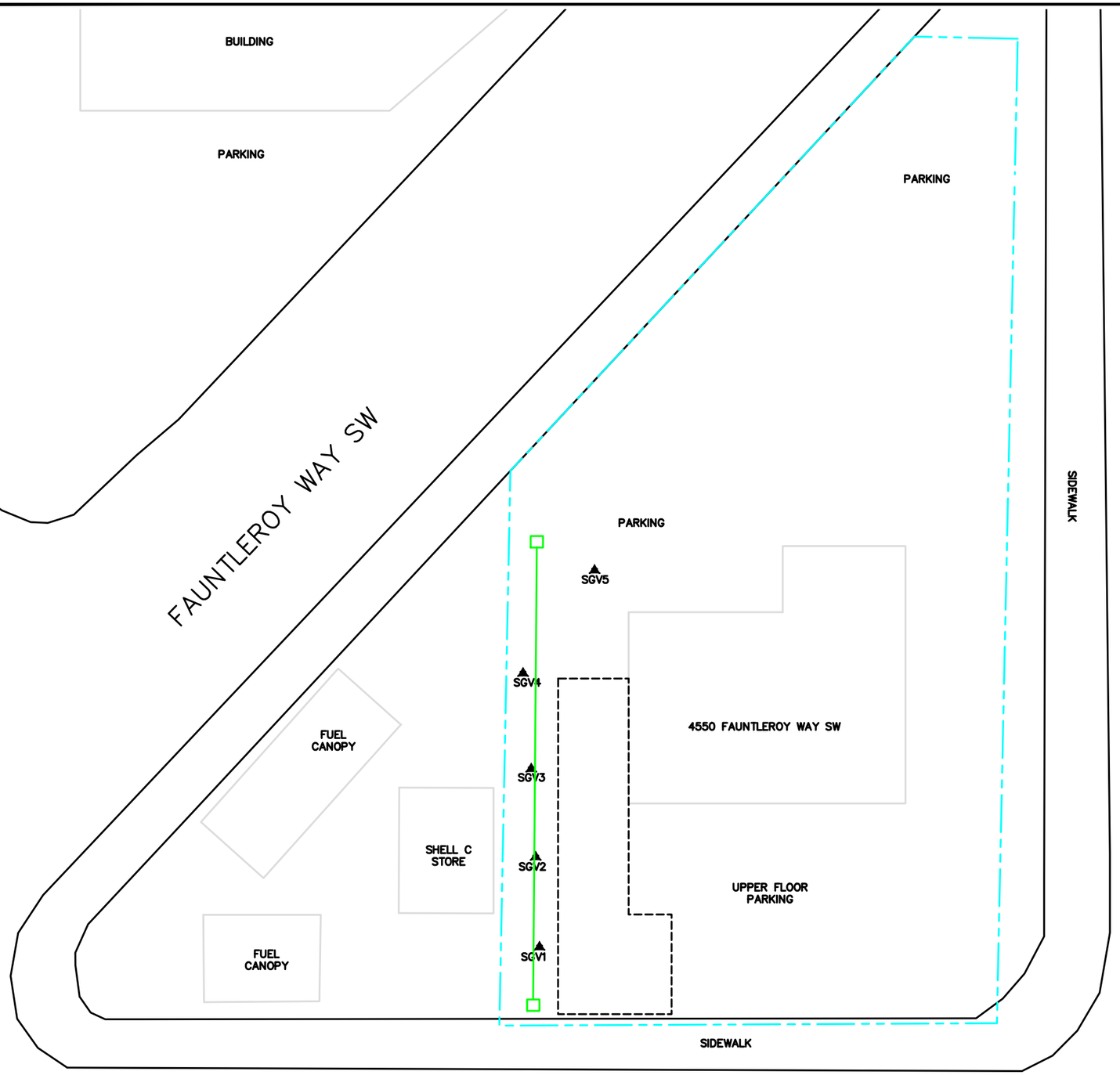
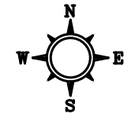
FIGURE 1

SITE VICINITY MAP

FRANCISCAN MEDICAL CLINIC
4550 FAUNTLEROY WAY SW
SEATTLE, WASHINGTON

| FILENAME | DRAWN BY | CHECKED BY | APPROVED BY | PROJECT NUMBER |
|---|---|---|---|---|
| 18-172_1803.DWG | ICD 9/24/2018 | SL 9/24/2018 | SL 9/24/2018 | 18-172 |




LEGEND

- PROPERTY LINE
- SAMPLED PART OF THE BASEMENT
- SUBSLAB VAPOR SAMPLE LOCATIONS
- APPROXIMATE SOIL VAPOR BORING
- STORM WATER UTILITY

NOTES

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2. THIS DRAWING IS FOR INFORMATION PURPOSES. IT INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED IN AN ATTACHED DOCUMENT.

REFERENCE

DRAWING CREATED FROM AERIAL PHOTOGRAPH AND NOTES PROVIDED BY AEG, LLC.

0 15 30
SCALE IN FEET

Associated Environmental Group, LLC

FIGURE 2

SITE MAP

FRANCISCAN MEDICAL CLINIC
4550 FAUNTLEROY WAY SW
SEATTLE, WASHINGTON

| FILENAME | DRAWN BY | CHECKED BY | APPROVED BY | PROJECT NUMBER |
|---|---|---|---|---|
| 18-172_1803.DWG | ICD 9/05/2018 | SL 9/05/2018 | SL 9/05/2018 | 18-172 |

FUEL CANOPY

SHELL C STORE

SGV5

SGV4

SGV3

SGV2

SGV1

BREAKROOM

SS1

SUPPLY

ELECTRICAL ROOM

(BASEMENT)

SS2

EXAM 017

EXAM 016

SS7

EXAM 015

SS8

OFFICE 014

SS5

EXAM 012

SS3

EXAM 010

SS4

EXAM 013

EXAM 011

SCHEDULER 018

SS6

4550 FAUNTLEROY WAY SW

UPPER FLOOR PARKING

N

W E

S

LEGEND

PROPERTY LINE

SUBSLAB VAPOR SAMPLE LOCATIONS

APPROXIMATE SOIL VAPOR BORING

NOTES

1. THE LOCATIONS OF ALL FEATURES SHOWN ARE APPROXIMATE
2. THIS DRAWING IS FOR INFORMATION PURPOSES. IT INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED IN AN ATTACHED DOCUMENT.

REFERENCE

DRAWING CREATED FROM AERIAL PHOTOGRAPH AND NOTES PROVIDED BY AEG, LLC.

0 5 10

SCALE IN FEET

AEG Associated Environmental Group, LLC

FIGURE 3

BASEMENT LAYOUT

FRANCISCAN MEDICAL CLINIC
4550 FAUNTLEROY WAY SW
SEATTLE, WASHINGTON

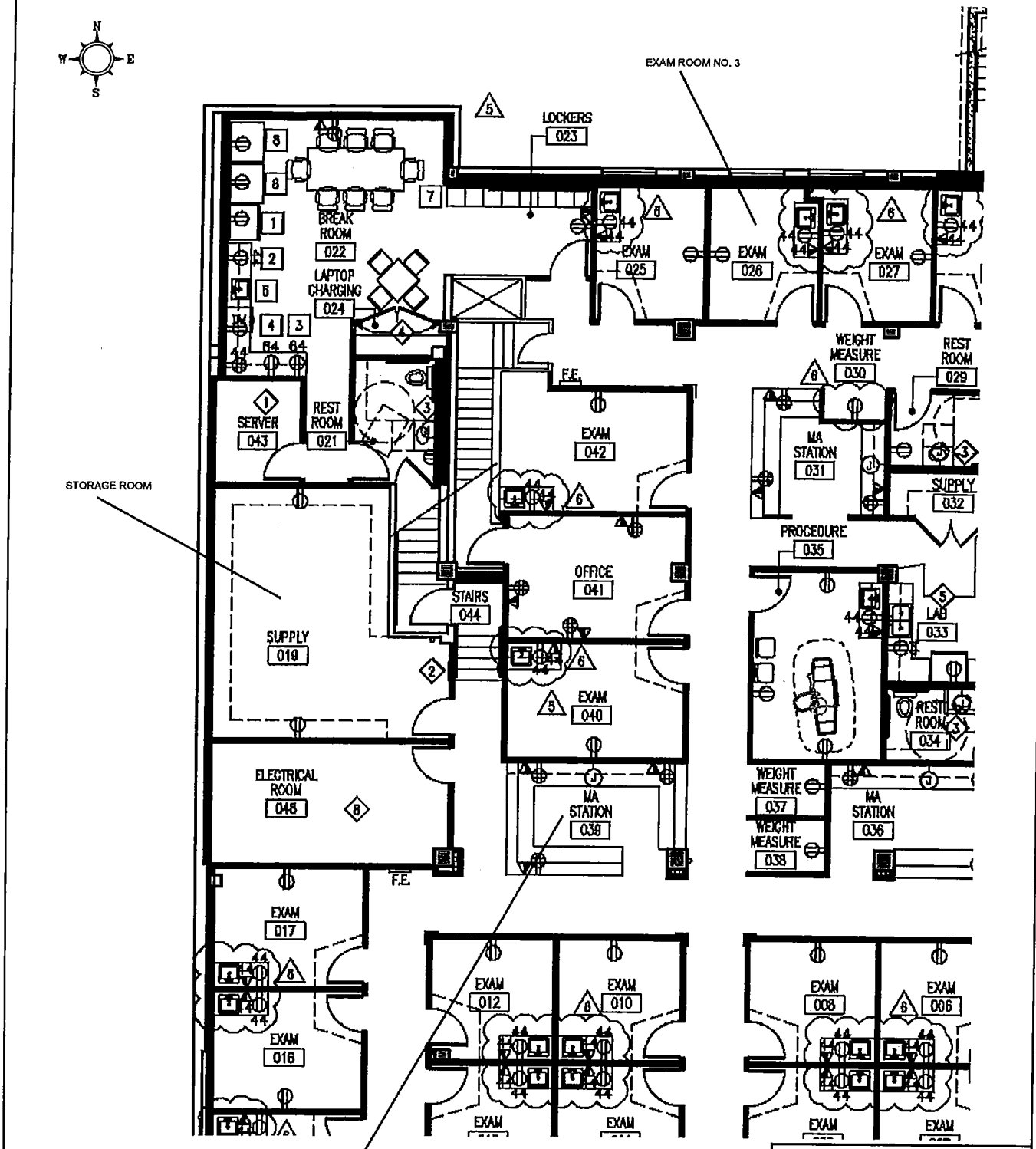


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FIGURE 4
INDOOR AIR SAMPLE LOCATIONS
(BASEMENT LEVEL)

FRANCISCAN MEDICAL CLINIC
4550 FAUNTLEROY WAY SW
SEATTLE, WASHINGTON

# TABLES

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**Table 1**

***Summary of Indoor Air Analytical Results***

Franciscan Medical Clinic, West Seattle

| Sample Number | | Storage Room | Exam Room No. 3 | Back Office Pod | Exam Room No. 3 | Method B Indoor Air Cleanup Level[1] | OSHA PEL (8-Hour TWA) | ACGIH TLVs (8-Hour TWA) |
|---|---|---|---|---|---|---|---|---|
| Date Collected | | 5/3/2018 | 5/3/2018 | 5/23/2018 | 5/23/2018 | | | |
| **Gasoline-Related Constituents** | | | | | | | | |
| Gasoline-Range Organics | | **32,400** | **26,300** | **1,020** | **1,100** | 140 | NL | NL |
| Volatile Organic Compounds | Hexane | **466** | **223** | **11.0** | **10.7** | 320 | 500,000 | 50,000 |
| | Benzene | **0.974** | **0.902** | **0.516** | **0.628** | 0.321* | 10,000 | 500 |
| | Toluene | **19.8** | **9.32** | **1.59** | **3.14** | 2,290 | 200,000 | 20,000 |
| | Ethylbenzene | **8.98** | **4.24** | <1.74 | <1.74 | 457 | 100,000 | 20,000 |
| | m,p-Xylene | **36.6** | **15.1** | <3.47 | <3.47 | 45.7 | 100,000 | 100,000 |
| | o,p-Xylene | **16.5** | **4.86** | <1.74 | <1.74 | 45.7 | 100,000 | 100,000 |
| | Naphthalene | <0.524 | <0.524 | <0.524 | <0.524 | 0.0735* | 10,000 | 10,000 |

Notes:

All values presented in micrograms per cubic meter ($\mu g/m^3$)

< = Not detected above laboratory reporting limits

* Cancer screening level (all other constituents listed do not have cancer values)

[1]An exceedance of Ecology's Method B cleanup level for indoor air indicates that, for the Site to receive a determination of No Further Action, mitigation is required via either removal of the source or redirection of vapors from the breathing zone.

**Red Bold** indicates the detected concentration exceeds Ecology MTCA Method B indoor air cleanup levels

**Bold** indicates the detected concentration is below Ecology MTCA Method B indoor air cleanup levels

OSHA PEL = U.S. Department of Labor, Occupational Safety and Health Administration Permissable Exposure Limit. Federal regulatory standard.

TWA = Time-Weighted Average.

NL = Not Listed; no values have been established for gasoline mixtures, just the individual components (such as benzene, hexane, etc.).

ACGIH TLVs = American Conference of Governmental Industrial Hygienists Threshold Limit Values. ACGIH® is a private, not-for-profit, nongovernmental corporation. It is not a standards setting body. ACGIH® is a scientific association that develops recommendations or guidelines to assist in the control of occupational health hazards. TLVs® are health-based values and are not intended to be used as legal standards. Threshold Limit Values (TLVs®) refer to airborne concentrations of chemical substances and represent conditions under which it is believed that nearly all workers may be repeatedly exposed, day after day, over a working lifetime, without adverse effects.

**Table 2**
***Summary of Soil Vapor Analytical Results***
Franciscan Medical Clinic, West Seattle

| Sample Number | | SGV-1 | SGV-2 | SGV-3 | SGV-4 | SGV-5 | SS-1 | SS-2 | SS-3 | SS-4 | SS-5 | SS-6 | SS-7 | SS-8 | Method B Sub-Slab Screening Level[1] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Collected | | 7/26/2018 | 7/26/2018 | 7/26/2018 | 7/26/2018 | 7/26/2018 | 7/26/2018 | 7/26/2018 | 7/26/2018 | 7/26/2018 | 7/26/2018 | 7/26/2018 | 7/26/2018 | 7/26/2018 | |
| **Gasoline-Related Constituents** | | | | | | | | | | | | | | | |
| APH - Air Phase Hydrocarbons | EC5-8 Aliphatics | **1,300** | **3,800 ve** | **54,000 ve** | **1,600** | **210,000 ve** | **21,000** | **19,000** | **1,300** | **1,600** | **1,800** | **2,500** | **3,500 ve** | **590** | 90,000 |
| | EC 9-12 Aliphatics | **180** | **16,000 ve** | **45,000 ve** | **780** | **220,000 ve** | **67,000 ve** | **34,000 ve** | **1,600** | **1,300** | **1,500** | **2,200** | **3,600 ve** | **940** | 4,700 |
| | EC 9-10 Aromatics | <82 | **910** | <620 | <82 | <1,900 | <1,200 | <620 | <82 | <82 | <82 | <82 | **210** | <82 | 6,000 |
| Volatile Organic Compounds | Hexane | **27** | **67** | **2,100** | **86** | **730** | <180 | **88** | **44** | **71** | **39** | **31** | **28** | <12 | 10,700 |
| | Benzene | **6.5** | **10** | **38** | **7.9** | **27** | <16 | <8 | **6.9** | **12** | **4.9** | **6.5** | **3.6** | <1.1 | 10.7* |
| | Toluene | <0.04 | **23** | **37** | **15** | **36** | <19 | <9.4 | **11** | **17** | **24** | **14** | **9.5** | **4.1** | 76,200 |
| | Ethylbenzene | **2.0** | **9.5** | **32** | **4.5** | <33 | <22 | <11 | **2** | **2.2** | **2.4** | **3.5** | **7.4** | **1.6** | 15,200 |
| | m,p-Xylene | **5.5** | **26** | **42** | **9.8** | <65 | <43 | <22 | **8.6** | **10** | **9.7** | **11** | **20** | **8.3** | 1,520 |
| | o,p-Xylene | **2.4** | **20** | **26** | **5.3** | <33 | <22 | **12** | **3.6** | **2.9** | **3.1** | **3.9** | **14** | **3.8** | 1,520 |
| | Naphthalene | **1.90** | **4.0 fb** | **5.0 fb** | **4.5 fb** | **9.4 fb** | **6.0 fb** | **3.8 fb** | **1.3 fb** | **0.90 fb** | **0.97 fb** | **1.0 fb** | **1.4 fb** | **0.64 fb** | 2.45* |
| **Other Detected Volatile Organic Compounds** | | | | | | | | | | | | | | | |
| Selected Volatile Organic Compounds | Dichlorodifluoromethane | **2.4** | **2.6** | <12 | **2.7** | <37 | <25 | <12 | **2.5** | **2.5** | **2.5** | **2.4** | **2.4** | **2.4** | 1,520 |
| | Chloromethane | **0.7** | **2.5** | <5.2 | **1.8** | <15 | <10 | <5.2 | <0.68 | <0.68 | **0.9** | **1** | <0.68 | <0.68 | 1,370 |
| | Acetaldehyde | <30 | <30 | <220 | **1,000 ve** | <680 | <450 | <230 | <30 | <30 | <30 | <30 | <30 | <30 | 37.9* |
| | Vinyl Chloride | <0.84 | <0.84 | <6.4 | <0.84 | <19 | <13 | <6.4 | <0.84 | **12** | <0.84 | **11** | <0.84 | <0.84 | 9.33* |
| | 1,3-Butadiene | **6.8** | **29** | **80** | **8.9** | **60** | <1.1 | <0.55 | **2.7** | **4** | **2** | **4.3** | **1.1** | <0.0073 | 2.78* |
| | Acetonitrile | <5.5 | <5.5 | <42 | **31** | <130 | <84 | <4 | <5.5 | <5.5 | <5.5 | <5.5 | <5.5 | <5.5 | 914 |
| | Acrolein | **5.4** | **4.7** | <23 | **19** | <69 | <46 | <23 | <3 | <3 | <3 | <3 | **5.8** | <3 | 0.305 |
| | Carbon Disulfide | <21 | **32** | <160 | <21 | <470 | <310 | <160 | <21 | <21 | <21 | <21 | <21 | <21 | 10,700 |
| | Chloroform | **0.53** | **1.4** | <1.2 | **2.7** | <3.7 | <2.4 | <1.2 | **12** | **1.1** | **0.71** | **0.29** | **0.24** | **4.7** | 3.62* |
| | 1,2-Dichloroethane | <0.13 | **0.15** | <1.0 | <0.13 | <3 | <2 | <1 | <0.13 | <0.13 | **0.16** | **0.39** | <0.13 | <0.13 | 3.21* |
| | 1,1,2-Trichloroethane | <0.18 | <0.18 | <1.4 | <0.18 | <4.1 | <2.7 | **3.4** | <0.18 | <0.18 | <0.18 | <0.18 | <0.18 | <0.18 | 3.05 |
| | Trichloroethylene | **2.8** | **6.1** | **17** | **5.2** | <20 | <13 | **12 fb** | **5.5** | **5.1** | **39** | **5.4** | **2.0** | **3.5** | 12.3* |
| | Tetrachloroethylene | **8.1** | **35** | <17 | **29** | <51 | <34 | <17 | **16** | **15** | **5.0** | **2.6** | <2.2 | <2.2 | 321* |
| | Chlorobenzene | <1.5 | <1.5 | <12 | <1.5 | <35 | <23 | <12 | <1.5 | <1.5 | <1.5 | <1.5 | **6.1** | <1.5 | 762 |
| | 1,1,2,2-Tetrachloroethane | <0.45 | <0.45 | <3.4 | <0.45 | <10 | <6.9 | <3.4 | <0.45 | <0.45 | <0.45 | <0.45 | **1.2** | <0.45 | 1.44* |
| | Styrene | <2.8 | <2.8 | <21 | <2.8 | <64 | <43 | <21 | <2.8 | <2.8 | <2.8 | **3.1** | <2.8 | **6.4** | 15,200 |
| | 1,4-Dichlorobenzene | <0.79 | <0.79 | <6 | <0.79 | <18 | <12 | <6 | <0.79 | <0.79 | <0.79 | <0.79 | **3.3** | <0.79 | 7.58* |

Notes:
All values presented in micrograms per cubic meter ($\mu g/m^3$)
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.
< = Not detected above laboratory reporting limits
[1]An exceedance of Ecology's Method B Screening Levels for sub-slab vapor indicate that particular contaminant is present at a concentration that has the potential to migrate into indoor air.
* Cancer screening level (all other constituents listed do not have cancer values)
**Red Bold** indicates the detected concentration exceeds Ecology MTCA Method B sub-slab screening levels
**Bold** indicates the detected concentration is below Ecology MTCA Method B sub-slab screening levels

# APPENDIX A

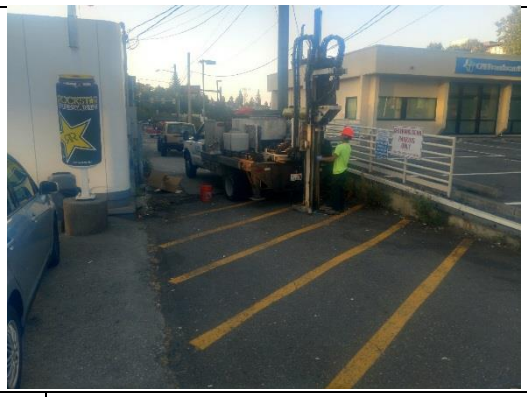
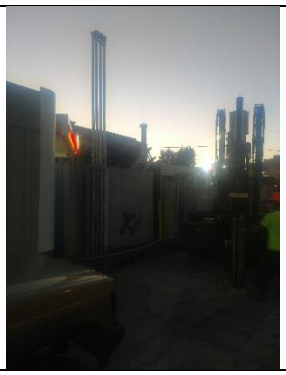
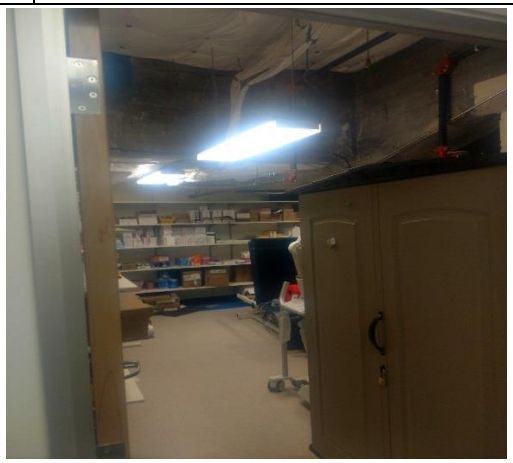
Site Photographs

605 11th Ave. SE, Suite 201 • Olympia, WA • 98501
Phone: 360-352-9835 • Fax: 360-352-8164 • Email: admin@aegwa.com

Associated Environmental Group, LLC

# SITE PHOTOGRAPHIC RECORD

**Project No.: 18-172** **Project Name: Franciscan Medical Clinic**

| | | | |
|---|---|---|---|
|  | |  | |
| Photo #1: | SGV-2 boring location looking Northeast. | Photo #2: | Purging soil gas vapors, typical. |
|  | |  | |
| Photo #2: | SGV-3 boring location looking Southwest. | Photo #4: | SGV-4 with respect to UST vent stacks. |
|  | |  | |
| Photo #5: | SGV-5 Looking Northwest. | Photo #6: | Storage room in question looking westerly towards Shell station. Far wall below subgrade. |

605 – 11th Avenue SE, Suite 201 • Olympia, WA • 98501
Phone: 360-352-9835 • Fax: 360-352-8164 • Email: admin@aegwa.com

# APPENDIX B

Laboratory Results

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

**Orion Environmental Services**
Nelson Miles
34004 9th Ave S
Federal Way, WA 98003

**RE: 4550 Fauntleroy Health Clinic**
**Work Order Number: 1805051**

May 04, 2018

**Attention Nelson Miles:**

Fremont Analytical, Inc. received 2 sample(s) on 5/4/2018 for the analyses presented in the following report.

***Volatile Organic Compounds by EPA Method TO-15***

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Fremont Analytical

**Date:** *05/04/2018*

**CLIENT:** Orion Environmental Services
**Project:** 4550 Fauntleroy Health Clinic
**Work Order:** 1805051

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Date/Time Collected | Date/Time Received |
|---|---|---|---|
| 1805051-001 | Exam Room #3 | 05/03/2018 11:19 AM | 05/04/2018 8:00 AM |
| 1805051-002 | Storage Room | 05/03/2018 11:20 AM | 05/04/2018 8:00 AM |

Fremont Analytical

# Case Narrative

WO#: **1805051**
Date: **5/4/2018**

**CLIENT:** Orion Environmental Services
**Project:** 4550 Fauntleroy Health Clinic

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Air samples are reported in ppbv and ug/m3.

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Standard temperature and pressure assumes 24.45 = (25C and 1 atm).

Note: Gasoline reported in ug/m3 should be considered an estimate. The estimated molecular weight of gasoline used in the equation = 100

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Fremont Analytical

**Client:** Orion Environmental Services
**WorkOrder:** 1805051
**Project:** 4550 Fauntleroy Health Clinic

**Client Sample ID:** Exam Room #3
**Lab ID:** 1805051-001A
**Sample Type:** Summa Canister

**Date Sampled:** 5/3/2018
**Date Received** 5/4/2018

Volatile Organic Compounds by EPA Method TO-15

| Analyte | Concentration (ppbv) | Concentration (ug/m³) | Reporting Limit (ppbv) | Reporting Limit (ug/m³) | Qual | Method | Date/Analyst | |
|---|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | <0.400 | <2.18 | 0.400 | 2.18 | | EPA-TO-15 | 05/04/2018 | BT |
| 1,1,2,2-Tetrachloroethane | <0.300 | <2.06 | 0.300 | 2.06 | I | EPA-TO-15 | 05/04/2018 | BT |
| CFC-113 | <0.400 | <3.07 | 0.400 | 3.07 | I | EPA-TO-15 | 05/04/2018 | BT |
| 1,1,2-Trichloroethane (TCA) | <0.500 | <2.73 | 0.500 | 2.73 | I | EPA-TO-15 | 05/04/2018 | BT |
| 1,1-Dichloroethane | <0.200 | <0.810 | 0.200 | 0.810 | | EPA-TO-15 | 05/04/2018 | BT |
| 1,1-Dichloroethene (DCE) | <0.400 | <1.59 | 0.400 | 1.59 | | EPA-TO-15 | 05/04/2018 | BT |
| 1,2,4-Trichlorobenzene | <0.300 | <2.23 | 0.300 | 2.23 | I | EPA-TO-15 | 05/04/2018 | BT |
| 1,2,4-Trimethylbenzene | 0.876 | 4.31 | 0.300 | 1.47 | I | EPA-TO-15 | 05/04/2018 | BT |
| 1,2-Dibromoethane (EDB) | <0.200 | <1.54 | 0.200 | 1.54 | I | EPA-TO-15 | 05/04/2018 | BT |
| 1,2-Dichlorobenzene | <0.400 | <2.40 | 0.400 | 2.40 | I | EPA-TO-15 | 05/04/2018 | BT |
| 1,2-Dichloroethane | <0.200 | <0.809 | 0.200 | 0.809 | | EPA-TO-15 | 05/04/2018 | BT |
| 1,2-Dichloropropane | <0.500 | <2.31 | 0.500 | 2.31 | I | EPA-TO-15 | 05/04/2018 | BT |
| 1,3,5-Trimethylbenzene | 2.24 | 11.0 | 0.300 | 1.47 | I | EPA-TO-15 | 05/04/2018 | BT |
| 1,3-Butadiene | <0.500 | <1.11 | 0.500 | 1.11 | | EPA-TO-15 | 05/04/2018 | BT |
| 1,3-Dichlorobenzene | <0.300 | <1.80 | 0.300 | 1.80 | I | EPA-TO-15 | 05/04/2018 | BT |
| 1,4-Dichlorobenzene | <0.300 | <1.80 | 0.300 | 1.80 | I | EPA-TO-15 | 05/04/2018 | BT |
| 1,4-Dioxane | <0.400 | <1.44 | 0.400 | 1.44 | I | EPA-TO-15 | 05/04/2018 | BT |
| (MEK) 2-Butanone | 1.97 | 5.80 | 1.00 | 2.95 | * | EPA-TO-15 | 05/04/2018 | BT |
| 2-Hexanone | <1.00 | <4.10 | 1.00 | 4.10 | I | EPA-TO-15 | 05/04/2018 | BT |
| Isopropyl Alcohol | 97.9 | 241 | 10.0 | 24.6 | * | EPA-TO-15 | 05/04/2018 | BT |
| 4-Methyl-2-pentanone (MIBK) | <1.00 | <4.10 | 1.00 | 4.10 | I | EPA-TO-15 | 05/04/2018 | BT |
| Acetone | 8.57 | 20.4 | 1.00 | 2.38 | | EPA-TO-15 | 05/04/2018 | BT |
| Acrolein | <0.500 | <1.15 | 0.500 | 1.15 | | EPA-TO-15 | 05/04/2018 | BT |
| Benzene | 0.282 | 0.902 | 0.0895 | 0.286 | | EPA-TO-15 | 05/04/2018 | BT |
| Benzyl chloride | <0.500 | <2.59 | 0.500 | 2.59 | I | EPA-TO-15 | 05/04/2018 | BT |
| Dichlorobromomethane | <0.300 | <2.01 | 0.300 | 2.01 | I | EPA-TO-15 | 05/04/2018 | BT |
| Bromoform | <0.200 | <2.07 | 0.200 | 2.07 | I | EPA-TO-15 | 05/04/2018 | BT |
| Bromomethane | <0.500 | <1.94 | 0.500 | 1.94 | | EPA-TO-15 | 05/04/2018 | BT |
| Carbon disulfide | <1.50 | <4.67 | 1.50 | 4.67 | | EPA-TO-15 | 05/04/2018 | BT |
| Carbon tetrachloride | 0.113 | 0.712 | 0.0657 | 0.413 | | EPA-TO-15 | 05/04/2018 | BT |

Fremont Analytical

**Client:** Orion Environmental Services
**WorkOrder:** 1805051
**Project:** 4550 Fauntleroy Health Clinic

**Client Sample ID:** Exam Room #3
**Lab ID:** 1805051-001A
**Sample Type:** Summa Canister

**Date Sampled:** 5/3/2018
**Date Received** 5/4/2018

| Analyte | Concentration | | Reporting Limit | | Qual | Method | Date/Analyst | |
|---|---|---|---|---|---|---|---|---|
| Volatile Organic Compounds by EPA Method TO-15 | | | | | | | | |
| | (ppbv) | (ug/m³) | (ppbv) | (ug/m³) | | | | |
| Chlorobenzene | <0.200 | <0.921 | 0.200 | 0.921 | I | EPA-TO-15 | 05/04/2018 | BT |
| Dibromochloromethane | <0.500 | <4.26 | 0.500 | 4.26 | I | EPA-TO-15 | 05/04/2018 | BT |
| Chloroethane | <0.400 | <1.06 | 0.400 | 1.06 | | EPA-TO-15 | 05/04/2018 | BT |
| Chloroform | <0.200 | <0.977 | 0.200 | 0.977 | | EPA-TO-15 | 05/04/2018 | BT |
| Chloromethane | <0.500 | <1.03 | 0.500 | 1.03 | | EPA-TO-15 | 05/04/2018 | BT |
| cis-1,2-Dichloroethene | <0.200 | <0.793 | 0.200 | 0.793 | | EPA-TO-15 | 05/04/2018 | BT |
| cis-1,3-dichloropropene | <0.400 | <1.82 | 0.400 | 1.82 | I | EPA-TO-15 | 05/04/2018 | BT |
| Cyclohexane | 120 | 412 | 4.00 | 13.8 | I | EPA-TO-15 | 05/04/2018 | BT |
| Dichlorodifluoromethane (CFC-12) | 0.655 | 3.24 | 0.400 | 1.98 | | EPA-TO-15 | 05/04/2018 | BT |
| Dichlorotetrafluoroethane (CFC-114) | <0.400 | <2.80 | 0.400 | 2.80 | | EPA-TO-15 | 05/04/2018 | BT |
| Ethyl acetate | <1.00 | <3.60 | 1.00 | 3.60 | | EPA-TO-15 | 05/04/2018 | BT |
| Ethylbenzene | 0.977 | 4.24 | 0.400 | 1.74 | *I | EPA-TO-15 | 05/04/2018 | BT |
| Gasoline Range Organics | 6,430 | 26,300 | 10.0 | 40.9 | * | EPA-TO-15 | 05/04/2018 | BT |
| Heptane | 143 | 574 | 4.00 | 16.1 | I | EPA-TO-15 | 05/04/2018 | BT |
| Hexachlorobutadiene | <1.00 | <10.7 | 1.00 | 10.7 | I | EPA-TO-15 | 05/04/2018 | BT |
| m,p-Xylene | 3.47 | 15.1 | 0.800 | 3.47 | I | EPA-TO-15 | 05/04/2018 | BT |
| Methyl methacrylate | <0.400 | <1.64 | 0.400 | 1.64 | I | EPA-TO-15 | 05/04/2018 | BT |
| Methylene chloride | <2.00 | <6.95 | 2.00 | 6.95 | | EPA-TO-15 | 05/04/2018 | BT |
| Naphthalene | <0.100 | <0.524 | 0.100 | 0.524 | I | EPA-TO-15 | 05/04/2018 | BT |
| n-Hexane | 63.2 | 223 | 4.00 | 14.1 | | EPA-TO-15 | 05/04/2018 | BT |
| o-Xylene | 1.12 | 4.86 | 0.400 | 1.74 | I | EPA-TO-15 | 05/04/2018 | BT |
| 4-Ethyltoluene | 1.19 | 5.85 | 0.400 | 1.97 | I | EPA-TO-15 | 05/04/2018 | BT |
| Propylene | <0.400 | <0.688 | 0.400 | 0.688 | | EPA-TO-15 | 05/04/2018 | BT |
| Styrene | <0.400 | <1.70 | 0.400 | 1.70 | I | EPA-TO-15 | 05/04/2018 | BT |
| Methyl tert-butyl ether (MTBE) | <0.400 | <1.44 | 0.400 | 1.44 | | EPA-TO-15 | 05/04/2018 | BT |
| Tetrachloroethene (PCE) | <0.200 | <1.36 | 0.200 | 1.36 | I | EPA-TO-15 | 05/04/2018 | BT |
| Tetrahydrofuran | <0.400 | <1.18 | 0.400 | 1.18 | | EPA-TO-15 | 05/04/2018 | BT |
| Toluene | 2.47 | 9.32 | 0.400 | 1.51 | *I | EPA-TO-15 | 05/04/2018 | BT |
| trans-1,2-Dichloroethene | <0.200 | <0.793 | 0.200 | 0.793 | | EPA-TO-15 | 05/04/2018 | BT |
| trans-1,3-dichloropropene | <0.500 | <2.27 | 0.500 | 2.27 | I | EPA-TO-15 | 05/04/2018 | BT |

Fremont Analytical

**Client:** Orion Environmental Services
**WorkOrder:** 1805051
**Project:** 4550 Fauntleroy Health Clinic

**Client Sample ID:** Exam Room #3
**Lab ID:** 1805051-001A
**Sample Type:** Summa Canister

**Date Sampled:** 5/3/2018
**Date Received** 5/4/2018

| Analyte | Concentration | | Reporting Limit | | Qual | Method | Date/Analyst | |
|---|---|---|---|---|---|---|---|---|
| Volatile Organic Compounds by EPA Method TO-15 | | | | | | | | |
| | (ppbv) | (ug/m³) | (ppbv) | (ug/m³) | | | | |
| Trichloroethene (TCE) | <0.0649 | <0.349 | 0.0649 | 0.349 | I | EPA-TO-15 | 05/04/2018 | BT |
| Trichlorofluoromethane (CFC-11) | <0.400 | <2.25 | 0.400 | 2.25 | | EPA-TO-15 | 05/04/2018 | BT |
| Vinyl acetate | <1.00 | <3.52 | 1.00 | 3.52 | | EPA-TO-15 | 05/04/2018 | BT |
| Vinyl chloride | <0.107 | <0.274 | 0.107 | 0.274 | | EPA-TO-15 | 05/04/2018 | BT |
| Surr: 4-Bromofluorobenzene | 185 %Rec | -- | 70-130 | -- | S | EPA-TO-15 | 05/04/2018 | BT |

**NOTES:**
I - Internal standards were outside of established acceptance criteria. Re-analysis yielded the same result indicating a possible matrix effect.
* - Flagged value is not within established control limits.
S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Fremont Analytical

**Client:** Orion Environmental Services
**WorkOrder:** 1805051
**Project:** 4550 Fauntleroy Health Clinic

**Client Sample ID:** Storage Room
**Lab ID:** 1805051-002A
**Sample Type:** Summa Canister

**Date Sampled:** 5/3/2018
**Date Received** 5/4/2018

Volatile Organic Compounds by EPA Method TO-15

| Analyte | Concentration (ppbv) | Concentration (ug/m³) | Reporting Limit (ppbv) | Reporting Limit (ug/m³) | Qual | Method | Date/Analyst | |
|---|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | <0.400 | <2.18 | 0.400 | 2.18 | | EPA-TO-15 | 05/04/2018 | BT |
| 1,1,2,2-Tetrachloroethane | <0.300 | <2.06 | 0.300 | 2.06 | I | EPA-TO-15 | 05/04/2018 | BT |
| CFC-113 | <0.400 | <3.07 | 0.400 | 3.07 | I | EPA-TO-15 | 05/04/2018 | BT |
| 1,1,2-Trichloroethane (TCA) | <0.500 | <2.73 | 0.500 | 2.73 | I | EPA-TO-15 | 05/04/2018 | BT |
| 1,1-Dichloroethane | <0.200 | <0.810 | 0.200 | 0.810 | | EPA-TO-15 | 05/04/2018 | BT |
| 1,1-Dichloroethene (DCE) | <0.400 | <1.59 | 0.400 | 1.59 | | EPA-TO-15 | 05/04/2018 | BT |
| 1,2,4-Trichlorobenzene | <0.300 | <2.23 | 0.300 | 2.23 | I | EPA-TO-15 | 05/04/2018 | BT |
| 1,2,4-Trimethylbenzene | 1.36 | 6.67 | 0.300 | 1.47 | I | EPA-TO-15 | 05/04/2018 | BT |
| 1,2-Dibromoethane (EDB) | <0.200 | <1.54 | 0.200 | 1.54 | I | EPA-TO-15 | 05/04/2018 | BT |
| 1,2-Dichlorobenzene | <0.400 | <2.40 | 0.400 | 2.40 | I | EPA-TO-15 | 05/04/2018 | BT |
| 1,2-Dichloroethane | <0.200 | <0.809 | 0.200 | 0.809 | | EPA-TO-15 | 05/04/2018 | BT |
| 1,2-Dichloropropane | <0.500 | <2.31 | 0.500 | 2.31 | I | EPA-TO-15 | 05/04/2018 | BT |
| 1,3,5-Trimethylbenzene | 2.25 | 11.0 | 0.300 | 1.47 | I | EPA-TO-15 | 05/04/2018 | BT |
| 1,3-Butadiene | <0.500 | <1.11 | 0.500 | 1.11 | | EPA-TO-15 | 05/04/2018 | BT |
| 1,3-Dichlorobenzene | <0.300 | <1.80 | 0.300 | 1.80 | I | EPA-TO-15 | 05/04/2018 | BT |
| 1,4-Dichlorobenzene | <0.300 | <1.80 | 0.300 | 1.80 | I | EPA-TO-15 | 05/04/2018 | BT |
| 1,4-Dioxane | <0.400 | <1.44 | 0.400 | 1.44 | I | EPA-TO-15 | 05/04/2018 | BT |
| (MEK) 2-Butanone | 2.69 | 7.94 | 1.00 | 2.95 | * | EPA-TO-15 | 05/04/2018 | BT |
| 2-Hexanone | <1.00 | <4.10 | 1.00 | 4.10 | I | EPA-TO-15 | 05/04/2018 | BT |
| Isopropyl Alcohol | 137 | 336 | 10.0 | 24.6 | * | EPA-TO-15 | 05/04/2018 | BT |
| 4-Methyl-2-pentanone (MIBK) | <1.00 | <4.10 | 1.00 | 4.10 | I | EPA-TO-15 | 05/04/2018 | BT |
| Acetone | 12.4 | 29.5 | 1.00 | 2.38 | | EPA-TO-15 | 05/04/2018 | BT |
| Acrolein | <0.500 | <1.15 | 0.500 | 1.15 | | EPA-TO-15 | 05/04/2018 | BT |
| Benzene | 0.305 | 0.974 | 0.0895 | 0.286 | | EPA-TO-15 | 05/04/2018 | BT |
| Benzyl chloride | <0.500 | <2.59 | 0.500 | 2.59 | I | EPA-TO-15 | 05/04/2018 | BT |
| Dichlorobromomethane | <0.300 | <2.01 | 0.300 | 2.01 | I | EPA-TO-15 | 05/04/2018 | BT |
| Bromoform | <0.200 | <2.07 | 0.200 | 2.07 | I | EPA-TO-15 | 05/04/2018 | BT |
| Bromomethane | <0.500 | <1.94 | 0.500 | 1.94 | | EPA-TO-15 | 05/04/2018 | BT |
| Carbon disulfide | <1.50 | <4.67 | 1.50 | 4.67 | | EPA-TO-15 | 05/04/2018 | BT |
| Carbon tetrachloride | 0.0909 | 0.572 | 0.0657 | 0.413 | | EPA-TO-15 | 05/04/2018 | BT |

**Client:** Orion Environmental Services
**WorkOrder:** 1805051
**Project:** 4550 Fauntleroy Health Clinic

**Client Sample ID:** Storage Room
**Lab ID:** 1805051-002A
**Sample Type:** Summa Canister

**Date Sampled:** 5/3/2018
**Date Received** 5/4/2018

| Analyte | Concentration | | Reporting Limit | | Qual | Method | Date/Analyst | |
|---|---|---|---|---|---|---|---|---|
| Volatile Organic Compounds by EPA Method TO-15 | | | | | | | | |
| | (ppbv) | (ug/m³) | (ppbv) | (ug/m³) | | | | |
| Chlorobenzene | <0.200 | <0.921 | 0.200 | 0.921 | I | EPA-TO-15 | 05/04/2018 | BT |
| Dibromochloromethane | <0.500 | <4.26 | 0.500 | 4.26 | I | EPA-TO-15 | 05/04/2018 | BT |
| Chloroethane | <0.400 | <1.06 | 0.400 | 1.06 | | EPA-TO-15 | 05/04/2018 | BT |
| Chloroform | <0.200 | <0.977 | 0.200 | 0.977 | | EPA-TO-15 | 05/04/2018 | BT |
| Chloromethane | <0.500 | <1.03 | 0.500 | 1.03 | | EPA-TO-15 | 05/04/2018 | BT |
| cis-1,2-Dichloroethene | <0.200 | <0.793 | 0.200 | 0.793 | | EPA-TO-15 | 05/04/2018 | BT |
| cis-1,3-dichloropropene | <0.400 | <1.82 | 0.400 | 1.82 | I | EPA-TO-15 | 05/04/2018 | BT |
| Cyclohexane | 305 | 1,050 | 4.00 | 13.8 | I | EPA-TO-15 | 05/04/2018 | BT |
| Dichlorodifluoromethane (CFC-12) | 0.553 | 2.73 | 0.400 | 1.98 | | EPA-TO-15 | 05/04/2018 | BT |
| Dichlorotetrafluoroethane (CFC-114) | <0.400 | <2.80 | 0.400 | 2.80 | | EPA-TO-15 | 05/04/2018 | BT |
| Ethyl acetate | <1.00 | <3.60 | 1.00 | 3.60 | | EPA-TO-15 | 05/04/2018 | BT |
| Ethylbenzene | 2.07 | 8.98 | 0.400 | 1.74 | *I | EPA-TO-15 | 05/04/2018 | BT |
| Gasoline Range Organics | 7,920 | 32,400 | 10.0 | 40.9 | * | EPA-TO-15 | 05/04/2018 | BT |
| Heptane | 234 | 938 | 4.00 | 16.1 | I | EPA-TO-15 | 05/04/2018 | BT |
| Hexachlorobutadiene | <1.00 | <10.7 | 1.00 | 10.7 | I | EPA-TO-15 | 05/04/2018 | BT |
| m,p-Xylene | 8.42 | 36.6 | 0.800 | 3.47 | I | EPA-TO-15 | 05/04/2018 | BT |
| Methyl methacrylate | <0.400 | <1.64 | 0.400 | 1.64 | I | EPA-TO-15 | 05/04/2018 | BT |
| Methylene chloride | <2.00 | <6.95 | 2.00 | 6.95 | | EPA-TO-15 | 05/04/2018 | BT |
| Naphthalene | <0.100 | <0.524 | 0.100 | 0.524 | I | EPA-TO-15 | 05/04/2018 | BT |
| n-Hexane | 132 | 466 | 4.00 | 14.1 | | EPA-TO-15 | 05/04/2018 | BT |
| o-Xylene | 3.80 | 16.5 | 0.400 | 1.74 | I | EPA-TO-15 | 05/04/2018 | BT |
| 4-Ethyltoluene | 1.29 | 6.36 | 0.400 | 1.97 | I | EPA-TO-15 | 05/04/2018 | BT |
| Propylene | <0.400 | <0.688 | 0.400 | 0.688 | | EPA-TO-15 | 05/04/2018 | BT |
| Styrene | <0.400 | <1.70 | 0.400 | 1.70 | I | EPA-TO-15 | 05/04/2018 | BT |
| Methyl tert-butyl ether (MTBE) | <0.400 | <1.44 | 0.400 | 1.44 | | EPA-TO-15 | 05/04/2018 | BT |
| Tetrachloroethene (PCE) | <0.200 | <1.36 | 0.200 | 1.36 | I | EPA-TO-15 | 05/04/2018 | BT |
| Tetrahydrofuran | <0.400 | <1.18 | 0.400 | 1.18 | | EPA-TO-15 | 05/04/2018 | BT |
| Toluene | 5.25 | 19.8 | 0.400 | 1.51 | *I | EPA-TO-15 | 05/04/2018 | BT |
| trans-1,2-Dichloroethene | <0.200 | <0.793 | 0.200 | 0.793 | | EPA-TO-15 | 05/04/2018 | BT |
| trans-1,3-dichloropropene | <0.500 | <2.27 | 0.500 | 2.27 | I | EPA-TO-15 | 05/04/2018 | BT |

**Client:** Orion Environmental Services
**WorkOrder:** 1805051
**Project:** 4550 Fauntleroy Health Clinic

**Client Sample ID:** Storage Room
**Lab ID:** 1805051-002A
**Sample Type:** Summa Canister

**Date Sampled:** 5/3/2018
**Date Received** 5/4/2018

Volatile Organic Compounds by EPA Method TO-15

| Analyte | Concentration (ppbv) | Concentration (ug/m³) | Reporting Limit (ppbv) | Reporting Limit (ug/m³) | Qual | Method | Date/Analyst | |
|---|---|---|---|---|---|---|---|---|
| Trichloroethene (TCE) | <0.0649 | <0.349 | 0.0649 | 0.349 | I | EPA-TO-15 | 05/04/2018 | BT |
| Trichlorofluoromethane (CFC-11) | <0.400 | <2.25 | 0.400 | 2.25 | | EPA-TO-15 | 05/04/2018 | BT |
| Vinyl acetate | <1.00 | <3.52 | 1.00 | 3.52 | | EPA-TO-15 | 05/04/2018 | BT |
| Vinyl chloride | <0.107 | <0.274 | 0.107 | 0.274 | | EPA-TO-15 | 05/04/2018 | BT |
| Surr: 4-Bromofluorobenzene | 182 %Rec | -- | 70-130 | -- | S | EPA-TO-15 | 05/04/2018 | BT |

**NOTES:**
I - Internal standards were outside of established acceptance criteria. Re-analysis yielded the same result indicating a possible matrix effect.
* - Flagged value is not within established control limits.
S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Fremont Analytical

**Date:** *5/4/2018*

**Work Order:** 1805051
**CLIENT:** Orion Environmental Services
**Project:** 4550 Fauntleroy Health Clinic

# QC SUMMARY REPORT

## Volatile Organic Compounds by EPA Method TO-15

Sample ID **VOC LCS-R43289** SampType: **LCS** Units: **ppbv** Prep Date: **5/3/2018** RunNo: **43289**
Client ID: **LCSW** Batch ID: **R43289** Analysis Date: **5/3/2018** SeqNo: **836723**

| Analyte | Result | RL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 96.9 | 1.00 | 72.00 | 0 | 135 | 70 | 130 | | | | S |
| Propylene | 3.14 | 0.400 | 2.000 | 0 | 157 | 70 | 130 | | | | S |
| Dichlorodifluoromethane (CFC-12) | 2.24 | 0.400 | 2.000 | 0 | 112 | 70 | 130 | | | | |
| Chloromethane | 2.02 | 0.500 | 2.000 | 0 | 101 | 70 | 130 | | | | |
| Dichlorotetrafluoroethane (CFC-114) | 2.10 | 0.400 | 2.000 | 0 | 105 | 70 | 130 | | | | |
| Vinyl chloride | 1.69 | 0.107 | 2.000 | 0 | 84.5 | 70 | 130 | | | | |
| 1,3-Butadiene | 1.59 | 0.500 | 2.000 | 0 | 79.4 | 70 | 130 | | | | |
| Bromomethane | 1.90 | 0.500 | 2.000 | 0 | 95.0 | 70 | 130 | | | | |
| Trichlorofluoromethane (CFC-11) | 2.28 | 0.400 | 2.000 | 0 | 114 | 70 | 130 | | | | |
| Chloroethane | 2.12 | 0.400 | 2.000 | 0 | 106 | 70 | 130 | | | | |
| Acrolein | 2.27 | 0.500 | 2.000 | 0 | 113 | 70 | 130 | | | | |
| 1,1-Dichloroethene (DCE) | 2.26 | 0.400 | 2.000 | 0 | 113 | 70 | 130 | | | | |
| Acetone | 2.41 | 1.00 | 2.000 | 0 | 121 | 70 | 130 | | | | |
| Isopropyl Alcohol | 3.18 | 1.00 | 2.000 | 0 | 159 | 70 | 130 | | | | S |
| Methylene chloride | 2.55 | 2.00 | 2.000 | 0 | 127 | 70 | 130 | | | | |
| Carbon disulfide | 2.27 | 1.50 | 2.000 | 0 | 114 | 70 | 130 | | | | |
| trans-1,2-Dichloroethene | 2.25 | 0.200 | 2.000 | 0 | 113 | 70 | 130 | | | | |
| Methyl tert-butyl ether (MTBE) | 2.43 | 0.400 | 2.000 | 0 | 122 | 70 | 130 | | | | |
| n-Hexane | 2.14 | 0.400 | 2.000 | 0 | 107 | 70 | 130 | | | | |
| 1,1-Dichloroethane | 2.23 | 0.200 | 2.000 | 0 | 111 | 70 | 130 | | | | |
| Vinyl acetate | 2.32 | 1.00 | 2.000 | 0 | 116 | 70 | 130 | | | | |
| cis-1,2-Dichloroethene | 2.38 | 0.200 | 2.000 | 0 | 119 | 70 | 130 | | | | |
| (MEK) 2-Butanone | 3.49 | 1.00 | 2.000 | 0 | 175 | 70 | 130 | | | | S |
| Ethyl acetate | 2.24 | 1.00 | 2.000 | 0 | 112 | 70 | 130 | | | | |
| Chloroform | 2.24 | 0.200 | 2.000 | 0 | 112 | 70 | 130 | | | | |
| Tetrahydrofuran | 2.21 | 0.400 | 2.000 | 0 | 111 | 70 | 130 | | | | |
| 1,1,1-Trichloroethane | 2.19 | 0.400 | 2.000 | 0 | 110 | 70 | 130 | | | | |
| Carbon tetrachloride | 2.27 | 0.0657 | 2.000 | 0 | 114 | 70 | 130 | | | | |
| 1,2-Dichloroethane | 2.21 | 0.200 | 2.000 | 0 | 110 | 70 | 130 | | | | |
| Benzene | 2.29 | 0.0895 | 2.000 | 0 | 115 | 70 | 130 | | | | |
| Cyclohexane | 2.27 | 0.400 | 2.000 | 0 | 113 | 70 | 130 | | | | |

Fremont Analytical

**Date:** *5/4/2018*

**Work Order:** 1805051
**CLIENT:** Orion Environmental Services
**Project:** 4550 Fauntleroy Health Clinic

# QC SUMMARY REPORT

## Volatile Organic Compounds by EPA Method TO-15

Sample ID **VOC LCS-R43289** SampType: **LCS** Units: **ppbv** Prep Date: **5/3/2018** RunNo: **43289**
Client ID: **LCSW** Batch ID: **R43289** Analysis Date: **5/3/2018** SeqNo: **836723**

| Analyte | Result | RL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Trichloroethene (TCE) | 2.32 | 0.0649 | 2.000 | 0 | 116 | 70 | 130 | | | | |
| 1,2-Dichloropropane | 2.33 | 0.500 | 2.000 | 0 | 117 | 70 | 130 | | | | |
| Methyl methacrylate | 2.26 | 0.400 | 2.000 | 0 | 113 | 70 | 130 | | | | |
| Dichlorobromomethane | 2.26 | 0.300 | 2.000 | 0 | 113 | 70 | 130 | | | | |
| 1,4-Dioxane | 2.27 | 0.400 | 2.000 | 0 | 114 | 70 | 130 | | | | |
| cis-1,3-dichloropropene | 2.34 | 0.400 | 2.000 | 0 | 117 | 70 | 130 | | | | |
| Toluene | 3.09 | 0.400 | 2.000 | 0 | 154 | 70 | 130 | | | | S |
| trans-1,3-dichloropropene | 2.36 | 0.500 | 2.000 | 0 | 118 | 70 | 130 | | | | |
| 1,1,2-Trichloroethane (TCA) | 2.21 | 0.500 | 2.000 | 0 | 110 | 70 | 130 | | | | |
| Tetrachloroethene (PCE) | 2.42 | 0.200 | 2.000 | 0 | 121 | 70 | 130 | | | | |
| Dibromochloromethane | 2.38 | 0.500 | 2.000 | 0 | 119 | 70 | 130 | | | | |
| 1,2-Dibromoethane (EDB) | 2.34 | 0.200 | 2.000 | 0 | 117 | 70 | 130 | | | | |
| Chlorobenzene | 2.46 | 0.200 | 2.000 | 0 | 123 | 70 | 130 | | | | |
| Ethylbenzene | 2.63 | 0.400 | 2.000 | 0 | 131 | 70 | 130 | | | | S |
| m,p-Xylene | 5.20 | 0.800 | 4.000 | 0 | 130 | 70 | 130 | | | | |
| o-Xylene | 2.56 | 0.400 | 2.000 | 0 | 128 | 70 | 130 | | | | |
| Styrene | 2.56 | 0.400 | 2.000 | 0 | 128 | 70 | 130 | | | | |
| Bromoform | 2.50 | 0.200 | 2.000 | 0 | 125 | 70 | 130 | | | | |
| 1,1,2,2-Tetrachloroethane | 2.36 | 0.300 | 2.000 | 0 | 118 | 70 | 130 | | | | |
| 1,3,5-Trimethylbenzene | 2.52 | 0.300 | 2.000 | 0 | 126 | 70 | 130 | | | | |
| 1,2,4-Trimethylbenzene | 2.32 | 0.300 | 2.000 | 0 | 116 | 70 | 130 | | | | |
| Benzyl chloride | 1.64 | 0.500 | 2.000 | 0 | 82.0 | 70 | 130 | | | | |
| 4-Ethyltoluene | 2.56 | 0.400 | 2.000 | 0 | 128 | 70 | 130 | | | | |
| 1,3-Dichlorobenzene | 2.36 | 0.300 | 2.000 | 0 | 118 | 70 | 130 | | | | |
| 1,4-Dichlorobenzene | 2.30 | 0.300 | 2.000 | 0 | 115 | 70 | 130 | | | | |
| 1,2-Dichlorobenzene | 2.33 | 0.400 | 2.000 | 0 | 116 | 70 | 130 | | | | |
| 1,2,4-Trichlorobenzene | 1.86 | 0.300 | 2.000 | 0 | 93.1 | 70 | 130 | | | | |
| Hexachlorobutadiene | 2.20 | 1.00 | 2.000 | 0 | 110 | 70 | 130 | | | | |
| Naphthalene | 1.76 | 0.100 | 2.000 | 0 | 87.8 | 70 | 130 | | | | |
| 2-Hexanone | 2.25 | 1.00 | 2.000 | 0 | 113 | 70 | 130 | | | | |
| 4-Methyl-2-pentanone (MIBK) | 2.39 | 1.00 | 2.000 | 0 | 120 | 70 | 130 | | | | |

**Work Order:** 1805051
**CLIENT:** Orion Environmental Services
**Project:** 4550 Fauntleroy Health Clinic

# QC SUMMARY REPORT

## Volatile Organic Compounds by EPA Method TO-15

| Sample ID **VOC LCS-R43289** | SampType: **LCS** | Units: **ppbv** | Prep Date: **5/3/2018** | RunNo: **43289** |
|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R43289** | | Analysis Date: **5/3/2018** | SeqNo: **836723** |

| Analyte | Result | RL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CFC-113 | 2.36 | 0.400 | 2.000 | 0 | 118 | 70 | 130 | | | | |
| Heptane | 2.50 | 0.400 | 2.000 | 0 | 125 | 70 | 130 | | | | |
| Surr: 4-Bromofluorobenzene | 3.93 | | 4.000 | | 98.3 | 70 | 130 | | | | |

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

| Sample ID **MBLK-R43289** | SampType: **MBLK** | Units: **ppbv** | Prep Date: **5/4/2018** | RunNo: **43289** |
|---|---|---|---|---|
| Client ID: **MBLKW** | Batch ID: **R43289** | | Analysis Date: **5/4/2018** | SeqNo: **836724** |

| Analyte | Result | RL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | ND | 1.00 | | | | | | | | | |
| Propylene | ND | 0.400 | | | | | | | | | |
| Dichlorodifluoromethane (CFC-12) | ND | 0.400 | | | | | | | | | |
| Chloromethane | ND | 0.500 | | | | | | | | | |
| Dichlorotetrafluoroethane (CFC-114) | ND | 0.400 | | | | | | | | | |
| Vinyl chloride | ND | 0.107 | | | | | | | | | |
| 1,3-Butadiene | ND | 0.500 | | | | | | | | | |
| Bromomethane | ND | 0.500 | | | | | | | | | |
| Trichlorofluoromethane (CFC-11) | ND | 0.400 | | | | | | | | | |
| Chloroethane | ND | 0.400 | | | | | | | | | |
| Acrolein | ND | 0.500 | | | | | | | | | |
| 1,1-Dichloroethene (DCE) | ND | 0.400 | | | | | | | | | |
| Acetone | ND | 1.00 | | | | | | | | | |
| Isopropyl Alcohol | ND | 1.00 | | | | | | | | | |
| Methylene chloride | ND | 2.00 | | | | | | | | | |
| Carbon disulfide | ND | 1.50 | | | | | | | | | |
| trans-1,2-Dichloroethene | ND | 0.200 | | | | | | | | | |
| Methyl tert-butyl ether (MTBE) | ND | 0.400 | | | | | | | | | |
| n-Hexane | ND | 0.400 | | | | | | | | | |
| 1,1-Dichloroethane | ND | 0.200 | | | | | | | | | |
| Vinyl acetate | ND | 1.00 | | | | | | | | | |

Fremont Analytical

**Date:** *5/4/2018*

**Work Order:** 1805051
**CLIENT:** Orion Environmental Services
**Project:** 4550 Fauntleroy Health Clinic

# QC SUMMARY REPORT

## Volatile Organic Compounds by EPA Method TO-15

| | | | | | |
|---|---|---|---|---|---|
| Sample ID **MBLK-R43289** | SampType: **MBLK** | Units: **ppbv** | Prep Date: **5/4/2018** | RunNo: **43289** | |
| Client ID: **MBLKW** | Batch ID: **R43289** | | Analysis Date: **5/4/2018** | SeqNo: **836724** | |

| Analyte | Result | RL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| cis-1,2-Dichloroethene | ND | 0.200 | | | | | | | | | |
| (MEK) 2-Butanone | ND | 1.00 | | | | | | | | | |
| Ethyl acetate | ND | 1.00 | | | | | | | | | |
| Chloroform | ND | 0.200 | | | | | | | | | |
| Tetrahydrofuran | ND | 0.400 | | | | | | | | | |
| 1,1,1-Trichloroethane | ND | 0.400 | | | | | | | | | |
| Carbon tetrachloride | ND | 0.0657 | | | | | | | | | |
| 1,2-Dichloroethane | ND | 0.200 | | | | | | | | | |
| Benzene | ND | 0.0895 | | | | | | | | | |
| Cyclohexane | ND | 0.400 | | | | | | | | | |
| Trichloroethene (TCE) | ND | 0.0649 | | | | | | | | | |
| 1,2-Dichloropropane | ND | 0.500 | | | | | | | | | |
| Methyl methacrylate | ND | 0.400 | | | | | | | | | |
| Dichlorobromomethane | ND | 0.300 | | | | | | | | | |
| 1,4-Dioxane | ND | 0.400 | | | | | | | | | |
| cis-1,3-dichloropropene | ND | 0.400 | | | | | | | | | |
| Toluene | ND | 0.400 | | | | | | | | | |
| trans-1,3-dichloropropene | ND | 0.500 | | | | | | | | | |
| 1,1,2-Trichloroethane (TCA) | ND | 0.500 | | | | | | | | | |
| Tetrachloroethene (PCE) | ND | 0.200 | | | | | | | | | |
| Dibromochloromethane | ND | 0.500 | | | | | | | | | |
| 1,2-Dibromoethane (EDB) | ND | 0.200 | | | | | | | | | |
| Chlorobenzene | ND | 0.200 | | | | | | | | | |
| Ethylbenzene | ND | 0.400 | | | | | | | | | |
| m,p-Xylene | ND | 0.800 | | | | | | | | | |
| o-Xylene | ND | 0.400 | | | | | | | | | |
| Styrene | ND | 0.400 | | | | | | | | | |
| Bromoform | ND | 0.200 | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | ND | 0.300 | | | | | | | | | |
| 1,3,5-Trimethylbenzene | ND | 0.300 | | | | | | | | | |
| 1,2,4-Trimethylbenzene | ND | 0.300 | | | | | | | | | |

Fremont Analytical

**Date:** *5/4/2018*

**Work Order:** 1805051
**CLIENT:** Orion Environmental Services
**Project:** 4550 Fauntleroy Health Clinic

# QC SUMMARY REPORT

## Volatile Organic Compounds by EPA Method TO-15

Sample ID **MBLK-R43289** SampType: **MBLK** Units: **ppbv** Prep Date: **5/4/2018** RunNo: **43289**
Client ID: **MBLKW** Batch ID: **R43289** Analysis Date: **5/4/2018** SeqNo: **836724**

| Analyte | Result | RL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzyl chloride | ND | 0.500 | | | | | | | | | |
| 4-Ethyltoluene | ND | 0.400 | | | | | | | | | |
| 1,3-Dichlorobenzene | ND | 0.300 | | | | | | | | | |
| 1,4-Dichlorobenzene | ND | 0.300 | | | | | | | | | |
| 1,2-Dichlorobenzene | ND | 0.400 | | | | | | | | | |
| 1,2,4-Trichlorobenzene | ND | 0.300 | | | | | | | | | |
| Hexachlorobutadiene | ND | 1.00 | | | | | | | | | |
| Naphthalene | ND | 0.100 | | | | | | | | | |
| 2-Hexanone | ND | 1.00 | | | | | | | | | |
| 4-Methyl-2-pentanone (MIBK) | ND | 1.00 | | | | | | | | | |
| CFC-113 | ND | 0.400 | | | | | | | | | |
| Heptane | ND | 0.400 | | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 3.78 | | 4.000 | | 94.6 | 70 | 130 | | | | |

Sample ID **1805051-001AREP** SampType: **REP** Units: **ppbv** Prep Date: **5/4/2018** RunNo: **43289**
Client ID: **Exam Room #3** Batch ID: **R43289** Analysis Date: **5/4/2018** SeqNo: **836726**

| Analyte | Result | RL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 2,690 | 1.00 | | | | | | 2,655 | 1.18 | 30 | E* |
| Propylene | ND | 0.400 | | | | | | 0 | | 30 | |
| Dichlorodifluoromethane (CFC-12) | 0.573 | 0.400 | | | | | | 0.6550 | 13.4 | 30 | |
| Chloromethane | ND | 0.500 | | | | | | 0 | | 30 | |
| Dichlorotetrafluoroethane (CFC-114) | ND | 0.400 | | | | | | 0 | | 30 | |
| Vinyl chloride | ND | 0.107 | | | | | | 0 | | 30 | |
| 1,3-Butadiene | ND | 0.500 | | | | | | 0 | | 30 | |
| Bromomethane | ND | 0.500 | | | | | | 0 | | 30 | |
| Trichlorofluoromethane (CFC-11) | ND | 0.400 | | | | | | 0 | | 30 | |
| Chloroethane | ND | 0.400 | | | | | | 0 | | 30 | |
| Acrolein | ND | 0.500 | | | | | | 0 | | 30 | |
| 1,1-Dichloroethene (DCE) | ND | 0.400 | | | | | | 0 | | 30 | |

Fremont Analytical

**Date:** *5/4/2018*

**Work Order:** 1805051
**CLIENT:** Orion Environmental Services
**Project:** 4550 Fauntleroy Health Clinic

# QC SUMMARY REPORT

## Volatile Organic Compounds by EPA Method TO-15

Sample ID **1805051-001AREP** SampType: **REP** Units: **ppbv** Prep Date: **5/4/2018** RunNo: **43289**
Client ID: **Exam Room #3** Batch ID: **R43289** Analysis Date: **5/4/2018** SeqNo: **836726**

| Analyte | Result | RL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Acetone | 7.40 | 1.00 | | | | | | 8.571 | 14.7 | 30 | |
| Isopropyl Alcohol | 90.3 | 1.00 | | | | | | 102.4 | 12.6 | 30 | E* |
| Methylene chloride | ND | 2.00 | | | | | | 0 | | 30 | |
| Carbon disulfide | ND | 1.50 | | | | | | 0 | | 30 | |
| trans-1,2-Dichloroethene | ND | 0.200 | | | | | | 0 | | 30 | |
| Methyl tert-butyl ether (MTBE) | ND | 0.400 | | | | | | 0 | | 30 | |
| n-Hexane | 63.9 | 0.400 | | | | | | 74.64 | 15.5 | 30 | E |
| 1,1-Dichloroethane | ND | 0.200 | | | | | | 0 | | 30 | |
| Vinyl acetate | ND | 1.00 | | | | | | 0 | | 30 | |
| cis-1,2-Dichloroethene | ND | 0.200 | | | | | | 0 | | 30 | |
| (MEK) 2-Butanone | 1.76 | 1.00 | | | | | | 1.966 | 10.9 | 30 | * |
| Ethyl acetate | ND | 1.00 | | | | | | 0 | | 30 | |
| Chloroform | ND | 0.200 | | | | | | 0 | | 30 | |
| Tetrahydrofuran | ND | 0.400 | | | | | | 0 | | 30 | |
| 1,1,1-Trichloroethane | ND | 0.400 | | | | | | 0 | | 30 | |
| Carbon tetrachloride | 0.0982 | 0.0657 | | | | | | 0.1131 | 14.1 | 30 | |
| 1,2-Dichloroethane | ND | 0.200 | | | | | | 0 | | 30 | |
| Benzene | 0.250 | 0.0895 | | | | | | 0.2825 | 12.3 | 30 | |
| Cyclohexane | 84.2 | 0.400 | | | | | | 122.0 | 36.7 | 30 | REI |
| Trichloroethene (TCE) | ND | 0.0649 | | | | | | 0 | | 30 | I |
| 1,2-Dichloropropane | ND | 0.500 | | | | | | 0 | | 30 | I |
| Methyl methacrylate | ND | 0.400 | | | | | | 0 | | 30 | I |
| Dichlorobromomethane | ND | 0.300 | | | | | | 0 | | 30 | I |
| 1,4-Dioxane | ND | 0.400 | | | | | | 0 | | 30 | I |
| cis-1,3-dichloropropene | ND | 0.400 | | | | | | 0 | | 30 | I |
| Toluene | 1.83 | 0.400 | | | | | | 2.474 | 29.8 | 30 | *I |
| trans-1,3-dichloropropene | ND | 0.500 | | | | | | 0 | | 30 | I |
| 1,1,2-Trichloroethane (TCA) | ND | 0.500 | | | | | | 0 | | 30 | I |
| Tetrachloroethene (PCE) | ND | 0.200 | | | | | | 0 | | 30 | I |
| Dibromochloromethane | ND | 0.500 | | | | | | 0 | | 30 | I |
| 1,2-Dibromoethane (EDB) | ND | 0.200 | | | | | | 0 | | 30 | I |

**Work Order:** 1805051
**CLIENT:** Orion Environmental Services
**Project:** 4550 Fauntleroy Health Clinic

# QC SUMMARY REPORT

## Volatile Organic Compounds by EPA Method TO-15

Sample ID **1805051-001AREP** SampType: **REP** Units: **ppbv** Prep Date: **5/4/2018** RunNo: **43289**
Client ID: **Exam Room #3** Batch ID: **R43289** Analysis Date: **5/4/2018** SeqNo: **836726**

| Analyte | Result | RL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chlorobenzene | ND | 0.200 | | | | | | 0 | | 30 | I |
| Ethylbenzene | 1.06 | 0.400 | | | | | | 0.9767 | 8.01 | 30 | *I |
| m,p-Xylene | 3.62 | 0.800 | | | | | | 3.472 | 4.10 | 30 | I |
| o-Xylene | 1.17 | 0.400 | | | | | | 1.118 | 4.75 | 30 | I |
| Styrene | ND | 0.400 | | | | | | 0 | | 30 | I |
| Bromoform | ND | 0.200 | | | | | | 0 | | 30 | I |
| 1,1,2,2-Tetrachloroethane | ND | 0.300 | | | | | | 0 | | 30 | I |
| 1,3,5-Trimethylbenzene | 2.24 | 0.300 | | | | | | 2.239 | 0.0433 | 30 | I |
| 1,2,4-Trimethylbenzene | 0.887 | 0.300 | | | | | | 0.8758 | 1.27 | 30 | I |
| Benzyl chloride | ND | 0.500 | | | | | | 0 | | 30 | I |
| 4-Ethyltoluene | 1.22 | 0.400 | | | | | | 1.191 | 2.18 | 30 | I |
| 1,3-Dichlorobenzene | ND | 0.300 | | | | | | 0 | | 30 | I |
| 1,4-Dichlorobenzene | ND | 0.300 | | | | | | 0 | | 30 | I |
| 1,2-Dichlorobenzene | ND | 0.400 | | | | | | 0 | | 30 | I |
| 1,2,4-Trichlorobenzene | ND | 0.300 | | | | | | 0 | | 30 | I |
| Hexachlorobutadiene | ND | 1.00 | | | | | | 0 | | 30 | I |
| Naphthalene | ND | 0.100 | | | | | | 0 | | 30 | I |
| 2-Hexanone | ND | 1.00 | | | | | | 0 | | 30 | I |
| 4-Methyl-2-pentanone (MIBK) | ND | 1.00 | | | | | | 0 | | 30 | I |
| CFC-113 | ND | 0.400 | | | | | | 0 | | 30 | I |
| Heptane | 114 | 0.400 | | | | | | 112.4 | 1.35 | 30 | EI |
| Surr: 4-Bromofluorobenzene | 21.7 | | 4.000 | | 544 | 70 | 130 | | 0 | | S |

**NOTES:**
S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.
R - High RPD observed.
I - Internal standards were outside of established acceptance criteria. Re-analysis yielded the same result indicating a possible matrix effect.
E - Estimated value. The amount exceeds the linear working range of the instrument.
* - Flagged value is not within established control limits.

# Fremont Analytical

## Sample Log-In Check List

| | | | |
|---|---|---|---|
| Client Name: | **ORIONES** | Work Order Number: | **1805051** |
| Logged by: | **Clare Griggs** | Date Received: | **5/4/2018 8:00:00 AM** |

### *Chain of Custody*

| | | | | |
|---|---|---|---|---|
| 1. | Is Chain of Custody complete? | Yes ☐ | No ☑ | Not Present ☐ |
| 2. | How was the sample delivered? | Client | | |

### *Log In*

| | | | | |
|---|---|---|---|---|
| 3. | Coolers are present? | Yes ☐ | No ☑ | NA ☐ |
| | | Air Samples | | |
| 4. | Shipping container/cooler in good condition? | Yes ☑ | No ☐ | |
| 5. | Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact) | Yes ☐ | No ☐ | Not Required ☑ |
| 6. | Was an attempt made to cool the samples? | Yes ☐ | No ☐ | NA ☑ |
| 7. | Were all items received at a temperature of >0°C to 10.0°C * | Yes ☐ | No ☐ | NA ☑ |
| 8. | Sample(s) in proper container(s)? | Yes ☑ | No ☐ | |
| 9. | Sufficient sample volume for indicated test(s)? | Yes ☑ | No ☐ | |
| 10. | Are samples properly preserved? | Yes ☑ | No ☐ | |
| 11. | Was preservative added to bottles? | Yes ☐ | No ☑ | NA ☐ |
| 12. | Is there headspace in the VOA vials? | Yes ☐ | No ☐ | NA ☑ |
| 13. | Did all samples containers arrive in good condition(unbroken)? | Yes ☑ | No ☐ | |
| 14. | Does paperwork match bottle labels? | Yes ☑ | No ☐ | |
| 15. | Are matrices correctly identified on Chain of Custody? | Yes ☑ | No ☐ | |
| 16. | Is it clear what analyses were requested? | Yes ☐ | No ☑ | |
| 17. | Were all holding times able to be met? | Yes ☑ | No ☐ | |

### *Special Handling (if applicable)*

| | | | | |
|---|---|---|---|---|
| 18. | Was client notified of all discrepancies with this order? | Yes ☑ | No ☐ | NA ☐ |

| | | | |
|---|---|---|---|
| Person Notified: | Nelson Miles | Date | 5/4/2018 |
| By Whom: | Clare Griggs | Via: | ☑ eMail ☐ Phone ☐ Fax ☐ In Person |
| Regarding: | Project name? Confirming analysis. | | |
| Client Instructions: | Add Gasoline. See revised COC. | | |

19. Additional remarks:

**Item Information**

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

# Air Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 5/4/18 Page: 1 of: 1

Laboratory Project No (Internal): 1805051

Special Remarks:

Project Name:

Project No:

Client: Orion Environmental

Address: 34004 9th Ave S

Location:

City, State, Zip: Federal Way, WA

Collected by: Barry Brown

Telephone: 253) 952-6717

Reports to (PM): Nelson Miles

Air samples are disposed of one week after report is submitted to client unless otherwise requested. ☐ OK to Dispose ☐ Hold (fees may apply)

Fax:

Email (PM): nmiles@oronet.net

| # | Sample Name | Canister / Flow Reg Serial # | Sample Date & Time | Sample Type (Matrix) * | Container Type ** | Fill Time / Flow Rate | Internal: Initial Evacuation Pressure (mtorr) | Field Initial Sample Pressure (" Hg) | Field Final Sample Pressure (" Hg) | Analysis: VOCs TO15 SCAN | VOCs TO15 SCAN LL | VOCs TO15 SIM | Siloxanes TO15 | Sulfur TO15 | Sulfur Ext TO15 | APH TO15 | Helium | Major Gases 3C | | Comments | Internal: Final Pressure ("Hg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | EXAM ROOM #3 | 13968 | 05-03-18 11:19AM | | 6L | 8hr | 10 mtorr | | 6/7 | | | | | | | | | | | | 7 "Hg |
| | | FR8-09 | 05-03-18 219 pm | | | | 4/25/2018 | | | | | | | | | | | | | | |
| 2 | STORAGE ROOM | 17648 | 05-03-18 11:20AM | | 6L | 8hr | 10 mtorr | | 8/2 | | | | | | | | | | | | 8 "Hg |
| | | FR8-25 | 05-03-18 220 pm | | | | 4/25/2018 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | |

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac 6L = 6L Canister 1L = 1L Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

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

| Relinquished | Date/Time | Received | Date/Time |
|---|---|---|---|
| x Michael McKay | 5/4/18 08:00 | x | 05/04/18 ~~04~~ 05/04/2018 |
| Relinquished | Date/Time | Received | Date/Time |
| x | | x | |

Turn-Around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☐ Next Day
- ☐ Same Day ASAP (specify)

# Air Chain of Custody Record & Laboratory Services Agreement

**Fremont Analytical**
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 5/4/18 Page: 1 of: 1

Project Name: ~~1550~~ Fauntleroy Health Clinic

Laboratory Project No (Internal): 1805051

Special Remarks: edit per N.M. 5/4/18 cg

Client: **Orion Environmental**

Address: 34004 9th Ave S

City, State, Zip: Federal Way, WA

Telephone: 253) 952-6717

Fax:

Project No:

Location:

Collected by: Barry Brown

Reports to (PM): Nelson Miles

Email (PM): nmiles@onones.net

Air samples are disposed of one week after report is submitted to client unless otherwise requested. ☐ OK to Dispose ☐ Hold (fees may apply)

| | Sample Name | Canister / Flow Reg Serial # | Sample Date & Time | Sample Type (Matrix) * | Container Type ** | Fill Time / Flow Rate | Internal: Initial Evacuation Pressure (mtorr) | Field Initial Sample Pressure (" Hg) | Field Final Sample Pressure (" Hg) | Analysis: VOCs TO15 SCAN | VOCs TO15 SCAN LL | VOCs TO15 SIM | Siloxanes TO15 | Sulfur TO15 | Sulfur Ext. TO15 | APH TO15 | Helium | Major Gases 3C | | Comments | Internal: Final Pressure ("Hg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Exam Room #3 | 13968 | 05-03-18 11:19AM | | 6L | 8hr | 10 mtorr | | 6/7 | ✓ | | | | | | | | | | *Gasoline | 7 "Hg |
| | | FR8-09 | 05-03-18 219 PM | | | | 4/25/2018 | | | | | | | | | | | | | | |
| 2 | Storage Room | 17648 | 05-03-18 11:20AM | | 6L | 8hr | 10 mtorr | | 8/2 | ✓ | | | | | | | | | | | 3 "Hg |
| | | FR8-25 | 05-03-18 720 PM | | | | 4/25/2018 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | |

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac 6L = 6L Canister 1L = 1L Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

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

Relinquished: x Michael McKay Date/Time: 5/4/18 08:00

Relinquished: x Date/Time:

Received: x Date/Time: ~~5/4/18~~ 5/04/2018

Received: x Date/Time:

**Turn-Around Time:**

☐ Standard
☐ 3 Day
☐ 2 Day
☐ Next Day
Same Day ASAP (specify)

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

**Orion Environmental Services**
Donna McNeal
34004 9th Ave S
Federal Way, WA 98003

**RE: 4550 Fauntleroy Health**
**Work Order Number: 1805338**

May 29, 2018

**Attention Donna McNeal:**

Fremont Analytical, Inc. received 2 sample(s) on 5/24/2018 for the analyses presented in the following report.

***Volatile Organic Compounds by EPA Method TO-15***

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Fremont Analytical

Date: *05/29/2018*

**CLIENT:** Orion Environmental Services
**Project:** 4550 Fauntleroy Health
**Work Order:** 1805338

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Date/Time Collected | Date/Time Received |
|---|---|---|---|
| 1805338-001 | FR8-12 Exam Room 3 | 05/23/2018 9:35 AM | 05/24/2018 12:46 PM |
| 1805338-002 | FR8-7 Back Office Pod | 05/23/2018 9:40 AM | 05/24/2018 12:46 PM |

Fremont Analytical

# Case Narrative

WO#: 1805338
Date: 5/29/2018

**CLIENT:** Orion Environmental Services
**Project:** 4550 Fauntleroy Health

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Air samples are reported in ppbv and ug/m3.

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Standard temperature and pressure assumes 24.45 = (25C and 1 atm).

Note: Gasoline reported in ug/m3 should be considered an estimate. The estimated molecular weight of gasoline used in the equation = 100

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Fremont Analytical

**Client:** Orion Environmental Services
**WorkOrder:** 1805338
**Project:** 4550 Fauntleroy Health

**Client Sample ID:** FR8-12 Exam Room 3
**Lab ID:** 1805338-001A
**Sample Type:** Summa Canister

**Date Sampled:** 5/23/2018
**Date Received:** 5/24/2018

Volatile Organic Compounds by EPA Method TO-15

| Analyte | Concentration (ppbv) | Concentration (ug/m³) | Reporting Limit (ppbv) | Reporting Limit (ug/m³) | Qual | Method | Date/Analyst |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | <0.400 | <2.18 | 0.400 | 2.18 | | EPA-TO-15 | 05/25/2018 BT |
| 1,1,2,2-Tetrachloroethane | <0.300 | <2.06 | 0.300 | 2.06 | | EPA-TO-15 | 05/25/2018 BT |
| CFC-113 | <0.400 | <3.07 | 0.400 | 3.07 | | EPA-TO-15 | 05/25/2018 BT |
| 1,1,2-Trichloroethane (TCA) | <0.500 | <2.73 | 0.500 | 2.73 | | EPA-TO-15 | 05/25/2018 BT |
| 1,1-Dichloroethane | <0.200 | <0.810 | 0.200 | 0.810 | | EPA-TO-15 | 05/25/2018 BT |
| 1,1-Dichloroethene (DCE) | <0.400 | <1.59 | 0.400 | 1.59 | | EPA-TO-15 | 05/25/2018 BT |
| 1,2,4-Trichlorobenzene | <0.300 | <2.23 | 0.300 | 2.23 | | EPA-TO-15 | 05/25/2018 BT |
| 1,2,4-Trimethylbenzene | <0.300 | <1.47 | 0.300 | 1.47 | | EPA-TO-15 | 05/25/2018 BT |
| 1,2-Dibromoethane (EDB) | <0.200 | <1.54 | 0.200 | 1.54 | | EPA-TO-15 | 05/25/2018 BT |
| 1,2-Dichlorobenzene | <0.400 | <2.40 | 0.400 | 2.40 | | EPA-TO-15 | 05/25/2018 BT |
| 1,2-Dichloroethane | <0.200 | <0.809 | 0.200 | 0.809 | | EPA-TO-15 | 05/25/2018 BT |
| 1,2-Dichloropropane | <0.500 | <2.31 | 0.500 | 2.31 | | EPA-TO-15 | 05/25/2018 BT |
| 1,3,5-Trimethylbenzene | <0.300 | <1.47 | 0.300 | 1.47 | | EPA-TO-15 | 05/25/2018 BT |
| 1,3-Butadiene | <0.500 | <1.11 | 0.500 | 1.11 | | EPA-TO-15 | 05/25/2018 BT |
| 1,3-Dichlorobenzene | <0.300 | <1.80 | 0.300 | 1.80 | | EPA-TO-15 | 05/25/2018 BT |
| 1,4-Dichlorobenzene | <0.300 | <1.80 | 0.300 | 1.80 | | EPA-TO-15 | 05/25/2018 BT |
| 1,4-Dioxane | <0.400 | <1.44 | 0.400 | 1.44 | | EPA-TO-15 | 05/25/2018 BT |
| (MEK) 2-Butanone | 313 | 924 | 12.5 | 36.9 | | EPA-TO-15 | 05/25/2018 BT |
| 2-Hexanone | <1.00 | <4.10 | 1.00 | 4.10 | | EPA-TO-15 | 05/25/2018 BT |
| Isopropyl Alcohol | 195 | 479 | 12.5 | 30.7 | * | EPA-TO-15 | 05/25/2018 BT |
| 4-Methyl-2-pentanone (MIBK) | <1.00 | <4.10 | 1.00 | 4.10 | | EPA-TO-15 | 05/25/2018 BT |
| Acetone | 175 | 416 | 12.5 | 29.7 | | EPA-TO-15 | 05/25/2018 BT |
| Acrolein | <0.500 | <1.15 | 0.500 | 1.15 | | EPA-TO-15 | 05/25/2018 BT |
| Benzene | 0.196 | 0.628 | 0.0895 | 0.286 | | EPA-TO-15 | 05/25/2018 BT |
| Benzyl chloride | <0.500 | <2.59 | 0.500 | 2.59 | | EPA-TO-15 | 05/25/2018 BT |
| Dichlorobromomethane | <0.300 | <2.01 | 0.300 | 2.01 | | EPA-TO-15 | 05/25/2018 BT |
| Bromoform | <0.200 | <2.07 | 0.200 | 2.07 | | EPA-TO-15 | 05/25/2018 BT |
| Bromomethane | <0.500 | <1.94 | 0.500 | 1.94 | | EPA-TO-15 | 05/25/2018 BT |
| Carbon disulfide | <1.50 | <4.67 | 1.50 | 4.67 | | EPA-TO-15 | 05/25/2018 BT |
| Carbon tetrachloride | <0.0657 | <0.413 | 0.0657 | 0.413 | | EPA-TO-15 | 05/25/2018 BT |

Fremont Analytical

**Client:** Orion Environmental Services
**WorkOrder:** 1805338
**Project:** 4550 Fauntleroy Health

**Client Sample ID:** FR8-12 Exam Room 3
**Lab ID:** 1805338-001A
**Sample Type:** Summa Canister

**Date Sampled:** 5/23/2018
**Date Received:** 5/24/2018

Volatile Organic Compounds by EPA Method TO-15

| Analyte | Concentration (ppbv) | Concentration (ug/m³) | Reporting Limit (ppbv) | Reporting Limit (ug/m³) | Qual | Method | Date/Analyst | |
|---|---|---|---|---|---|---|---|---|
| Chlorobenzene | <0.200 | <0.921 | 0.200 | 0.921 | | EPA-TO-15 | 05/25/2018 | BT |
| Dibromochloromethane | <0.500 | <4.26 | 0.500 | 4.26 | | EPA-TO-15 | 05/25/2018 | BT |
| Chloroethane | <0.400 | <1.06 | 0.400 | 1.06 | | EPA-TO-15 | 05/25/2018 | BT |
| Chloroform | <0.200 | <0.977 | 0.200 | 0.977 | | EPA-TO-15 | 05/25/2018 | BT |
| Chloromethane | <0.500 | <1.03 | 0.500 | 1.03 | | EPA-TO-15 | 05/25/2018 | BT |
| cis-1,2-Dichloroethene | <0.200 | <0.793 | 0.200 | 0.793 | | EPA-TO-15 | 05/25/2018 | BT |
| cis-1,3-dichloropropene | <0.400 | <1.82 | 0.400 | 1.82 | | EPA-TO-15 | 05/25/2018 | BT |
| Cyclohexane | 2.56 | 8.81 | 0.400 | 1.38 | | EPA-TO-15 | 05/25/2018 | BT |
| Dichlorodifluoromethane (CFC-12) | <0.400 | <1.98 | 0.400 | 1.98 | | EPA-TO-15 | 05/25/2018 | BT |
| Dichlorotetrafluoroethane (CFC-114) | <0.400 | <2.80 | 0.400 | 2.80 | | EPA-TO-15 | 05/25/2018 | BT |
| Ethyl acetate | <1.00 | <3.60 | 1.00 | 3.60 | | EPA-TO-15 | 05/25/2018 | BT |
| Ethylbenzene | <0.400 | <1.74 | 0.400 | 1.74 | | EPA-TO-15 | 05/25/2018 | BT |
| Gasoline Range Organics | 268 | 1,100 | 12.5 | 51.1 | B | EPA-TO-15 | 05/25/2018 | BT |
| Heptane | 2.78 | 11.2 | 0.400 | 1.61 | | EPA-TO-15 | 05/25/2018 | BT |
| Hexachlorobutadiene | <1.00 | <10.7 | 1.00 | 10.7 | | EPA-TO-15 | 05/25/2018 | BT |
| m,p-Xylene | <0.800 | <3.47 | 0.800 | 3.47 | | EPA-TO-15 | 05/25/2018 | BT |
| Methyl methacrylate | <0.400 | <1.64 | 0.400 | 1.64 | | EPA-TO-15 | 05/25/2018 | BT |
| Methylene chloride | <2.00 | <6.95 | 2.00 | 6.95 | | EPA-TO-15 | 05/25/2018 | BT |
| Naphthalene | <0.100 | <0.524 | 0.100 | 0.524 | | EPA-TO-15 | 05/25/2018 | BT |
| n-Hexane | 3.03 | 10.7 | 0.400 | 1.41 | | EPA-TO-15 | 05/25/2018 | BT |
| o-Xylene | <0.400 | <1.74 | 0.400 | 1.74 | | EPA-TO-15 | 05/25/2018 | BT |
| 4-Ethyltoluene | <0.400 | <1.97 | 0.400 | 1.97 | | EPA-TO-15 | 05/25/2018 | BT |
| Propylene | 1.08 | 1.86 | 0.400 | 0.688 | | EPA-TO-15 | 05/25/2018 | BT |
| Styrene | <0.400 | <1.70 | 0.400 | 1.70 | | EPA-TO-15 | 05/25/2018 | BT |
| Methyl tert-butyl ether (MTBE) | <0.400 | <1.44 | 0.400 | 1.44 | | EPA-TO-15 | 05/25/2018 | BT |
| Tetrachloroethene (PCE) | <0.200 | <1.36 | 0.200 | 1.36 | | EPA-TO-15 | 05/25/2018 | BT |
| Tetrahydrofuran | <0.400 | <1.18 | 0.400 | 1.18 | | EPA-TO-15 | 05/25/2018 | BT |
| Toluene | 0.834 | 3.14 | 0.400 | 1.51 | | EPA-TO-15 | 05/25/2018 | BT |
| trans-1,2-Dichloroethene | <0.200 | <0.793 | 0.200 | 0.793 | | EPA-TO-15 | 05/25/2018 | BT |
| trans-1,3-dichloropropene | <0.500 | <2.27 | 0.500 | 2.27 | | EPA-TO-15 | 05/25/2018 | BT |

Fremont Analytical

**Client:** Orion Environmental Services
**WorkOrder:** 1805338
**Project:** 4550 Fauntleroy Health

**Client Sample ID:** FR8-12 Exam Room 3
**Lab ID:** 1805338-001A
**Sample Type:** Summa Canister

**Date Sampled:** 5/23/2018
**Date Received:** 5/24/2018

| Analyte | Concentration | | Reporting Limit | | Qual | Method | Date/Analyst |
|---|---|---|---|---|---|---|---|
| Volatile Organic Compounds by EPA Method TO-15 | | | | | | | |
| | (ppbv) | (ug/m³) | (ppbv) | (ug/m³) | | | |
| Trichloroethene (TCE) | <0.0649 | <0.349 | 0.0649 | 0.349 | | EPA-TO-15 | 05/25/2018 BT |
| Trichlorofluoromethane (CFC-11) | <0.400 | <2.25 | 0.400 | 2.25 | | EPA-TO-15 | 05/25/2018 BT |
| Vinyl acetate | <1.00 | <3.52 | 1.00 | 3.52 | | EPA-TO-15 | 05/25/2018 BT |
| Vinyl chloride | <0.107 | <0.274 | 0.107 | 0.274 | | EPA-TO-15 | 05/25/2018 BT |
| Surr: 4-Bromofluorobenzene | 118 %Rec | -- | 70-130 | -- | | EPA-TO-15 | 05/25/2018 BT |

**NOTES:**
* - Flagged value is not within established control limits.
B - Detection in Method Blank less than 10 times raw value in the sample.

Fremont Analytical

**Client:** Orion Environmental Services
**WorkOrder:** 1805338
**Project:** 4550 Fauntleroy Health

**Client Sample ID:** FR8-7 Back Office Pod
**Lab ID:** 1805338-002A
**Sample Type:** Summa Canister

**Date Sampled:** 5/23/2018
**Date Received:** 5/24/2018

Volatile Organic Compounds by EPA Method TO-15

| Analyte | Concentration (ppbv) | Concentration (ug/m³) | Reporting Limit (ppbv) | Reporting Limit (ug/m³) | Qual | Method | Date/Analyst |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | <0.400 | <2.18 | 0.400 | 2.18 | | EPA-TO-15 | 05/25/2018 BT |
| 1,1,2,2-Tetrachloroethane | <0.300 | <2.06 | 0.300 | 2.06 | | EPA-TO-15 | 05/25/2018 BT |
| CFC-113 | <0.400 | <3.07 | 0.400 | 3.07 | | EPA-TO-15 | 05/25/2018 BT |
| 1,1,2-Trichloroethane (TCA) | <0.500 | <2.73 | 0.500 | 2.73 | | EPA-TO-15 | 05/25/2018 BT |
| 1,1-Dichloroethane | <0.200 | <0.810 | 0.200 | 0.810 | | EPA-TO-15 | 05/25/2018 BT |
| 1,1-Dichloroethene (DCE) | <0.400 | <1.59 | 0.400 | 1.59 | | EPA-TO-15 | 05/25/2018 BT |
| 1,2,4-Trichlorobenzene | <0.300 | <2.23 | 0.300 | 2.23 | | EPA-TO-15 | 05/25/2018 BT |
| 1,2,4-Trimethylbenzene | <0.300 | <1.47 | 0.300 | 1.47 | | EPA-TO-15 | 05/25/2018 BT |
| 1,2-Dibromoethane (EDB) | <0.200 | <1.54 | 0.200 | 1.54 | | EPA-TO-15 | 05/25/2018 BT |
| 1,2-Dichlorobenzene | <0.400 | <2.40 | 0.400 | 2.40 | | EPA-TO-15 | 05/25/2018 BT |
| 1,2-Dichloroethane | <0.200 | <0.809 | 0.200 | 0.809 | | EPA-TO-15 | 05/25/2018 BT |
| 1,2-Dichloropropane | <0.500 | <2.31 | 0.500 | 2.31 | | EPA-TO-15 | 05/25/2018 BT |
| 1,3,5-Trimethylbenzene | <0.300 | <1.47 | 0.300 | 1.47 | | EPA-TO-15 | 05/25/2018 BT |
| 1,3-Butadiene | <0.500 | <1.11 | 0.500 | 1.11 | | EPA-TO-15 | 05/25/2018 BT |
| 1,3-Dichlorobenzene | <0.300 | <1.80 | 0.300 | 1.80 | | EPA-TO-15 | 05/25/2018 BT |
| 1,4-Dichlorobenzene | <0.300 | <1.80 | 0.300 | 1.80 | | EPA-TO-15 | 05/25/2018 BT |
| 1,4-Dioxane | <0.400 | <1.44 | 0.400 | 1.44 | | EPA-TO-15 | 05/25/2018 BT |
| (MEK) 2-Butanone | 139 | 409 | 12.5 | 36.9 | | EPA-TO-15 | 05/25/2018 BT |
| 2-Hexanone | <1.00 | <4.10 | 1.00 | 4.10 | | EPA-TO-15 | 05/25/2018 BT |
| Isopropyl Alcohol | 140 | 345 | 12.5 | 30.7 | * | EPA-TO-15 | 05/25/2018 BT |
| 4-Methyl-2-pentanone (MIBK) | <1.00 | <4.10 | 1.00 | 4.10 | | EPA-TO-15 | 05/25/2018 BT |
| Acetone | 86.2 | 205 | 12.5 | 29.7 | | EPA-TO-15 | 05/25/2018 BT |
| Acrolein | <0.500 | <1.15 | 0.500 | 1.15 | | EPA-TO-15 | 05/25/2018 BT |
| Benzene | 0.162 | 0.516 | 0.0895 | 0.286 | | EPA-TO-15 | 05/25/2018 BT |
| Benzyl chloride | <0.500 | <2.59 | 0.500 | 2.59 | | EPA-TO-15 | 05/25/2018 BT |
| Dichlorobromomethane | <0.300 | <2.01 | 0.300 | 2.01 | | EPA-TO-15 | 05/25/2018 BT |
| Bromoform | <0.200 | <2.07 | 0.200 | 2.07 | | EPA-TO-15 | 05/25/2018 BT |
| Bromomethane | <0.500 | <1.94 | 0.500 | 1.94 | | EPA-TO-15 | 05/25/2018 BT |
| Carbon disulfide | <1.50 | <4.67 | 1.50 | 4.67 | | EPA-TO-15 | 05/25/2018 BT |
| Carbon tetrachloride | <0.0657 | <0.413 | 0.0657 | 0.413 | | EPA-TO-15 | 05/25/2018 BT |

Fremont Analytical

**Client:** Orion Environmental Services
**WorkOrder:** 1805338
**Project:** 4550 Fauntleroy Health

**Client Sample ID:** FR8-7 Back Office Pod
**Lab ID:** 1805338-002A
**Sample Type:** Summa Canister

**Date Sampled:** 5/23/2018
**Date Received:** 5/24/2018

Volatile Organic Compounds by EPA Method TO-15

| Analyte | Concentration (ppbv) | Concentration (ug/m³) | Reporting Limit (ppbv) | Reporting Limit (ug/m³) | Qual | Method | Date/Analyst | |
|---|---|---|---|---|---|---|---|---|
| Chlorobenzene | <0.200 | <0.921 | 0.200 | 0.921 | | EPA-TO-15 | 05/25/2018 | BT |
| Dibromochloromethane | <0.500 | <4.26 | 0.500 | 4.26 | | EPA-TO-15 | 05/25/2018 | BT |
| Chloroethane | <0.400 | <1.06 | 0.400 | 1.06 | | EPA-TO-15 | 05/25/2018 | BT |
| Chloroform | <0.200 | <0.977 | 0.200 | 0.977 | | EPA-TO-15 | 05/25/2018 | BT |
| Chloromethane | <0.500 | <1.03 | 0.500 | 1.03 | | EPA-TO-15 | 05/25/2018 | BT |
| cis-1,2-Dichloroethene | <0.200 | <0.793 | 0.200 | 0.793 | | EPA-TO-15 | 05/25/2018 | BT |
| cis-1,3-dichloropropene | <0.400 | <1.82 | 0.400 | 1.82 | | EPA-TO-15 | 05/25/2018 | BT |
| Cyclohexane | 2.60 | 8.94 | 0.400 | 1.38 | | EPA-TO-15 | 05/25/2018 | BT |
| Dichlorodifluoromethane (CFC-12) | <0.400 | <1.98 | 0.400 | 1.98 | | EPA-TO-15 | 05/25/2018 | BT |
| Dichlorotetrafluoroethane (CFC-114) | <0.400 | <2.80 | 0.400 | 2.80 | | EPA-TO-15 | 05/25/2018 | BT |
| Ethyl acetate | <1.00 | <3.60 | 1.00 | 3.60 | | EPA-TO-15 | 05/25/2018 | BT |
| Ethylbenzene | <0.400 | <1.74 | 0.400 | 1.74 | | EPA-TO-15 | 05/25/2018 | BT |
| Gasoline Range Organics | 249 | 1,020 | 12.5 | 51.1 | B | EPA-TO-15 | 05/25/2018 | BT |
| Heptane | 3.27 | 13.1 | 0.400 | 1.61 | | EPA-TO-15 | 05/25/2018 | BT |
| Hexachlorobutadiene | <1.00 | <10.7 | 1.00 | 10.7 | | EPA-TO-15 | 05/25/2018 | BT |
| m,p-Xylene | <0.800 | <3.47 | 0.800 | 3.47 | | EPA-TO-15 | 05/25/2018 | BT |
| Methyl methacrylate | <0.400 | <1.64 | 0.400 | 1.64 | | EPA-TO-15 | 05/25/2018 | BT |
| Methylene chloride | <2.00 | <6.95 | 2.00 | 6.95 | | EPA-TO-15 | 05/25/2018 | BT |
| Naphthalene | <0.100 | <0.524 | 0.100 | 0.524 | | EPA-TO-15 | 05/25/2018 | BT |
| n-Hexane | 3.11 | 11.0 | 0.400 | 1.41 | | EPA-TO-15 | 05/25/2018 | BT |
| o-Xylene | <0.400 | <1.74 | 0.400 | 1.74 | | EPA-TO-15 | 05/25/2018 | BT |
| 4-Ethyltoluene | <0.400 | <1.97 | 0.400 | 1.97 | | EPA-TO-15 | 05/25/2018 | BT |
| Propylene | 0.792 | 1.36 | 0.400 | 0.688 | | EPA-TO-15 | 05/25/2018 | BT |
| Styrene | <0.400 | <1.70 | 0.400 | 1.70 | | EPA-TO-15 | 05/25/2018 | BT |
| Methyl tert-butyl ether (MTBE) | <0.400 | <1.44 | 0.400 | 1.44 | | EPA-TO-15 | 05/25/2018 | BT |
| Tetrachloroethene (PCE) | <0.200 | <1.36 | 0.200 | 1.36 | | EPA-TO-15 | 05/25/2018 | BT |
| Tetrahydrofuran | <0.400 | <1.18 | 0.400 | 1.18 | | EPA-TO-15 | 05/25/2018 | BT |
| Toluene | 0.421 | 1.59 | 0.400 | 1.51 | | EPA-TO-15 | 05/25/2018 | BT |
| trans-1,2-Dichloroethene | <0.200 | <0.793 | 0.200 | 0.793 | | EPA-TO-15 | 05/25/2018 | BT |
| trans-1,3-dichloropropene | <0.500 | <2.27 | 0.500 | 2.27 | | EPA-TO-15 | 05/25/2018 | BT |

Fremont Analytical

**Client:** Orion Environmental Services
**WorkOrder:** 1805338
**Project:** 4550 Fauntleroy Health

**Client Sample ID:** FR8-7 Back Office Pod
**Lab ID:** 1805338-002A
**Sample Type:** Summa Canister

**Date Sampled:** 5/23/2018
**Date Received:** 5/24/2018

| Analyte | Concentration | | Reporting Limit | | Qual | Method | Date/Analyst |
|---|---|---|---|---|---|---|---|
| Volatile Organic Compounds by EPA Method TO-15 | | | | | | | |
| | (ppbv) | (ug/m³) | (ppbv) | (ug/m³) | | | |
| Trichloroethene (TCE) | <0.0649 | <0.349 | 0.0649 | 0.349 | | EPA-TO-15 | 05/25/2018 BT |
| Trichlorofluoromethane (CFC-11) | <0.400 | <2.25 | 0.400 | 2.25 | | EPA-TO-15 | 05/25/2018 BT |
| Vinyl acetate | <1.00 | <3.52 | 1.00 | 3.52 | | EPA-TO-15 | 05/25/2018 BT |
| Vinyl chloride | <0.107 | <0.274 | 0.107 | 0.274 | | EPA-TO-15 | 05/25/2018 BT |
| Surr: 4-Bromofluorobenzene | 116 %Rec | -- | 70-130 | -- | | EPA-TO-15 | 05/25/2018 BT |

**NOTES:**
* - Flagged value is not within established control limits.
B - Detection in Method Blank less than 10 times raw value in the sample.

**Work Order:** 1805338
**CLIENT:** Orion Environmental Services
**Project:** 4550 Fauntleroy Health

# QC SUMMARY REPORT

## Volatile Organic Compounds by EPA Method TO-15

Sample ID **LCS VOC-R43770** SampType: **LCS** Units: **ppbv** Prep Date: **5/24/2018** RunNo: **43770**
Client ID: **LCSW** Batch ID: **R43770** Analysis Date: **5/24/2018** SeqNo: **847162**

| Analyte | Result | RL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 89.7 | 1.00 | 72.00 | 0 | 125 | 70 | 130 | | | | |
| Propylene | 1.80 | 0.400 | 2.000 | 0 | 90.1 | 70 | 130 | | | | |
| Dichlorodifluoromethane (CFC-12) | 1.52 | 0.400 | 2.000 | 0 | 76.0 | 70 | 130 | | | | |
| Chloromethane | 1.42 | 0.500 | 2.000 | 0 | 71.1 | 70 | 130 | | | | |
| Dichlorotetrafluoroethane (CFC-114) | 1.48 | 0.400 | 2.000 | 0 | 74.1 | 70 | 130 | | | | |
| Vinyl chloride | 1.42 | 0.107 | 2.000 | 0 | 71.1 | 70 | 130 | | | | |
| 1,3-Butadiene | 1.49 | 0.500 | 2.000 | 0 | 74.4 | 70 | 130 | | | | |
| Bromomethane | 1.57 | 0.500 | 2.000 | 0 | 78.7 | 70 | 130 | | | | |
| Trichlorofluoromethane (CFC-11) | 2.00 | 0.400 | 2.000 | 0 | 100 | 70 | 130 | | | | |
| Chloroethane | 2.09 | 0.400 | 2.000 | 0 | 104 | 70 | 130 | | | | |
| Acrolein | 2.23 | 0.500 | 2.000 | 0 | 111 | 70 | 130 | | | | |
| 1,1-Dichloroethene (DCE) | 2.10 | 0.400 | 2.000 | 0 | 105 | 70 | 130 | | | | |
| Acetone | 2.21 | 1.00 | 2.000 | 0 | 110 | 70 | 130 | | | | |
| Isopropyl Alcohol | 2.67 | 1.00 | 2.000 | 0 | 134 | 70 | 130 | | | | S |
| Methylene chloride | 3.14 | 2.00 | 2.000 | 0 | 157 | 70 | 130 | | | | S |
| Carbon disulfide | 2.13 | 1.50 | 2.000 | 0 | 107 | 70 | 130 | | | | |
| trans-1,2-Dichloroethene | 2.08 | 0.200 | 2.000 | 0 | 104 | 70 | 130 | | | | |
| Methyl tert-butyl ether (MTBE) | 2.08 | 0.400 | 2.000 | 0 | 104 | 70 | 130 | | | | |
| n-Hexane | 2.21 | 0.400 | 2.000 | 0 | 111 | 70 | 130 | | | | |
| 1,1-Dichloroethane | 2.15 | 0.200 | 2.000 | 0 | 107 | 70 | 130 | | | | |
| Vinyl acetate | 2.10 | 1.00 | 2.000 | 0 | 105 | 70 | 130 | | | | |
| cis-1,2-Dichloroethene | 2.09 | 0.200 | 2.000 | 0 | 105 | 70 | 130 | | | | |
| (MEK) 2-Butanone | 2.00 | 1.00 | 2.000 | 0 | 100 | 70 | 130 | | | | |
| Ethyl acetate | 2.20 | 1.00 | 2.000 | 0 | 110 | 70 | 130 | | | | |
| Chloroform | 2.11 | 0.200 | 2.000 | 0 | 105 | 70 | 130 | | | | |
| Tetrahydrofuran | 2.13 | 0.400 | 2.000 | 0 | 107 | 70 | 130 | | | | |
| 1,1,1-Trichloroethane | 2.02 | 0.400 | 2.000 | 0 | 101 | 70 | 130 | | | | |
| Carbon tetrachloride | 1.97 | 0.0657 | 2.000 | 0 | 98.6 | 70 | 130 | | | | |
| 1,2-Dichloroethane | 2.05 | 0.200 | 2.000 | 0 | 102 | 70 | 130 | | | | |
| Benzene | 2.14 | 0.0895 | 2.000 | 0 | 107 | 70 | 130 | | | | |
| Cyclohexane | 2.14 | 0.400 | 2.000 | 0 | 107 | 70 | 130 | | | | |

**Work Order:** 1805338
**CLIENT:** Orion Environmental Services
**Project:** 4550 Fauntleroy Health

# QC SUMMARY REPORT

## Volatile Organic Compounds by EPA Method TO-15

Sample ID **LCS VOC-R43770** SampType: **LCS** Units: **ppbv** Prep Date: **5/24/2018** RunNo: **43770**
Client ID: **LCSW** Batch ID: **R43770** Analysis Date: **5/24/2018** SeqNo: **847162**

| Analyte | Result | RL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Trichloroethene (TCE) | 2.07 | 0.0649 | 2.000 | 0 | 103 | 70 | 130 | | | | |
| 1,2-Dichloropropane | 2.15 | 0.500 | 2.000 | 0 | 107 | 70 | 130 | | | | |
| Methyl methacrylate | 2.14 | 0.400 | 2.000 | 0 | 107 | 70 | 130 | | | | |
| Dichlorobromomethane | 2.05 | 0.300 | 2.000 | 0 | 103 | 70 | 130 | | | | |
| 1,4-Dioxane | 2.32 | 0.400 | 2.000 | 0 | 116 | 70 | 130 | | | | |
| cis-1,3-dichloropropene | 2.10 | 0.400 | 2.000 | 0 | 105 | 70 | 130 | | | | |
| Toluene | 1.94 | 0.400 | 2.000 | 0 | 96.9 | 70 | 130 | | | | |
| trans-1,3-dichloropropene | 2.08 | 0.500 | 2.000 | 0 | 104 | 70 | 130 | | | | |
| 1,1,2-Trichloroethane (TCA) | 2.09 | 0.500 | 2.000 | 0 | 105 | 70 | 130 | | | | |
| Tetrachloroethene (PCE) | 1.95 | 0.200 | 2.000 | 0 | 97.7 | 70 | 130 | | | | |
| Dibromochloromethane | 1.98 | 0.500 | 2.000 | 0 | 99.2 | 70 | 130 | | | | |
| 1,2-Dibromoethane (EDB) | 2.07 | 0.200 | 2.000 | 0 | 104 | 70 | 130 | | | | |
| Chlorobenzene | 2.22 | 0.200 | 2.000 | 0 | 111 | 70 | 130 | | | | |
| Ethylbenzene | 2.12 | 0.400 | 2.000 | 0 | 106 | 70 | 130 | | | | |
| m,p-Xylene | 4.33 | 0.800 | 4.000 | 0 | 108 | 70 | 130 | | | | |
| o-Xylene | 2.25 | 0.400 | 2.000 | 0 | 112 | 70 | 130 | | | | |
| Styrene | 2.24 | 0.400 | 2.000 | 0 | 112 | 70 | 130 | | | | |
| Bromoform | 2.11 | 0.200 | 2.000 | 0 | 106 | 70 | 130 | | | | |
| 1,1,2,2-Tetrachloroethane | 2.38 | 0.300 | 2.000 | 0 | 119 | 70 | 130 | | | | |
| 1,3,5-Trimethylbenzene | 2.36 | 0.300 | 2.000 | 0 | 118 | 70 | 130 | | | | |
| 1,2,4-Trimethylbenzene | 2.28 | 0.300 | 2.000 | 0 | 114 | 70 | 130 | | | | |
| Benzyl chloride | 1.95 | 0.500 | 2.000 | 0 | 97.6 | 70 | 130 | | | | |
| 4-Ethyltoluene | 2.35 | 0.400 | 2.000 | 0 | 118 | 70 | 130 | | | | |
| 1,3-Dichlorobenzene | 2.25 | 0.300 | 2.000 | 0 | 113 | 70 | 130 | | | | |
| 1,4-Dichlorobenzene | 2.44 | 0.300 | 2.000 | 0 | 122 | 70 | 130 | | | | |
| 1,2-Dichlorobenzene | 2.20 | 0.400 | 2.000 | 0 | 110 | 70 | 130 | | | | |
| 1,2,4-Trichlorobenzene | 1.92 | 0.300 | 2.000 | 0 | 95.9 | 70 | 130 | | | | |
| Hexachlorobutadiene | 2.15 | 1.00 | 2.000 | 0 | 107 | 70 | 130 | | | | |
| Naphthalene | 2.30 | 0.100 | 2.000 | 0 | 115 | 70 | 130 | | | | |
| 2-Hexanone | 2.37 | 1.00 | 2.000 | 0 | 118 | 70 | 130 | | | | |
| 4-Methyl-2-pentanone (MIBK) | 2.34 | 1.00 | 2.000 | 0 | 117 | 70 | 130 | | | | |

**Work Order:** 1805338
**CLIENT:** Orion Environmental Services
**Project:** 4550 Fauntleroy Health

# QC SUMMARY REPORT

## Volatile Organic Compounds by EPA Method TO-15

| Sample ID LCS VOC-R43770 | SampType: LCS | | | Units: ppbv | | Prep Date: 5/24/2018 | | RunNo: 43770 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: LCSW | Batch ID: R43770 | | | | | Analysis Date: 5/24/2018 | | SeqNo: 847162 | | |
| Analyte | Result | RL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| CFC-113 | 2.25 | 0.400 | 2.000 | 0 | 113 | 70 | 130 | | | | |
| Heptane | 2.15 | 0.400 | 2.000 | 0 | 108 | 70 | 130 | | | | |
| Surr: 4-Bromofluorobenzene | 4.06 | | 4.000 | | 101 | 70 | 130 | | | | |

**NOTES:**
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.
S - Outlying spike recovery observed (high bias). Detections will be qualified with a *.

| Sample ID MBLK-R43770 | SampType: MBLK | | | Units: ppbv | | Prep Date: 5/24/2018 | | RunNo: 43770 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: MBLKW | Batch ID: R43770 | | | | | Analysis Date: 5/24/2018 | | SeqNo: 847191 | | |
| Analyte | Result | RL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Gasoline Range Organics | 1.33 | 1.00 | | | | | | | | | |
| Propylene | ND | 0.400 | | | | | | | | | |
| Dichlorodifluoromethane (CFC-12) | ND | 0.400 | | | | | | | | | |
| Chloromethane | ND | 0.500 | | | | | | | | | |
| Dichlorotetrafluoroethane (CFC-114) | ND | 0.400 | | | | | | | | | |
| Vinyl chloride | ND | 0.107 | | | | | | | | | |
| 1,3-Butadiene | ND | 0.500 | | | | | | | | | |
| Bromomethane | ND | 0.500 | | | | | | | | | |
| Trichlorofluoromethane (CFC-11) | ND | 0.400 | | | | | | | | | |
| Chloroethane | ND | 0.400 | | | | | | | | | |
| Acrolein | ND | 0.500 | | | | | | | | | |
| 1,1-Dichloroethene (DCE) | ND | 0.400 | | | | | | | | | |
| Acetone | ND | 1.00 | | | | | | | | | |
| Isopropyl Alcohol | ND | 1.00 | | | | | | | | | * |
| Methylene chloride | 2.80 | 2.00 | | | | | | | | | * |
| Carbon disulfide | ND | 1.50 | | | | | | | | | |
| trans-1,2-Dichloroethene | ND | 0.200 | | | | | | | | | |
| Methyl tert-butyl ether (MTBE) | ND | 0.400 | | | | | | | | | |
| n-Hexane | ND | 0.400 | | | | | | | | | |
| 1,1-Dichloroethane | ND | 0.200 | | | | | | | | | |

Fremont Analytical

Date: 5/29/2018

**Work Order:** 1805338
**CLIENT:** Orion Environmental Services
**Project:** 4550 Fauntleroy Health

# QC SUMMARY REPORT

## Volatile Organic Compounds by EPA Method TO-15

| Sample ID | MBLK-R43770 | SampType: | MBLK | Units: | ppbv | Prep Date: | 5/24/2018 | RunNo: | 43770 |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: | MBLKW | Batch ID: | R43770 | | | Analysis Date: | 5/24/2018 | SeqNo: | 847191 |

| Analyte | Result | RL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vinyl acetate | ND | 1.00 | | | | | | | | | |
| cis-1,2-Dichloroethene | ND | 0.200 | | | | | | | | | |
| (MEK) 2-Butanone | ND | 1.00 | | | | | | | | | |
| Ethyl acetate | ND | 1.00 | | | | | | | | | |
| Chloroform | ND | 0.200 | | | | | | | | | |
| Tetrahydrofuran | ND | 0.400 | | | | | | | | | |
| 1,1,1-Trichloroethane | ND | 0.400 | | | | | | | | | |
| Carbon tetrachloride | ND | 0.0657 | | | | | | | | | |
| 1,2-Dichloroethane | ND | 0.200 | | | | | | | | | |
| Benzene | ND | 0.0895 | | | | | | | | | |
| Cyclohexane | ND | 0.400 | | | | | | | | | |
| Trichloroethene (TCE) | ND | 0.0649 | | | | | | | | | |
| 1,2-Dichloropropane | ND | 0.500 | | | | | | | | | |
| Methyl methacrylate | ND | 0.400 | | | | | | | | | |
| Dichlorobromomethane | ND | 0.300 | | | | | | | | | |
| 1,4-Dioxane | ND | 0.400 | | | | | | | | | |
| cis-1,3-dichloropropene | ND | 0.400 | | | | | | | | | |
| Toluene | ND | 0.400 | | | | | | | | | |
| trans-1,3-dichloropropene | ND | 0.500 | | | | | | | | | |
| 1,1,2-Trichloroethane (TCA) | ND | 0.500 | | | | | | | | | |
| Tetrachloroethene (PCE) | ND | 0.200 | | | | | | | | | |
| Dibromochloromethane | ND | 0.500 | | | | | | | | | |
| 1,2-Dibromoethane (EDB) | ND | 0.200 | | | | | | | | | |
| Chlorobenzene | ND | 0.200 | | | | | | | | | |
| Ethylbenzene | ND | 0.400 | | | | | | | | | |
| m,p-Xylene | ND | 0.800 | | | | | | | | | |
| o-Xylene | ND | 0.400 | | | | | | | | | |
| Styrene | ND | 0.400 | | | | | | | | | |
| Bromoform | ND | 0.200 | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | ND | 0.300 | | | | | | | | | |
| 1,3,5-Trimethylbenzene | ND | 0.300 | | | | | | | | | |

**Work Order:** 1805338
**CLIENT:** Orion Environmental Services
**Project:** 4550 Fauntleroy Health

# QC SUMMARY REPORT

## Volatile Organic Compounds by EPA Method TO-15

Sample ID **MBLK-R43770** SampType: **MBLK** Units: **ppbv** Prep Date: **5/24/2018** RunNo: **43770**
Client ID: **MBLKW** Batch ID: **R43770** Analysis Date: **5/24/2018** SeqNo: **847191**

| Analyte | Result | RL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,2,4-Trimethylbenzene | ND | 0.300 | | | | | | | | | |
| Benzyl chloride | ND | 0.500 | | | | | | | | | |
| 4-Ethyltoluene | ND | 0.400 | | | | | | | | | |
| 1,3-Dichlorobenzene | ND | 0.300 | | | | | | | | | |
| 1,4-Dichlorobenzene | ND | 0.300 | | | | | | | | | |
| 1,2-Dichlorobenzene | ND | 0.400 | | | | | | | | | |
| 1,2,4-Trichlorobenzene | ND | 0.300 | | | | | | | | | |
| Hexachlorobutadiene | ND | 1.00 | | | | | | | | | |
| Naphthalene | ND | 0.100 | | | | | | | | | |
| 2-Hexanone | ND | 1.00 | | | | | | | | | |
| 4-Methyl-2-pentanone (MIBK) | ND | 1.00 | | | | | | | | | |
| CFC-113 | ND | 0.400 | | | | | | | | | |
| Heptane | ND | 0.400 | | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 4.08 | | 4.000 | | 102 | 70 | 130 | | | | |

**NOTES:**
* - Flagged value is not within established control limits.

Sample ID **1805338-001AREP** SampType: **REP** Units: **ppbv** Prep Date: **5/25/2018** RunNo: **43770**
Client ID: **FR8-12 Exam Room 3** Batch ID: **R43770** Analysis Date: **5/25/2018** SeqNo: **847166**

| Analyte | Result | RL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 277 | 1.00 | | | | | | 274.6 | 1.03 | 30 | EB |
| Propylene | 0.985 | 0.400 | | | | | | 1.081 | 9.26 | 30 | |
| Dichlorodifluoromethane (CFC-12) | ND | 0.400 | | | | | | 0 | | 30 | |
| Chloromethane | ND | 0.500 | | | | | | 0 | | 30 | |
| Dichlorotetrafluoroethane (CFC-114) | ND | 0.400 | | | | | | 0 | | 30 | |
| Vinyl chloride | ND | 0.107 | | | | | | 0 | | 30 | |
| 1,3-Butadiene | ND | 0.500 | | | | | | 0 | | 30 | |
| Bromomethane | ND | 0.500 | | | | | | 0 | | 30 | |
| Trichlorofluoromethane (CFC-11) | ND | 0.400 | | | | | | 0 | | 30 | |
| Chloroethane | ND | 0.400 | | | | | | 0 | | 30 | |

Fremont Analytical

Date: 5/29/2018

**Work Order:** 1805338
**CLIENT:** Orion Environmental Services
**Project:** 4550 Fauntleroy Health

# QC SUMMARY REPORT

## Volatile Organic Compounds by EPA Method TO-15

Sample ID **1805338-001AREP** SampType: **REP** Units: **ppbv** Prep Date: **5/25/2018** RunNo: **43770**
Client ID: **FR8-12 Exam Room 3** Batch ID: **R43770** Analysis Date: **5/25/2018** SeqNo: **847166**

| Analyte | Result | RL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Acrolein | ND | 0.500 | | | | | | 0 | | 30 | |
| 1,1-Dichloroethene (DCE) | ND | 0.400 | | | | | | 0 | | 30 | |
| Acetone | 170 | 1.00 | | | | | | 171.9 | 1.04 | 30 | E |
| Isopropyl Alcohol | 169 | 1.00 | | | | | | 169.6 | 0.570 | 30 | *E |
| Methylene chloride | ND | 2.00 | | | | | | 0 | | 30 | |
| Carbon disulfide | ND | 1.50 | | | | | | 0 | | 30 | |
| trans-1,2-Dichloroethene | ND | 0.200 | | | | | | 0 | | 30 | |
| Methyl tert-butyl ether (MTBE) | ND | 0.400 | | | | | | 0 | | 30 | |
| n-Hexane | 2.96 | 0.400 | | | | | | 3.029 | 2.21 | 30 | |
| 1,1-Dichloroethane | ND | 0.200 | | | | | | 0 | | 30 | |
| Vinyl acetate | ND | 1.00 | | | | | | 0 | | 30 | |
| cis-1,2-Dichloroethene | ND | 0.200 | | | | | | 0 | | 30 | |
| (MEK) 2-Butanone | 292 | 1.00 | | | | | | 297.2 | 1.71 | 30 | E |
| Ethyl acetate | ND | 1.00 | | | | | | 0 | | 30 | |
| Chloroform | ND | 0.200 | | | | | | 0 | | 30 | |
| Tetrahydrofuran | ND | 0.400 | | | | | | 0 | | 30 | |
| 1,1,1-Trichloroethane | ND | 0.400 | | | | | | 0 | | 30 | |
| Carbon tetrachloride | ND | 0.0657 | | | | | | 0 | | 30 | |
| 1,2-Dichloroethane | ND | 0.200 | | | | | | 0 | | 30 | |
| Benzene | 0.194 | 0.0895 | | | | | | 0.1965 | 1.49 | 30 | |
| Cyclohexane | 2.57 | 0.400 | | | | | | 2.560 | 0.252 | 30 | |
| Trichloroethene (TCE) | ND | 0.0649 | | | | | | 0 | | 30 | |
| 1,2-Dichloropropane | ND | 0.500 | | | | | | 0 | | 30 | |
| Methyl methacrylate | ND | 0.400 | | | | | | 0 | | 30 | |
| Dichlorobromomethane | ND | 0.300 | | | | | | 0 | | 30 | |
| 1,4-Dioxane | ND | 0.400 | | | | | | 0 | | 30 | |
| cis-1,3-dichloropropene | ND | 0.400 | | | | | | 0 | | 30 | |
| Toluene | 0.826 | 0.400 | | | | | | 0.8336 | 0.940 | 30 | |
| trans-1,3-dichloropropene | ND | 0.500 | | | | | | 0 | | 30 | |
| 1,1,2-Trichloroethane (TCA) | ND | 0.500 | | | | | | 0 | | 30 | |
| Tetrachloroethene (PCE) | ND | 0.200 | | | | | | 0 | | 30 | |

Fremont Analytical

Date: *5/29/2018*

**Work Order:** 1805338
**CLIENT:** Orion Environmental Services
**Project:** 4550 Fauntleroy Health

# QC SUMMARY REPORT

## Volatile Organic Compounds by EPA Method TO-15

Sample ID **1805338-001AREP** SampType: **REP** Units: **ppbv** Prep Date: **5/25/2018** RunNo: **43770**
Client ID: **FR8-12 Exam Room 3** Batch ID: **R43770** Analysis Date: **5/25/2018** SeqNo: **847166**

| Analyte | Result | RL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dibromochloromethane | ND | 0.500 | | | | | | 0 | | 30 | |
| 1,2-Dibromoethane (EDB) | ND | 0.200 | | | | | | 0 | | 30 | |
| Chlorobenzene | ND | 0.200 | | | | | | 0 | | 30 | |
| Ethylbenzene | ND | 0.400 | | | | | | 0 | | 30 | |
| m,p-Xylene | ND | 0.800 | | | | | | 0 | | 30 | |
| o-Xylene | ND | 0.400 | | | | | | 0 | | 30 | |
| Styrene | ND | 0.400 | | | | | | 0 | | 30 | |
| Bromoform | ND | 0.200 | | | | | | 0 | | 30 | |
| 1,1,2,2-Tetrachloroethane | ND | 0.300 | | | | | | 0 | | 30 | |
| 1,3,5-Trimethylbenzene | ND | 0.300 | | | | | | 0 | | 30 | |
| 1,2,4-Trimethylbenzene | ND | 0.300 | | | | | | 0 | | 30 | |
| Benzyl chloride | ND | 0.500 | | | | | | 0 | | 30 | |
| 4-Ethyltoluene | ND | 0.400 | | | | | | 0 | | 30 | |
| 1,3-Dichlorobenzene | ND | 0.300 | | | | | | 0 | | 30 | |
| 1,4-Dichlorobenzene | ND | 0.300 | | | | | | 0 | | 30 | |
| 1,2-Dichlorobenzene | ND | 0.400 | | | | | | 0 | | 30 | |
| 1,2,4-Trichlorobenzene | ND | 0.300 | | | | | | 0 | | 30 | |
| Hexachlorobutadiene | ND | 1.00 | | | | | | 0 | | 30 | |
| Naphthalene | ND | 0.100 | | | | | | 0 | | 30 | |
| 2-Hexanone | ND | 1.00 | | | | | | 0 | | 30 | |
| 4-Methyl-2-pentanone (MIBK) | ND | 1.00 | | | | | | 0 | | 30 | |
| CFC-113 | ND | 0.400 | | | | | | 0 | | 30 | |
| Heptane | 2.80 | 0.400 | | | | | | 2.779 | 0.816 | 30 | |
| Surr: 4-Bromofluorobenzene | 4.71 | | 4.000 | | 118 | 70 | 130 | | 0 | | |

**NOTES:**
B - Detection in Method Blank less than 10 times raw value in the sample.
E - Estimated value. The amount exceeds the linear working range of the instrument.
* - Flagged value is not within established control limits.

# Fremont Analytical

## Sample Log-In Check List

| | | | |
|---|---|---|---|
| Client Name: | ORIONES | Work Order Number: | 1805338 |
| Logged by: | Brianna Barnes | Date Received: | 5/24/2018 12:46:00 PM |

### *Chain of Custody*

| | | | | |
|---|---|---|---|---|
| 1. | Is Chain of Custody complete? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. | How was the sample delivered? | Client | | |

### *Log In*

| | | | | |
|---|---|---|---|---|
| 3. | Coolers are present? | Yes ☐ | No ☑ | NA ☐ |
| | | Air Samples. | | |
| 4. | Shipping container/cooler in good condition? | Yes ☑ | No ☐ | |
| 5. | Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact) | Yes ☐ | No ☐ | Not Required ☑ |
| 6. | Was an attempt made to cool the samples? | Yes ☐ | No ☐ | NA ☑ |
| 7. | Were all items received at a temperature of >0°C to 10.0°C * | Yes ☐ | No ☐ | NA ☑ |
| 8. | Sample(s) in proper container(s)? | Yes ☑ | No ☐ | |
| 9. | Sufficient sample volume for indicated test(s)? | Yes ☑ | No ☐ | |
| 10. | Are samples properly preserved? | Yes ☑ | No ☐ | |
| 11. | Was preservative added to bottles? | Yes ☐ | No ☑ | NA ☐ |
| 12. | Is there headspace in the VOA vials? | Yes ☐ | No ☐ | NA ☑ |
| 13. | Did all samples containers arrive in good condition(unbroken)? | Yes ☑ | No ☐ | |
| 14. | Does paperwork match bottle labels? | Yes ☑ | No ☐ | |
| 15. | Are matrices correctly identified on Chain of Custody? | Yes ☑ | No ☐ | |
| 16. | Is it clear what analyses were requested? | Yes ☑ | No ☐ | |
| 17. | Were all holding times able to be met? | Yes ☑ | No ☐ | |

### *Special Handling (if applicable)*

18. Was client notified of all discrepancies with this order? Yes ☑ No ☐ NA ☐

| | | | |
|---|---|---|---|
| Person Notified: | Donna | Date | 5/24/2018 |
| By Whom: | Brianna Barnes | Via: | ☐ eMail ☑ Phone ☐ Fax ☐ In Person |
| Regarding: | Confirming analysis and TAT needed. | | |
| Client Instructions: | Full list VOCs and Gx: Results on Tuesday, 5/29. | | |

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

ESN NORTHWEST
Environmental
Services Network

August 16, 2018

Shawn Lombardini
Associated Environmental Group, Inc.
605 11th Ave. SE, Suite 201
Olympia, WA 98501

Dear Mr. Lombardini:

Please find enclosed the analytical data report for the Franciscan West Seattle Project in Seattle, Washington. Probe services were conducted on July 26, 2018. Soil vapor samples were analyzed for VOC's by Method TO15 & APH on August 9 – 10, 2018.

The results of the analyses are summarized in the attached table. All soil values are reported on a dry weight basis. Applicable detection limits and QA/QC data are included. An invoice for this work is also enclosed.

ESN Northwest appreciates the opportunity to have provided analytical services to Associated Environmental Group, Inc. for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Michael A Korosec

Michael A. Korosec
*President*

1210 Eastside Street SE, Suite 200 ■ Olympia, Washington 98501 ■ 360.459.4670 ■ FAX 360.459.3432
Web Site: *www.esnnw.com* E-Mail: *info@esnnw.com*

CASE NARRATIVE

This case narrative encompasses samples received on July 31, 2018 by Friedman & Bruya, Inc. from the ESN NW Franciscan West Seattle 18-172, F&BI 807613 project. Samples were logged in under the laboratory ID's listed below.

| Laboratory ID | ESN NW |
|---|---|
| 807613 -01 | SGV-1 |
| 807613 -02 | SGV-2 |
| 807613 -03 | SGV-3 |
| 807613 -04 | SGV-4 |
| 807613 -05 | SGV-5 |
| 807613 -06 | SS-1 |
| 807613 -07 | SS-2 |
| 807613 -08 | SS-3 |
| 807613 -09 | SS-4 |
| 807613 -10 | SS-5 |
| 807613 -11 | SS-6 |
| 807613 -12 | SS-7 |
| 807613 -13 | SS-8 |

Naphthalene was detected in the TO-15 method blank at a level within 10 times the concentration detected in the samples. The data were flagged accordingly.

Non-petroleum compounds were subtracted from the APH EC5-8 and EC9-12 aliphatic ranges prior to quantitation.

Several TO-15 and APH concentrations exceeded the calibration range established for the analyte. The data were qualified accordingly.

All quality control requirements were acceptable.

## Analysis For Volatile Compounds By Method MA-APH

| | | | |
|---|---|---|---|
| Client Sample ID: | SGV-1 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-01 1/3.3 |
| Date Analyzed: | 08/09/18 | Data File: | 080911.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

| Surrogates: | % Recovery: | Lower Limit: | Upper Limit: |
|---|---|---|---|
| 4-Bromofluorobenzene | 87 | 70 | 130 |

| Compounds: | Concentration ug/m3 |
|---|---|
| APH EC5-8 aliphatics | 1,300 |
| APH EC9-12 aliphatics | 180 |
| APH EC9-10 aromatics | <82 |

## Analysis For Volatile Compounds By Method MA-APH

| | | | |
|---|---|---|---|
| Client Sample ID: | SGV-2 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-02 1/3.3 |
| Date Analyzed: | 08/09/18 | Data File: | 080912.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

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

| Compounds: | Concentration ug/m3 |
|---|---|
| APH EC5-8 aliphatics | 3,800 ve |
| APH EC9-12 aliphatics | 16,000 ve |
| APH EC9-10 aromatics | 910 |

## Analysis For Volatile Compounds By Method MA-APH

| | | | |
|---|---|---|---|
| Client Sample ID: | SGV-3 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-03 1/25 |
| Date Analyzed: | 08/10/18 | Data File: | 080920.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

| Surrogates: | % Recovery: | Lower Limit: | Upper Limit: |
|---|---|---|---|
| 4-Bromofluorobenzene | 112 | 70 | 130 |

| Compounds: | Concentration ug/m3 |
|---|---|
| APH EC5-8 aliphatics | 54,000 ve |
| APH EC9-12 aliphatics | 45,000 ve |
| APH EC9-10 aromatics | <620 |

## Analysis For Volatile Compounds By Method MA-APH

| | | | |
|---|---|---|---|
| Client Sample ID: | SGV-4 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-04 1/3.3 |
| Date Analyzed: | 08/09/18 | Data File: | 080913.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

| Surrogates: | % Recovery: | Lower Limit: | Upper Limit: |
|---|---|---|---|
| 4-Bromofluorobenzene | 92 | 70 | 130 |

| Compounds: | Concentration ug/m3 |
|---|---|
| APH EC5-8 aliphatics | 1,600 |
| APH EC9-12 aliphatics | 780 |
| APH EC9-10 aromatics | <82 |

## Analysis For Volatile Compounds By Method MA-APH

| | | | |
|---|---|---|---|
| Client Sample ID: | SGV-5 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-05 1/75 |
| Date Analyzed: | 08/10/18 | Data File: | 080923.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

| Surrogates: | % Recovery: | Lower Limit: | Upper Limit: |
|---|---|---|---|
| 4-Bromofluorobenzene | 123 | 70 | 130 |

| Compounds: | Concentration ug/m3 |
|---|---|
| APH EC5-8 aliphatics | 210,000 ve |
| APH EC9-12 aliphatics | 220,000 ve |
| APH EC9-10 aromatics | <1,900 |

## Analysis For Volatile Compounds By Method MA-APH

| | | | |
|---|---|---|---|
| Client Sample ID: | SS-1 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-06 1/50 |
| Date Analyzed: | 08/10/18 | Data File: | 080922.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

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

| Compounds: | Concentration ug/m3 |
|---|---|
| APH EC5-8 aliphatics | 21,000 |
| APH EC9-12 aliphatics | 67,000 ve |
| APH EC9-10 aromatics | <1,200 |

## Analysis For Volatile Compounds By Method MA-APH

| | | | |
|---|---|---|---|
| Client Sample ID: | SS-2 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-07 1/25 |
| Date Analyzed: | 08/10/18 | Data File: | 080921.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

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

| Compounds: | Concentration ug/m3 |
|---|---|
| APH EC5-8 aliphatics | 19,000 |
| APH EC9-12 aliphatics | 34,000 ve |
| APH EC9-10 aromatics | <620 |

## Analysis For Volatile Compounds By Method MA-APH

| | | | |
|---|---|---|---|
| Client Sample ID: | SS-3 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-08 1/3.3 |
| Date Analyzed: | 08/09/18 | Data File: | 080914.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

| Surrogates: | % Recovery: | Lower Limit: | Upper Limit: |
|---|---|---|---|
| 4-Bromofluorobenzene | 92 | 70 | 130 |

| Compounds: | Concentration ug/m3 |
|---|---|
| APH EC5-8 aliphatics | 1,300 |
| APH EC9-12 aliphatics | 1,600 |
| APH EC9-10 aromatics | <82 |

## Analysis For Volatile Compounds By Method MA-APH

| | | | |
|---|---|---|---|
| Client Sample ID: | SS-4 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-09 1/3.3 |
| Date Analyzed: | 08/09/18 | Data File: | 080915.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

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

| Compounds: | Concentration ug/m3 |
|---|---|
| APH EC5-8 aliphatics | 1,600 |
| APH EC9-12 aliphatics | 1,300 |
| APH EC9-10 aromatics | <82 |

## Analysis For Volatile Compounds By Method MA-APH

| | | | |
|---|---|---|---|
| Client Sample ID: | SS-5 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-10 1/3.3 |
| Date Analyzed: | 08/09/18 | Data File: | 080916.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

| Surrogates: | % Recovery: | Lower Limit: | Upper Limit: |
|---|---|---|---|
| 4-Bromofluorobenzene | 89 | 70 | 130 |

| Compounds: | Concentration ug/m3 |
|---|---|
| APH EC5-8 aliphatics | 1,800 |
| APH EC9-12 aliphatics | 1,500 |
| APH EC9-10 aromatics | <82 |

## Analysis For Volatile Compounds By Method MA-APH

| | | | |
|---|---|---|---|
| Client Sample ID: | SS-6 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-11 1/3.3 |
| Date Analyzed: | 08/10/18 | Data File: | 080917.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

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

| Compounds: | Concentration ug/m3 |
|---|---|
| APH EC5-8 aliphatics | 2,500 |
| APH EC9-12 aliphatics | 2,200 |
| APH EC9-10 aromatics | <82 |

## Analysis For Volatile Compounds By Method MA-APH

| | | | |
|---|---|---|---|
| Client Sample ID: | SS-7 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-12 1/3.3 |
| Date Analyzed: | 08/10/18 | Data File: | 080918.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

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

| Compounds: | Concentration ug/m3 |
|---|---|
| APH EC5-8 aliphatics | 3,500 ve |
| APH EC9-12 aliphatics | 3,600 ve |
| APH EC9-10 aromatics | 210 |

## Analysis For Volatile Compounds By Method MA-APH

| | | | |
|---|---|---|---|
| Client Sample ID: | SS-8 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-13 1/3.3 |
| Date Analyzed: | 08/10/18 | Data File: | 080919.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

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

| Compounds: | Concentration ug/m3 |
|---|---|
| APH EC5-8 aliphatics | 590 |
| APH EC9-12 aliphatics | 940 |
| APH EC9-10 aromatics | <82 |

## Analysis For Volatile Compounds By Method MA-APH

| | | | |
|---|---|---|---|
| Client Sample ID: | Method Blank | Client: | ESN NW |
| Date Received: | Not Applicable | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | Not Applicable | Lab ID: | 08-1808 mb |
| Date Analyzed: | 08/09/18 | Data File: | 080908.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

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

| Compounds: | Concentration ug/m3 |
|---|---|
| APH EC5-8 aliphatics | <46 |
| APH EC9-12 aliphatics | <35 |
| APH EC9-10 aromatics | <25 |

# FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By Method TO-15

| | | | |
|---|---|---|---|
| Client Sample ID: | SGV-1 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-01 1/3.3 |
| Date Analyzed: | 08/09/18 | Data File: | 080911.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

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

| Compounds: | Concentration ug/m3 | Concentration ppbv | Compounds: | Concentration ug/m3 | Concentration ppbv |
|---|---|---|---|---|---|
| Chlorodifluoromethane | <1.2 | <0.33 | 1-Butanol | 27 | 8.8 |
| Propene | 79 | 46 | Carbon tetrachloride | <2.1 | <0.33 |
| Dichlorodifluoromethane | 2.4 | 0.49 | Benzene | 6.5 | 2.0 |
| Chloromethane | 0.70 | 0.34 | Cyclohexane | <23 | <6.6 |
| F-114 | <2.3 | <0.33 | 3-Pentanone | <12 | <3.3 |
| Isobutene | 39 | 17 | 2-Pentanone | <12 | <3.3 |
| Acetaldehyde | <30 | <16 | Pentanal | 25 | 7.2 |
| Vinyl chloride | <0.84 | <0.33 | 1,2-Dichloropropane | <0.76 | <0.16 |
| 1,3-Butadiene | 6.8 | 3.1 | 1,4-Dioxane | <1.2 | <0.33 |
| Bromomethane | <5.1 | <1.3 | Bromodichloromethane | <0.22 | <0.033 |
| Chloroethane | <0.87 | <0.33 | Trichloroethene | 2.8 | 0.51 |
| Ethanol | <25 | <13 | cis-1,3-Dichloropropene | <1.5 | <0.33 |
| Acetonitrile | <5.5 | <3.3 | 4-Methyl-2-pentanone | 18 | 4.4 |
| Acrolein | 5.4 | 2.3 | trans-1,3-Dichloropropene | <1.5 | <0.33 |
| Acrylonitrile | <0.72 | <0.33 | Toluene | 8.1 | 2.2 |
| Pentane | <9.7 | <3.3 | 1,1,2-Trichloroethane | <0.18 | <0.033 |
| Trichlorofluoromethane | <1.9 | <0.33 | 3-Hexanone | <14 | <3.3 |
| Acetone | 170 | 70 | 2-Hexanone | <14 | <3.3 |
| 2-Propanol | <28 | <12 | Hexanal | 26 | 6.3 |
| Isoprene | 3.3 | 1.2 | Tetrachloroethene | 8.1 | 1.2 |
| Iodomethane | <1.9 | <0.33 | Dibromochloromethane | <0.28 | <0.033 |
| 1,1-Dichloroethene | <1.3 | <0.33 | 1,2-Dibromoethane (EDB) | <0.25 | <0.033 |
| Methacrolein | <9.5 | <3.3 | Chlorobenzene | <1.5 | <0.33 |
| trans-1,2-Dichloroethene | <1.3 | <0.33 | Ethylbenzene | 2.0 | 0.46 |
| Cyclopentane | <0.95 | <0.33 | 1,1,2,2-Tetrachloroethane | <0.45 | <0.066 |
| Methyl vinyl ketone | <9.5 | <3.3 | m,p-Xylene | 5.5 | 1.3 |
| Butanal | 28 | 9.5 | o-Xylene | 2.4 | 0.56 |
| Methylene chloride | 340 | 99 | Styrene | <2.8 | <0.66 |
| CFC-113 | <2.5 | <0.33 | Bromoform | <6.8 | <0.66 |
| Carbon disulfide | <21 | <6.6 | Benzyl chloride | <0.17 | <0.033 |
| Methyl t-butyl ether (MTBE) | <5.9 | <1.6 | 1,3,5-Trimethylbenzene | <8.1 | <1.6 |
| Vinyl acetate | <23 | <6.6 | 1,2,4-Trimethylbenzene | <8.1 | <1.6 |
| 1,1-Dichloroethane | <1.3 | <0.33 | 1,3-Dichlorobenzene | <2 | <0.33 |
| cis-1,2-Dichloroethene | <1.3 | <0.33 | 1,4-Dichlorobenzene | <0.79 | <0.13 |
| Hexane | 27 | 7.6 | 1,2,3-Trimethylbenzene | <8.1 | <1.6 |
| Chloroform | 0.53 | 0.11 | 1,2-Dichlorobenzene | <2 | <0.33 |
| 2-Butanone (MEK) | 43 | 15 | 1,2,4-Trichlorobenzene | <2.4 | <0.33 |
| 1,2-Dichloroethane (EDC) | <0.13 | <0.033 | Naphthalene | 1.9 fb | 0.37 fb |
| 1,1,1-Trichloroethane | <1.8 | <0.33 | Hexachlorobutadiene | <0.7 | <0.066 |

# FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By Method TO-15

| | | | |
|---|---|---|---|
| Client Sample ID: | SGV-2 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-02 1/3.3 |
| Date Analyzed: | 08/09/18 | Data File: | 080912.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

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

| Compounds: | Concentration ug/m3 | Concentration ppbv | Compounds: | Concentration ug/m3 | Concentration ppbv |
|---|---|---|---|---|---|
| Chlorodifluoromethane | <1.2 | <0.33 | 1-Butanol | <20 | <6.6 |
| Propene | 200 | 120 | Carbon tetrachloride | <2.1 | <0.33 |
| Dichlorodifluoromethane | 2.6 | 0.53 | Benzene | 10 | 3.3 |
| Chloromethane | 2.5 | 1.2 | Cyclohexane | 36 | 10 |
| F-114 | <2.3 | <0.33 | 2-Pentanone | <12 | <3.3 |
| Isobutene | 110 | 48 | 3-Pentanone | <12 | <3.3 |
| Acetaldehyde | <30 | <16 | Pentanal | 19 | 5.3 |
| Vinyl chloride | <0.84 | <0.33 | 1,2-Dichloropropane | <0.76 | <0.16 |
| 1,3-Butadiene | 29 | 13 | 1,4-Dioxane | <1.2 | <0.33 |
| Bromomethane | <5.1 | <1.3 | Bromodichloromethane | <0.22 | <0.033 |
| Chloroethane | <0.87 | <0.33 | Trichloroethene | 6.1 | 1.1 |
| Ethanol | <25 | <13 | cis-1,3-Dichloropropene | <1.5 | <0.33 |
| Acetonitrile | <5.5 | <3.3 | 4-Methyl-2-pentanone | <14 | <3.3 |
| Acrolein | 4.7 | 2.1 | trans-1,3-Dichloropropene | <1.5 | <0.33 |
| Acrylonitrile | <0.72 | <0.33 | Toluene | 23 | 6.0 |
| Pentane | 100 | 34 | 1,1,2-Trichloroethane | <0.18 | <0.033 |
| Trichlorofluoromethane | <1.9 | <0.33 | 3-Hexanone | <14 | <3.3 |
| Acetone | 280 | 120 | 2-Hexanone | <14 | <3.3 |
| 2-Propanol | <28 | <12 | Hexanal | 27 | 6.5 |
| Isoprene | 7.3 | 2.6 | Tetrachloroethene | 35 | 5.2 |
| Iodomethane | <1.9 | <0.33 | Dibromochloromethane | <0.28 | <0.033 |
| 1,1-Dichloroethene | <1.3 | <0.33 | 1,2-Dibromoethane (EDB) | 0.63 | 0.082 |
| Methacrolein | <9.5 | <3.3 | Chlorobenzene | <1.5 | <0.33 |
| trans-1,2-Dichloroethene | <1.3 | <0.33 | Ethylbenzene | 9.5 | 2.2 |
| Cyclopentane | 29 | 10 | 1,1,2,2-Tetrachloroethane | <0.45 | <0.066 |
| Methyl vinyl ketone | <9.5 | <3.3 | m,p-Xylene | 26 | 6.0 |
| Butanal | <9.7 | <3.3 | o-Xylene | 20 | 4.7 |
| Methylene chloride | <290 | <82 | Styrene | <2.8 | <0.66 |
| CFC-113 | <2.5 | <0.33 | Bromoform | <6.8 | <0.66 |
| Carbon disulfide | 32 | 10 | Benzyl chloride | <0.17 | <0.033 |
| Methyl t-butyl ether (MTBE) | <5.9 | <1.6 | 1,3,5-Trimethylbenzene | 60 | 12 |
| Vinyl acetate | <23 | <6.6 | 1,2,4-Trimethylbenzene | 76 | 15 |
| 1,1-Dichloroethane | <1.3 | <0.33 | 1,3-Dichlorobenzene | <2 | <0.33 |
| cis-1,2-Dichloroethene | <1.3 | <0.33 | 1,4-Dichlorobenzene | <0.79 | <0.13 |
| Hexane | 67 | 19 | 1,2,3-Trimethylbenzene | 89 | 18 |
| Chloroform | 1.4 | 0.28 | 1,2-Dichlorobenzene | <2 | <0.33 |
| 2-Butanone (MEK) | 140 | 46 | 1,2,4-Trichlorobenzene | <2.4 | <0.33 |
| 1,2-Dichloroethane (EDC) | 0.15 | 0.036 | Naphthalene | 4.0 fb | 0.77 fb |
| 1,1,1-Trichloroethane | <1.8 | <0.33 | Hexachlorobutadiene | <0.7 | <0.066 |

# FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By Method TO-15

| | | | |
|---|---|---|---|
| Client Sample ID: | SGV-3 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-03 1/25 |
| Date Analyzed: | 08/10/18 | Data File: | 080920.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

| Surrogates: | % Recovery: | Lower Limit: | Upper Limit: |
|---|---|---|---|
| 4-Bromofluorobenzene | 120 | 70 | 130 |

| Compounds: | Concentration ug/m3 | Concentration ppbv | Compounds: | Concentration ug/m3 | Concentration ppbv |
|---|---|---|---|---|---|
| Chlorodifluoromethane | <8.8 | <2.5 | 1-Butanol | <150 | <50 |
| Propene | 860 | 500 | Carbon tetrachloride | <16 | <2.5 |
| Dichlorodifluoromethane | <12 | <2.5 | Benzene | 38 | 12 |
| Chloromethane | <5.2 | <2.5 | Cyclohexane | 460 | 130 |
| F-114 | <17 | <2.5 | 3-Pentanone | <88 | <25 |
| Isobutene | 460 | 200 | 2-Pentanone | <88 | <25 |
| Acetaldehyde | <220 | <120 | Pentanal | <88 | <25 |
| Vinyl chloride | <6.4 | <2.5 | 1,2-Dichloropropane | <5.8 | <1.2 |
| 1,3-Butadiene | 80 | 36 | 1,4-Dioxane | <9 | <2.5 |
| Bromomethane | <39 | <10 | Bromodichloromethane | <1.7 | <0.25 |
| Chloroethane | <6.6 | <2.5 | Trichloroethene | 17 | 3.2 |
| Ethanol | 590 | 320 | cis-1,3-Dichloropropene | <11 | <2.5 |
| Acetonitrile | <42 | <25 | 4-Methyl-2-pentanone | <100 | <25 |
| Acrolein | <23 | <10 | trans-1,3-Dichloropropene | <11 | <2.5 |
| Acrylonitrile | <5.4 | <2.5 | Toluene | 37 | 9.8 |
| Pentane | 2,300 | 780 | 1,1,2-Trichloroethane | <1.4 | <0.25 |
| Trichlorofluoromethane | <14 | <2.5 | 3-Hexanone | <100 | <25 |
| Acetone | 760 | 320 | 2-Hexanone | <100 | <25 |
| 2-Propanol | <220 | <87 | Hexanal | <100 | <25 |
| Isoprene | 32 | 11 | Tetrachloroethene | <17 | <2.5 |
| Iodomethane | <15 | <2.5 | Dibromochloromethane | <2.1 | <0.25 |
| 1,1-Dichloroethene | <9.9 | <2.5 | 1,2-Dibromoethane (EDB) | <1.9 | <0.25 |
| Methacrolein | <72 | <25 | Chlorobenzene | <12 | <2.5 |
| trans-1,2-Dichloroethene | <9.9 | <2.5 | Ethylbenzene | 32 | 7.3 |
| Cyclopentane | 340 | 120 | 1,1,2,2-Tetrachloroethane | <3.4 | <0.5 |
| Methyl vinyl ketone | <72 | <25 | m,p-Xylene | 42 | 9.7 |
| Butanal | <74 | <25 | o-Xylene | 26 | 5.9 |
| Methylene chloride | <2,200 | <620 | Styrene | <21 | <5 |
| CFC-113 | <19 | <2.5 | Bromoform | <52 | <5 |
| Carbon disulfide | <160 | <50 | Benzyl chloride | <1.3 | <0.25 |
| Methyl t-butyl ether (MTBE) | <45 | <12 | 1,3,5-Trimethylbenzene | <61 | <12 |
| Vinyl acetate | <180 | <50 | 1,2,4-Trimethylbenzene | <61 | <12 |
| 1,1-Dichloroethane | <10 | <2.5 | 1,3-Dichlorobenzene | <15 | <2.5 |
| cis-1,2-Dichloroethene | <9.9 | <2.5 | 1,4-Dichlorobenzene | <6 | <1 |
| Hexane | 2,100 | 600 | 1,2,3-Trimethylbenzene | <61 | <12 |
| Chloroform | <1.2 | <0.25 | 1,2-Dichlorobenzene | <15 | <2.5 |
| 2-Butanone (MEK) | <74 | <25 | 1,2,4-Trichlorobenzene | <19 | <2.5 |
| 1,2-Dichloroethane (EDC) | <1.0 | <0.25 | Naphthalene | 5.0 fb | 0.95 fb |
| 1,1,1-Trichloroethane | <14 | <2.5 | Hexachlorobutadiene | <5.3 | <0.5 |

# FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By Method TO-15

| | | | |
|---|---|---|---|
| Client Sample ID: | SGV-4 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-04 1/3.3 |
| Date Analyzed: | 08/09/18 | Data File: | 080913.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

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

| Compounds: | Concentration ug/m3 | Concentration ppbv | Compounds: | Concentration ug/m3 | Concentration ppbv |
|---|---|---|---|---|---|
| Chlorodifluoromethane | <1.2 | <0.33 | 1-Butanol | 25 | 8.3 |
| Propene | 88 | 51 | Carbon tetrachloride | <2.1 | <0.33 |
| Dichlorodifluoromethane | 2.7 | 0.54 | Benzene | 7.9 | 2.5 |
| Chloromethane | 1.8 | 0.89 | Cyclohexane | <23 | <6.6 |
| F-114 | <2.3 | <0.33 | 3-Pentanone | <12 | <3.3 |
| Isobutene | 51 | 22 | 2-Pentanone | 34 | 9.7 |
| Acetaldehyde | 1,000 ve | 560 ve | Pentanal | 130 | 36 |
| Vinyl chloride | <0.84 | <0.33 | 1,2-Dichloropropane | <0.76 | <0.16 |
| 1,3-Butadiene | 8.9 | 4.0 | 1,4-Dioxane | <1.2 | <0.33 |
| Bromomethane | <5.1 | <1.3 | Bromodichloromethane | <0.22 | <0.033 |
| Chloroethane | <0.87 | <0.33 | Trichloroethene | 5.2 | 0.96 |
| Ethanol | 97 | 52 | cis-1,3-Dichloropropene | <1.5 | <0.33 |
| Acetonitrile | 31 | 19 | 4-Methyl-2-pentanone | 18 | 4.3 |
| Acrolein | 19 | 8.2 | trans-1,3-Dichloropropene | <1.5 | <0.33 |
| Acrylonitrile | <0.72 | <0.33 | Toluene | 15 | 3.9 |
| Pentane | 16 | 5.4 | 1,1,2-Trichloroethane | <0.18 | <0.033 |
| Trichlorofluoromethane | <1.9 | <0.33 | 3-Hexanone | <14 | <3.3 |
| Acetone | 620 ve | 260 ve | 2-Hexanone | 19 | 4.5 |
| 2-Propanol | <28 | <12 | Hexanal | 210 | 51 |
| Isoprene | 3.7 | 1.3 | Tetrachloroethene | 29 | 4.3 |
| Iodomethane | <1.9 | <0.33 | Dibromochloromethane | <0.28 | <0.033 |
| 1,1-Dichloroethene | <1.3 | <0.33 | 1,2-Dibromoethane (EDB) | <0.25 | <0.033 |
| Methacrolein | <9.5 | <3.3 | Chlorobenzene | <1.5 | <0.33 |
| trans-1,2-Dichloroethene | <1.3 | <0.33 | Ethylbenzene | 4.5 | 1.0 |
| Cyclopentane | <0.95 | <0.33 | 1,1,2,2-Tetrachloroethane | <0.45 | <0.066 |
| Methyl vinyl ketone | <9.5 | <3.3 | m,p-Xylene | 9.8 | 2.3 |
| Butanal | 74 | 25 | o-Xylene | 5.3 | 1.2 |
| Methylene chloride | 1,100 ve | 330 ve | Styrene | <2.8 | <0.66 |
| CFC-113 | <2.5 | <0.33 | Bromoform | <6.8 | <0.66 |
| Carbon disulfide | <21 | <6.6 | Benzyl chloride | <0.17 | <0.033 |
| Methyl t-butyl ether (MTBE) | <5.9 | <1.6 | 1,3,5-Trimethylbenzene | <8.1 | <1.6 |
| Vinyl acetate | <23 | <6.6 | 1,2,4-Trimethylbenzene | <8.1 | <1.6 |
| 1,1-Dichloroethane | <1.3 | <0.33 | 1,3-Dichlorobenzene | <2 | <0.33 |
| cis-1,2-Dichloroethene | <1.3 | <0.33 | 1,4-Dichlorobenzene | <0.79 | <0.13 |
| Hexane | 86 | 24 | 1,2,3-Trimethylbenzene | <8.1 | <1.6 |
| Chloroform | 2.7 | 0.55 | 1,2-Dichlorobenzene | <2 | <0.33 |
| 2-Butanone (MEK) | 120 | 40 | 1,2,4-Trichlorobenzene | <2.4 | <0.33 |
| 1,2-Dichloroethane (EDC) | <0.13 | <0.033 | Naphthalene | 4.5 fb | 0.85 fb |
| 1,1,1-Trichloroethane | <1.8 | <0.33 | Hexachlorobutadiene | <0.7 | <0.066 |

# FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By Method TO-15

| | | | |
|---|---|---|---|
| Client Sample ID: | SGV-5 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-05 1/75 |
| Date Analyzed: | 08/10/18 | Data File: | 080923.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

| Surrogates: | % Recovery: | Lower Limit: | Upper Limit: |
|---|---|---|---|
| 4-Bromofluorobenzene | 133 ip | 70 | 130 |

| Compounds: | Concentration ug/m3 | Concentration ppbv | Compounds: | Concentration ug/m3 | Concentration ppbv |
|---|---|---|---|---|---|
| Chlorodifluoromethane | <27 | <7.5 | 1-Butanol | <450 | <150 |
| Propene | 490 | 290 | Carbon tetrachloride | <47 | <7.5 |
| Dichlorodifluoromethane | <37 | <7.5 | Benzene | 27 | 8.4 |
| Chloromethane | <15 | <7.5 | Cyclohexane | <520 | <150 |
| F-114 | <52 | <7.5 | 3-Pentanone | <260 | <75 |
| Isobutene | 230 | 100 | 2-Pentanone | <260 | <75 |
| Acetaldehyde | <680 | <370 | Pentanal | <260 | <75 |
| Vinyl chloride | <19 | <7.5 | 1,2-Dichloropropane | <17 | <3.7 |
| 1,3-Butadiene | 60 | 27 | 1,4-Dioxane | <27 | <7.5 |
| Bromomethane | <120 | <30 | Bromodichloromethane | <5 | <0.75 |
| Chloroethane | <20 | <7.5 | Trichloroethene | <20 | <3.7 |
| Ethanol | <570 | <300 | cis-1,3-Dichloropropene | <34 | <7.5 |
| Acetonitrile | <130 | <75 | 4-Methyl-2-pentanone | <310 | <75 |
| Acrolein | <69 | <30 | trans-1,3-Dichloropropene | <34 | <7.5 |
| Acrylonitrile | <16 | <7.5 | Toluene | 36 | 9.4 |
| Pentane | 750 | 260 | 1,1,2-Trichloroethane | <4.1 | <0.75 |
| Trichlorofluoromethane | <42 | <7.5 | 3-Hexanone | <310 | <75 |
| Acetone | <360 | <150 | 2-Hexanone | <310 | <75 |
| 2-Propanol | <650 | <260 | Hexanal | <310 | <75 |
| Isoprene | 21 | 7.5 | Tetrachloroethene | <51 | <7.5 |
| Iodomethane | <44 | <7.5 | Dibromochloromethane | <6.4 | <0.75 |
| 1,1-Dichloroethene | <30 | <7.5 | 1,2-Dibromoethane (EDB) | <5.8 | <0.75 |
| Methacrolein | <210 | <75 | Chlorobenzene | <35 | <7.5 |
| trans-1,2-Dichloroethene | <30 | <7.5 | Ethylbenzene | <33 | <7.5 |
| Cyclopentane | <22 | <7.5 | 1,1,2,2-Tetrachloroethane | <10 | <1.5 |
| Methyl vinyl ketone | <210 | <75 | m,p-Xylene | <65 | <15 |
| Butanal | <220 | <75 | o-Xylene | <33 | <7.5 |
| Methylene chloride | <6,500 | <1,900 | Styrene | <64 | <15 |
| CFC-113 | <57 | <7.5 | Bromoform | <160 | <15 |
| Carbon disulfide | <470 | <150 | Benzyl chloride | <3.9 | <0.75 |
| Methyl t-butyl ether (MTBE) | <140 | <37 | 1,3,5-Trimethylbenzene | <180 | <37 |
| Vinyl acetate | <530 | <150 | 1,2,4-Trimethylbenzene | <180 | <37 |
| 1,1-Dichloroethane | <30 | <7.5 | 1,3-Dichlorobenzene | <45 | <7.5 |
| cis-1,2-Dichloroethene | <30 | <7.5 | 1,4-Dichlorobenzene | <18 | <3 |
| Hexane | 730 | 210 | 1,2,3-Trimethylbenzene | <180 | <37 |
| Chloroform | <3.7 | <0.75 | 1,2-Dichlorobenzene | <45 | <7.5 |
| 2-Butanone (MEK) | <220 | <75 | 1,2,4-Trichlorobenzene | <56 | <7.5 |
| 1,2-Dichloroethane (EDC) | <3 | <0.75 | Naphthalene | 9.4 fb | 1.8 fb |
| 1,1,1-Trichloroethane | <41 | <7.5 | Hexachlorobutadiene | <16 | <1.5 |

# FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By Method TO-15

| | | | |
|---|---|---|---|
| Client Sample ID: | SS-1 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-06 1/50 |
| Date Analyzed: | 08/10/18 | Data File: | 080922.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

| Surrogates: | % Recovery: | Lower Limit: | Upper Limit: |
|---|---|---|---|
| 4-Bromofluorobenzene | 113 | 70 | 130 |

| Compounds: | Concentration ug/m3 | Concentration ppbv | Compounds: | Concentration ug/m3 | Concentration ppbv |
|---|---|---|---|---|---|
| Chlorodifluoromethane | <18 | <5 | 1-Butanol | 900 | 300 |
| Propene | <34 | <20 | Carbon tetrachloride | <31 | <5 |
| Dichlorodifluoromethane | <25 | <5 | Benzene | <16 | <5 |
| Chloromethane | <10 | <5 | Cyclohexane | <340 | <100 |
| F-114 | <35 | <5 | 3-Pentanone | <180 | <50 |
| Isobutene | <46 | <20 | 2-Pentanone | <180 | <50 |
| Acetaldehyde | <450 | <250 | Pentanal | <180 | <50 |
| Vinyl chloride | <13 | <5 | 1,2-Dichloropropane | <12 | <2.5 |
| 1,3-Butadiene | <1.1 | <0.5 | 1,4-Dioxane | <18 | <5 |
| Bromomethane | <78 | <20 | Bromodichloromethane | <3.4 | <0.5 |
| Chloroethane | <13 | <5 | Trichloroethene | <13 | <2.5 |
| Ethanol | 1,500 | 790 | cis-1,3-Dichloropropene | <23 | <5 |
| Acetonitrile | <84 | <50 | 4-Methyl-2-pentanone | <200 | <50 |
| Acrolein | <46 | <20 | trans-1,3-Dichloropropene | <23 | <5 |
| Acrylonitrile | <11 | <5 | Toluene | <19 | <5 |
| Pentane | <150 | <50 | 1,1,2-Trichloroethane | <2.7 | <0.5 |
| Trichlorofluoromethane | <28 | <5 | 3-Hexanone | <200 | <50 |
| Acetone | 610 | 260 | 2-Hexanone | <200 | <50 |
| 2-Propanol | <430 | <170 | Hexanal | <200 | <50 |
| Isoprene | <14 | <5 | Tetrachloroethene | <34 | <5 |
| Iodomethane | <29 | <5 | Dibromochloromethane | <4.3 | <0.5 |
| 1,1-Dichloroethene | <20 | <5 | 1,2-Dibromoethane (EDB) | <3.8 | <0.5 |
| Methacrolein | <140 | <50 | Chlorobenzene | <23 | <5 |
| trans-1,2-Dichloroethene | <20 | <5 | Ethylbenzene | <22 | <5 |
| Cyclopentane | <14 | <5 | 1,1,2,2-Tetrachloroethane | <6.9 | <1 |
| Methyl vinyl ketone | <140 | <50 | m,p-Xylene | <43 | <10 |
| Butanal | <150 | <50 | o-Xylene | <22 | <5 |
| Methylene chloride | <4,300 | <1,200 | Styrene | <43 | <10 |
| CFC-113 | <38 | <5 | Bromoform | <100 | <10 |
| Carbon disulfide | <310 | <100 | Benzyl chloride | <2.6 | <0.5 |
| Methyl t-butyl ether (MTBE) | <90 | <25 | 1,3,5-Trimethylbenzene | <120 | <25 |
| Vinyl acetate | <350 | <100 | 1,2,4-Trimethylbenzene | <120 | <25 |
| 1,1-Dichloroethane | <20 | <5 | 1,3-Dichlorobenzene | <30 | <5 |
| cis-1,2-Dichloroethene | <20 | <5 | 1,4-Dichlorobenzene | <12 | <2 |
| Hexane | <180 | <50 | 1,2,3-Trimethylbenzene | <120 | <25 |
| Chloroform | <2.4 | <0.5 | 1,2-Dichlorobenzene | <30 | <5 |
| 2-Butanone (MEK) | <150 | <50 | 1,2,4-Trichlorobenzene | <37 | <5 |
| 1,2-Dichloroethane (EDC) | <2 | <0.5 | Naphthalene | 6.0 fb | 1.1 fb |
| 1,1,1-Trichloroethane | <27 | <5 | Hexachlorobutadiene | <11 | <1 |

# FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By Method TO-15

| | | | |
|---|---|---|---|
| Client Sample ID: | SS-2 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-07 1/25 |
| Date Analyzed: | 08/10/18 | Data File: | 080921.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

| Surrogates: | % Recovery: | Lower Limit: | Upper Limit: |
|---|---|---|---|
| 4-Bromofluorobenzene | 120 | 70 | 130 |

| Compounds: | Concentration ug/m3 | Concentration ppbv | Compounds: | Concentration ug/m3 | Concentration ppbv |
|---|---|---|---|---|---|
| Chlorodifluoromethane | <8.8 | <2.5 | 1-Butanol | 1,100 | 350 |
| Propene | 24 | 14 | Carbon tetrachloride | <16 | <2.5 |
| Dichlorodifluoromethane | <12 | <2.5 | Benzene | <8 | <2.5 |
| Chloromethane | <5.2 | <2.5 | Cyclohexane | <170 | <50 |
| F-114 | <17 | <2.5 | 3-Pentanone | <88 | <25 |
| Isobutene | <23 | <10 | 2-Pentanone | <88 | <25 |
| Acetaldehyde | <230 | <120 | Pentanal | <88 | <25 |
| Vinyl chloride | <6.4 | <2.5 | 1,2-Dichloropropane | <5.8 | <1.2 |
| 1,3-Butadiene | <0.55 | <0.25 | 1,4-Dioxane | <9 | <2.5 |
| Bromomethane | <39 | <10 | Bromodichloromethane | <1.7 | <0.25 |
| Chloroethane | <6.6 | <2.5 | Trichloroethene | 12 fb | 2.2 fb |
| Ethanol | 2,300 | 1,200 | cis-1,3-Dichloropropene | <11 | <2.5 |
| Acetonitrile | <42 | <25 | 4-Methyl-2-pentanone | <100 | <25 |
| Acrolein | <23 | <10 | trans-1,3-Dichloropropene | <11 | <2.5 |
| Acrylonitrile | <5.4 | <2.5 | Toluene | <9.4 | <2.5 |
| Pentane | <74 | <25 | 1,1,2-Trichloroethane | 3.4 | 0.62 |
| Trichlorofluoromethane | <14 | <2.5 | 3-Hexanone | <100 | <25 |
| Acetone | 1,200 | 520 | 2-Hexanone | <100 | <25 |
| 2-Propanol | <220 | <87 | Hexanal | <100 | <25 |
| Isoprene | <7 | <2.5 | Tetrachloroethene | <17 | <2.5 |
| Iodomethane | <15 | <2.5 | Dibromochloromethane | <2.1 | <0.25 |
| 1,1-Dichloroethene | <9.9 | <2.5 | 1,2-Dibromoethane (EDB) | <1.9 | <0.25 |
| Methacrolein | <72 | <25 | Chlorobenzene | <12 | <2.5 |
| trans-1,2-Dichloroethene | <9.9 | <2.5 | Ethylbenzene | <11 | <2.5 |
| Cyclopentane | <7.3 | <2.5 | 1,1,2,2-Tetrachloroethane | <3.4 | <0.5 |
| Methyl vinyl ketone | <72 | <25 | m,p-Xylene | <22 | <5 |
| Butanal | <74 | <25 | o-Xylene | 12 | 2.7 |
| Methylene chloride | <2,200 | <620 | Styrene | <21 | <5 |
| CFC-113 | <19 | <2.5 | Bromoform | <52 | <5 |
| Carbon disulfide | <160 | <50 | Benzyl chloride | <1.3 | <0.25 |
| Methyl t-butyl ether (MTBE) | <45 | <12 | 1,3,5-Trimethylbenzene | <61 | <12 |
| Vinyl acetate | <180 | <50 | 1,2,4-Trimethylbenzene | <61 | <12 |
| 1,1-Dichloroethane | <10 | <2.5 | 1,3-Dichlorobenzene | <15 | <2.5 |
| cis-1,2-Dichloroethene | <9.9 | <2.5 | 1,4-Dichlorobenzene | <6 | <1 |
| Hexane | 88 | 25 | 1,2,3-Trimethylbenzene | <61 | <12 |
| Chloroform | <1.2 | <0.25 | 1,2-Dichlorobenzene | <15 | <2.5 |
| 2-Butanone (MEK) | <74 | <25 | 1,2,4-Trichlorobenzene | <19 | <2.5 |
| 1,2-Dichloroethane (EDC) | <1 | <0.25 | Naphthalene | 3.8 fb | 0.72 fb |
| 1,1,1-Trichloroethane | <14 | <2.5 | Hexachlorobutadiene | <5.3 | <0.5 |

# FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By Method TO-15

| | | | |
|---|---|---|---|
| Client Sample ID: | SS-3 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-08 1/3.3 |
| Date Analyzed: | 08/09/18 | Data File: | 080914.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

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

| Compounds: | Concentration ug/m3 | Concentration ppbv | Compounds: | Concentration ug/m3 | Concentration ppbv |
|---|---|---|---|---|---|
| Chlorodifluoromethane | <1.2 | <0.33 | 1-Butanol | 850 ve | 280 ve |
| Propene | <2.3 | <1.3 | Carbon tetrachloride | <2.1 | <0.33 |
| Dichlorodifluoromethane | 2.5 | 0.50 | Benzene | 6.9 | 2.2 |
| Chloromethane | <0.68 | <0.33 | Cyclohexane | <23 | <6.6 |
| F-114 | <2.3 | <0.33 | 3-Pentanone | <12 | <3.3 |
| Isobutene | 17 | 7.6 | 2-Pentanone | <12 | <3.3 |
| Acetaldehyde | <30 | <16 | Pentanal | <12 | <3.3 |
| Vinyl chloride | <0.84 | <0.33 | 1,2-Dichloropropane | <0.76 | <0.16 |
| 1,3-Butadiene | 2.7 | 1.2 | 1,4-Dioxane | <1.2 | <0.33 |
| Bromomethane | <5.1 | <1.3 | Bromodichloromethane | <0.22 | <0.033 |
| Chloroethane | <0.87 | <0.33 | Trichloroethene | 5.5 | 1.0 |
| Ethanol | 2,800 ve | 1,500 ve | cis-1,3-Dichloropropene | <1.5 | <0.33 |
| Acetonitrile | <5.5 | <3.3 | 4-Methyl-2-pentanone | 50 | 12 |
| Acrolein | <3 | <1.3 | trans-1,3-Dichloropropene | <1.5 | <0.33 |
| Acrylonitrile | <0.72 | <0.33 | Toluene | 11 | 2.9 |
| Pentane | 55 | 19 | 1,1,2-Trichloroethane | <0.18 | <0.033 |
| Trichlorofluoromethane | <1.9 | <0.33 | 3-Hexanone | <14 | <3.3 |
| Acetone | 1,300 ve | 540 ve | 2-Hexanone | <14 | <3.3 |
| 2-Propanol | 300 | 120 | Hexanal | <14 | <3.3 |
| Isoprene | 1.8 | 0.65 | Tetrachloroethene | 16 | 2.4 |
| Iodomethane | <1.9 | <0.33 | Dibromochloromethane | <0.28 | <0.033 |
| 1,1-Dichloroethene | <1.3 | <0.33 | 1,2-Dibromoethane (EDB) | <0.25 | <0.033 |
| Methacrolein | <9.5 | <3.3 | Chlorobenzene | <1.5 | <0.33 |
| trans-1,2-Dichloroethene | <1.3 | <0.33 | Ethylbenzene | 2.0 | 0.47 |
| Cyclopentane | <0.95 | <0.33 | 1,1,2,2-Tetrachloroethane | <0.45 | <0.066 |
| Methyl vinyl ketone | <9.5 | <3.3 | m,p-Xylene | 8.6 | 2.0 |
| Butanal | 16 | 5.3 | o-Xylene | 3.6 | 0.83 |
| Methylene chloride | <290 | <82 | Styrene | <2.8 | <0.66 |
| CFC-113 | <2.5 | <0.33 | Bromoform | <6.8 | <0.66 |
| Carbon disulfide | <21 | <6.6 | Benzyl chloride | <0.17 | <0.033 |
| Methyl t-butyl ether (MTBE) | <5.9 | <1.6 | 1,3,5-Trimethylbenzene | <8.1 | <1.6 |
| Vinyl acetate | <23 | <6.6 | 1,2,4-Trimethylbenzene | <8.1 | <1.6 |
| 1,1-Dichloroethane | <1.3 | <0.33 | 1,3-Dichlorobenzene | <2 | <0.33 |
| cis-1,2-Dichloroethene | <1.3 | <0.33 | 1,4-Dichlorobenzene | <0.79 | <0.13 |
| Hexane | 44 | 12 | 1,2,3-Trimethylbenzene | <8.1 | <1.6 |
| Chloroform | 12 | 2.5 | 1,2-Dichlorobenzene | <2 | <0.33 |
| 2-Butanone (MEK) | 65 | 22 | 1,2,4-Trichlorobenzene | <2.4 | <0.33 |
| 1,2-Dichloroethane (EDC) | <0.13 | <0.033 | Naphthalene | 1.3 fb | 0.25 fb |
| 1,1,1-Trichloroethane | <1.8 | <0.33 | Hexachlorobutadiene | <0.7 | <0.066 |

# FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By Method TO-15

| | | | |
|---|---|---|---|
| Client Sample ID: | SS-4 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-09 1/3.3 |
| Date Analyzed: | 08/09/18 | Data File: | 080915.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

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

| Compounds: | Concentration ug/m3 | Concentration ppbv | Compounds: | Concentration ug/m3 | Concentration ppbv |
|---|---|---|---|---|---|
| Chlorodifluoromethane | <1.2 | <0.33 | 1-Butanol | 300 | 100 |
| Propene | <2.3 | <1.3 | Carbon tetrachloride | <2.1 | <0.33 |
| Dichlorodifluoromethane | 2.5 | 0.50 | Benzene | 12 | 3.7 |
| Chloromethane | <0.68 | <0.33 | Cyclohexane | 28 | 8.1 |
| F-114 | <2.3 | <0.33 | 3-Pentanone | <12 | <3.3 |
| Isobutene | 20 | 8.8 | 2-Pentanone | <12 | <3.3 |
| Acetaldehyde | <30 | <16 | Pentanal | <12 | <3.3 |
| Vinyl chloride | 12 | 4.6 | 1,2-Dichloropropane | <0.76 | <0.16 |
| 1,3-Butadiene | 4.0 | 1.8 | 1,4-Dioxane | <1.2 | <0.33 |
| Bromomethane | <5.1 | <1.3 | Bromodichloromethane | <0.22 | <0.033 |
| Chloroethane | 1.4 | 0.52 | Trichloroethene | 5.1 | 0.95 |
| Ethanol | 1,600 ve | 840 ve | cis-1,3-Dichloropropene | <1.5 | <0.33 |
| Acetonitrile | <5.5 | <3.3 | 4-Methyl-2-pentanone | 37 | 9.1 |
| Acrolein | <3 | <1.3 | trans-1,3-Dichloropropene | <1.5 | <0.33 |
| Acrylonitrile | <0.72 | <0.33 | Toluene | 17 | 4.6 |
| Pentane | 95 | 32 | 1,1,2-Trichloroethane | <0.18 | <0.033 |
| Trichlorofluoromethane | <1.9 | <0.33 | 3-Hexanone | <14 | <3.3 |
| Acetone | 1,100 ve | 440 ve | 2-Hexanone | <14 | <3.3 |
| 2-Propanol | 210 | 86 | Hexanal | <14 | <3.3 |
| Isoprene | 1.1 | 0.39 | Tetrachloroethene | 15 | 2.2 |
| Iodomethane | <1.9 | <0.33 | Dibromochloromethane | <0.28 | <0.033 |
| 1,1-Dichloroethene | <1.3 | <0.33 | 1,2-Dibromoethane (EDB) | <0.25 | <0.033 |
| Methacrolein | <9.5 | <3.3 | Chlorobenzene | <1.5 | <0.33 |
| trans-1,2-Dichloroethene | <1.3 | <0.33 | Ethylbenzene | 2.2 | 0.50 |
| Cyclopentane | 11 | 4.0 | 1,1,2,2-Tetrachloroethane | <0.45 | <0.066 |
| Methyl vinyl ketone | <9.5 | <3.3 | m,p-Xylene | 10 | 2.3 |
| Butanal | <9.7 | <3.3 | o-Xylene | 2.9 | 0.66 |
| Methylene chloride | 570 | 160 | Styrene | <2.8 | <0.66 |
| CFC-113 | <2.5 | <0.33 | Bromoform | <6.8 | <0.66 |
| Carbon disulfide | <21 | <6.6 | Benzyl chloride | <0.17 | <0.033 |
| Methyl t-butyl ether (MTBE) | <5.9 | <1.6 | 1,3,5-Trimethylbenzene | <8.1 | <1.6 |
| Vinyl acetate | <23 | <6.6 | 1,2,4-Trimethylbenzene | <8.1 | <1.6 |
| 1,1-Dichloroethane | <1.3 | <0.33 | 1,3-Dichlorobenzene | <2 | <0.33 |
| cis-1,2-Dichloroethene | <1.3 | <0.33 | 1,4-Dichlorobenzene | <0.79 | <0.13 |
| Hexane | 71 | 20 | 1,2,3-Trimethylbenzene | <8.1 | <1.6 |
| Chloroform | 1.1 | 0.23 | 1,2-Dichlorobenzene | <2 | <0.33 |
| 2-Butanone (MEK) | 44 | 15 | 1,2,4-Trichlorobenzene | <2.4 | <0.33 |
| 1,2-Dichloroethane (EDC) | <0.13 | <0.033 | Naphthalene | 0.90 fb | 0.17 fb |
| 1,1,1-Trichloroethane | <1.8 | <0.33 | Hexachlorobutadiene | <0.7 | <0.066 |

# FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By Method TO-15

| | | | |
|---|---|---|---|
| Client Sample ID: | SS-5 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-10 1/3.3 |
| Date Analyzed: | 08/09/18 | Data File: | 080916.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

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

| Compounds: | Concentration ug/m3 | Concentration ppbv | Compounds: | Concentration ug/m3 | Concentration ppbv |
|---|---|---|---|---|---|
| Chlorodifluoromethane | <1.2 | <0.33 | 1-Butanol | 290 | 97 |
| Propene | <2.3 | <1.3 | Carbon tetrachloride | <2.1 | <0.33 |
| Dichlorodifluoromethane | 2.5 | 0.50 | Benzene | 4.9 | 1.5 |
| Chloromethane | 0.85 | 0.41 | Cyclohexane | <23 | <6.6 |
| F-114 | <2.3 | <0.33 | 3-Pentanone | <12 | <3.3 |
| Isobutene | 7.6 | 3.3 | 2-Pentanone | <12 | <3.3 |
| Acetaldehyde | <30 | <16 | Pentanal | <12 | <3.3 |
| Vinyl chloride | <0.84 | <0.33 | 1,2-Dichloropropane | <0.76 | <0.16 |
| 1,3-Butadiene | 2.0 | 0.90 | 1,4-Dioxane | <1.2 | <0.33 |
| Bromomethane | <5.1 | <1.3 | Bromodichloromethane | <0.22 | <0.033 |
| Chloroethane | <0.87 | <0.33 | Trichloroethene | 39 | 7.3 |
| Ethanol | 2,300 ve | 1,200 ve | cis-1,3-Dichloropropene | <1.5 | <0.33 |
| Acetonitrile | <5.5 | <3.3 | 4-Methyl-2-pentanone | 29 | 7.2 |
| Acrolein | <3 | <1.3 | trans-1,3-Dichloropropene | <1.5 | <0.33 |
| Acrylonitrile | <0.72 | <0.33 | Toluene | 24 | 6.4 |
| Pentane | 53 | 18 | 1,1,2-Trichloroethane | <0.18 | <0.033 |
| Trichlorofluoromethane | <1.9 | <0.33 | 3-Hexanone | <14 | <3.3 |
| Acetone | 1,200 ve | 510 ve | 2-Hexanone | <14 | <3.3 |
| 2-Propanol | 200 | 80 | Hexanal | <14 | <3.3 |
| Isoprene | 1.5 | 0.53 | Tetrachloroethene | 5.0 | 0.73 |
| Iodomethane | <1.9 | <0.33 | Dibromochloromethane | <0.28 | <0.033 |
| 1,1-Dichloroethene | 1.7 | 0.42 | 1,2-Dibromoethane (EDB) | <0.25 | <0.033 |
| Methacrolein | <9.5 | <3.3 | Chlorobenzene | <1.5 | <0.33 |
| trans-1,2-Dichloroethene | <1.3 | <0.33 | Ethylbenzene | 2.4 | 0.55 |
| Cyclopentane | <0.95 | <0.33 | 1,1,2,2-Tetrachloroethane | <0.45 | <0.066 |
| Methyl vinyl ketone | <9.5 | <3.3 | m,p-Xylene | 9.7 | 2.2 |
| Butanal | 15 | 5.1 | o-Xylene | 3.1 | 0.72 |
| Methylene chloride | <290 | <82 | Styrene | <2.8 | <0.66 |
| CFC-113 | <2.5 | <0.33 | Bromoform | <6.8 | <0.66 |
| Carbon disulfide | <21 | <6.6 | Benzyl chloride | <0.17 | <0.033 |
| Methyl t-butyl ether (MTBE) | <5.9 | <1.6 | 1,3,5-Trimethylbenzene | <8.1 | <1.6 |
| Vinyl acetate | <23 | <6.6 | 1,2,4-Trimethylbenzene | <8.1 | <1.6 |
| 1,1-Dichloroethane | <1.3 | <0.33 | 1,3-Dichlorobenzene | <2 | <0.33 |
| cis-1,2-Dichloroethene | <1.3 | <0.33 | 1,4-Dichlorobenzene | <0.79 | <0.13 |
| Hexane | 39 | 11 | 1,2,3-Trimethylbenzene | <8.1 | <1.6 |
| Chloroform | 0.71 | 0.15 | 1,2-Dichlorobenzene | <2 | <0.33 |
| 2-Butanone (MEK) | 48 | 16 | 1,2,4-Trichlorobenzene | <2.4 | <0.33 |
| 1,2-Dichloroethane (EDC) | 0.16 | 0.04 | Naphthalene | 0.97 fb | 0.18 fb |
| 1,1,1-Trichloroethane | <1.8 | <0.33 | Hexachlorobutadiene | <0.7 | <0.066 |

# FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By Method TO-15

| | | | |
|---|---|---|---|
| Client Sample ID: | SS-6 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-11 1/3.3 |
| Date Analyzed: | 08/10/18 | Data File: | 080917.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

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

| Compounds: | Concentration ug/m3 | Concentration ppbv | Compounds: | Concentration ug/m3 | Concentration ppbv |
|---|---|---|---|---|---|
| Chlorodifluoromethane | <1.2 | <0.33 | 1-Butanol | 82 | 27 |
| Propene | <2.3 | <1.3 | Carbon tetrachloride | <2.1 | <0.33 |
| Dichlorodifluoromethane | 2.4 | 0.48 | Benzene | 6.5 | 2.0 |
| Chloromethane | 1.0 | 0.50 | Cyclohexane | <23 | <6.6 |
| F-114 | <2.3 | <0.33 | 3-Pentanone | <12 | <3.3 |
| Isobutene | 12 | 5.1 | 2-Pentanone | <12 | <3.3 |
| Acetaldehyde | <30 | <16 | Pentanal | <12 | <3.3 |
| Vinyl chloride | 11 | 4.2 | 1,2-Dichloropropane | <0.76 | <0.16 |
| 1,3-Butadiene | 4.3 | 1.9 | 1,4-Dioxane | <1.2 | <0.33 |
| Bromomethane | <5.1 | <1.3 | Bromodichloromethane | <0.22 | <0.033 |
| Chloroethane | 1.8 | 0.70 | Trichloroethene | 5.4 | 1.0 |
| Ethanol | 1,400 ve | 740 ve | cis-1,3-Dichloropropene | <1.5 | <0.33 |
| Acetonitrile | <5.5 | <3.3 | 4-Methyl-2-pentanone | 70 | 17 |
| Acrolein | <3 | <1.3 | trans-1,3-Dichloropropene | <1.5 | <0.33 |
| Acrylonitrile | <0.72 | <0.33 | Toluene | 14 | 3.8 |
| Pentane | 19 | 6.3 | 1,1,2-Trichloroethane | <0.18 | <0.033 |
| Trichlorofluoromethane | <1.9 | <0.33 | 3-Hexanone | <14 | <3.3 |
| Acetone | 620 ve | 260 ve | 2-Hexanone | <14 | <3.3 |
| 2-Propanol | 230 | 95 | Hexanal | <14 | <3.3 |
| Isoprene | 1.4 | 0.49 | Tetrachloroethene | 2.6 | 0.38 |
| Iodomethane | <1.9 | <0.33 | Dibromochloromethane | <0.28 | <0.033 |
| 1,1-Dichloroethene | <1.3 | <0.33 | 1,2-Dibromoethane (EDB) | <0.25 | <0.033 |
| Methacrolein | <9.5 | <3.3 | Chlorobenzene | <1.5 | <0.33 |
| trans-1,2-Dichloroethene | <1.3 | <0.33 | Ethylbenzene | 3.5 | 0.80 |
| Cyclopentane | <0.95 | <0.33 | 1,1,2,2-Tetrachloroethane | <0.46 | <0.066 |
| Methyl vinyl ketone | <9.5 | <3.3 | m,p-Xylene | 11 | 2.4 |
| Butanal | <9.7 | <3.3 | o-Xylene | 3.9 | 0.89 |
| Methylene chloride | <290 | <82 | Styrene | 3.1 | 0.73 |
| CFC-113 | <2.5 | <0.33 | Bromoform | <6.8 | <0.66 |
| Carbon disulfide | <21 | <6.6 | Benzyl chloride | 0.32 | 0.063 |
| Methyl t-butyl ether (MTBE) | <5.9 | <1.6 | 1,3,5-Trimethylbenzene | <8.1 | <1.6 |
| Vinyl acetate | <23 | <6.6 | 1,2,4-Trimethylbenzene | <8.1 | <1.6 |
| 1,1-Dichloroethane | <1.3 | <0.33 | 1,3-Dichlorobenzene | <2 | <0.33 |
| cis-1,2-Dichloroethene | <1.3 | <0.33 | 1,4-Dichlorobenzene | <0.79 | <0.13 |
| Hexane | 31 | 8.9 | 1,2,3-Trimethylbenzene | <8.1 | <1.6 |
| Chloroform | 0.29 fb | 0.059 fb | 1,2-Dichlorobenzene | <2 | <0.33 |
| 2-Butanone (MEK) | 74 | 25 | 1,2,4-Trichlorobenzene | <2.4 | <0.33 |
| 1,2-Dichloroethane (EDC) | 0.39 | 0.096 | Naphthalene | 1.0 fb | 0.19 fb |
| 1,1,1-Trichloroethane | <1.8 | <0.33 | Hexachlorobutadiene | <0.7 | <0.066 |

# FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By Method TO-15

| | | | |
|---|---|---|---|
| Client Sample ID: | SS-7 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-12 1/3.3 |
| Date Analyzed: | 08/10/18 | Data File: | 080918.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

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

| Compounds: | Concentration ug/m3 | Concentration ppbv | Compounds: | Concentration ug/m3 | Concentration ppbv |
|---|---|---|---|---|---|
| Chlorodifluoromethane | <1.2 | <0.33 | 1-Butanol | 1,800 ve | 590 ve |
| Propene | <2.3 | <1.3 | Carbon tetrachloride | <2.1 | <0.33 |
| Dichlorodifluoromethane | 2.4 | 0.48 | Benzene | 3.6 | 1.1 |
| Chloromethane | <0.68 | <0.33 | Cyclohexane | <23 | <6.6 |
| F-114 | <2.3 | <0.33 | 3-Pentanone | <12 | <3.3 |
| Isobutene | 12 | 5.2 | 2-Pentanone | <12 | <3.3 |
| Acetaldehyde | <30 | <16 | Pentanal | 51 | 14 |
| Vinyl chloride | <0.84 | <0.33 | 1,2-Dichloropropane | <0.76 | <0.16 |
| 1,3-Butadiene | 1.1 | 0.50 | 1,4-Dioxane | 13 | 3.6 |
| Bromomethane | <5.1 | <1.3 | Bromodichloromethane | <0.22 | <0.033 |
| Chloroethane | <0.87 | <0.33 | Trichloroethene | 2.0 | 0.36 |
| Ethanol | 1,900 ve | 1,000 ve | cis-1,3-Dichloropropene | <1.5 | <0.33 |
| Acetonitrile | <5.5 | <3.3 | 4-Methyl-2-pentanone | 25 | 6.1 |
| Acrolein | 5.8 | 2.5 | trans-1,3-Dichloropropene | <1.5 | <0.33 |
| Acrylonitrile | <0.72 | <0.33 | Toluene | 9.5 | 2.5 |
| Pentane | 19 | 6.4 | 1,1,2-Trichloroethane | <0.18 | <0.033 |
| Trichlorofluoromethane | <1.9 | <0.33 | 3-Hexanone | <14 | <3.3 |
| Acetone | 1,000 ve | 430 ve | 2-Hexanone | <14 | <3.3 |
| 2-Propanol | 130 | 52 | Hexanal | <14 | <3.3 |
| Isoprene | <0.92 | <0.33 | Tetrachloroethene | <2.2 | <0.33 |
| Iodomethane | <1.9 | <0.33 | Dibromochloromethane | <0.28 | <0.033 |
| 1,1-Dichloroethene | <1.3 | <0.33 | 1,2-Dibromoethane (EDB) | <0.25 | <0.033 |
| Methacrolein | <9.5 | <3.3 | Chlorobenzene | 6.1 | 1.3 |
| trans-1,2-Dichloroethene | <1.3 | <0.33 | Ethylbenzene | 7.4 | 1.7 |
| Cyclopentane | 6.4 | 2.2 | 1,1,2,2-Tetrachloroethane | 1.2 | 0.17 |
| Methyl vinyl ketone | <9.5 | <3.3 | m,p-Xylene | 20 | 4.7 |
| Butanal | 73 | 25 | o-Xylene | 14 | 3.3 |
| Methylene chloride | <290 | <82 | Styrene | <2.8 | <0.66 |
| CFC-113 | <2.5 | <0.33 | Bromoform | <6.8 | <0.66 |
| Carbon disulfide | <21 | <6.6 | Benzyl chloride | <0.17 | <0.033 |
| Methyl t-butyl ether (MTBE) | <5.9 | <1.6 | 1,3,5-Trimethylbenzene | 15 | 3.1 |
| Vinyl acetate | <23 | <6.6 | 1,2,4-Trimethylbenzene | 38 | 7.8 |
| 1,1-Dichloroethane | <1.3 | <0.33 | 1,3-Dichlorobenzene | <2 | <0.33 |
| cis-1,2-Dichloroethene | <1.3 | <0.33 | 1,4-Dichlorobenzene | 3.3 | 0.55 |
| Hexane | 28 | 8.0 | 1,2,3-Trimethylbenzene | 9.5 | 1.9 |
| Chloroform | 0.24 fb | 0.049 fb | 1,2-Dichlorobenzene | <2 | <0.33 |
| 2-Butanone (MEK) | 65 | 22 | 1,2,4-Trichlorobenzene | <2.4 | <0.33 |
| 1,2-Dichloroethane (EDC) | <0.13 | <0.033 | Naphthalene | 1.4 fb | 0.27 fb |
| 1,1,1-Trichloroethane | <1.8 | <0.33 | Hexachlorobutadiene | <0.7 | <0.066 |

# FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By Method TO-15

| | | | |
|---|---|---|---|
| Client Sample ID: | SS-8 | Client: | ESN NW |
| Date Received: | 07/31/18 | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | 07/26/18 | Lab ID: | 807613-13 1/3.3 |
| Date Analyzed: | 08/10/18 | Data File: | 080919.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

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

| Compounds: | Concentration ug/m3 | Concentration ppbv | Compounds: | Concentration ug/m3 | Concentration ppbv |
|---|---|---|---|---|---|
| Chlorodifluoromethane | <1.2 | <0.33 | 1-Butanol | 60 | 20 |
| Propene | <2.3 | <1.3 | Carbon tetrachloride | <2.1 | <0.33 |
| Dichlorodifluoromethane | 2.4 | 0.48 | Benzene | <1.1 | <0.33 |
| Chloromethane | <0.68 | <0.33 | Cyclohexane | <23 | <6.6 |
| F-114 | <2.3 | <0.33 | 3-Pentanone | <12 | <3.3 |
| Isobutene | <3 | <1.3 | 2-Pentanone | <12 | <3.3 |
| Acetaldehyde | <30 | <16 | Pentanal | <12 | <3.3 |
| Vinyl chloride | <0.84 | <0.33 | 1,2-Dichloropropane | <0.76 | <0.16 |
| 1,3-Butadiene | <0.073 | <0.033 | 1,4-Dioxane | <1.2 | <0.33 |
| Bromomethane | <5.1 | <1.3 | Bromodichloromethane | <0.22 | <0.033 |
| Chloroethane | <0.87 | <0.33 | Trichloroethene | 3.5 | 0.64 |
| Ethanol | 50 | 26 | cis-1,3-Dichloropropene | <1.5 | <0.33 |
| Acetonitrile | <5.5 | <3.3 | 4-Methyl-2-pentanone | <14 | <3.3 |
| Acrolein | <3 | <1.3 | trans-1,3-Dichloropropene | <1.5 | <0.33 |
| Acrylonitrile | <0.72 | <0.33 | Toluene | 4.1 | 1.1 |
| Pentane | <9.7 | <3.3 | 1,1,2-Trichloroethane | <0.18 | <0.033 |
| Trichlorofluoromethane | <1.9 | <0.33 | 3-Hexanone | <14 | <3.3 |
| Acetone | 63 | 27 | 2-Hexanone | <14 | <3.3 |
| 2-Propanol | <28 | <12 | Hexanal | <14 | <3.3 |
| Isoprene | <0.92 | <0.33 | Tetrachloroethene | <2.2 | <0.33 |
| Iodomethane | <1.9 | <0.33 | Dibromochloromethane | <0.28 | <0.033 |
| 1,1-Dichloroethene | <1.3 | <0.33 | 1,2-Dibromoethane (EDB) | <0.25 | <0.033 |
| Methacrolein | <9.5 | <3.3 | Chlorobenzene | <1.5 | <0.33 |
| trans-1,2-Dichloroethene | <1.3 | <0.33 | Ethylbenzene | 1.6 | 0.38 |
| Cyclopentane | <0.95 | <0.33 | 1,1,2,2-Tetrachloroethane | <0.45 | <0.066 |
| Methyl vinyl ketone | <9.5 | <3.3 | m,p-Xylene | 8.3 | 1.9 |
| Butanal | <9.7 | <3.3 | o-Xylene | 3.8 | 0.86 |
| Methylene chloride | <290 | <82 | Styrene | 6.4 | 1.5 |
| CFC-113 | <2.5 | <0.33 | Bromoform | <6.8 | <0.66 |
| Carbon disulfide | <21 | <6.6 | Benzyl chloride | <0.17 | <0.033 |
| Methyl t-butyl ether (MTBE) | <5.9 | <1.6 | 1,3,5-Trimethylbenzene | <8.1 | <1.6 |
| Vinyl acetate | <23 | <6.6 | 1,2,4-Trimethylbenzene | <8.1 | <1.6 |
| 1,1-Dichloroethane | <1.3 | <0.33 | 1,3-Dichlorobenzene | <2 | <0.33 |
| cis-1,2-Dichloroethene | <1.3 | <0.33 | 1,4-Dichlorobenzene | <0.79 | <0.13 |
| Hexane | <12 | <3.3 | 1,2,3-Trimethylbenzene | <8.1 | <1.6 |
| Chloroform | 4.7 | 0.96 | 1,2-Dichlorobenzene | <2 | <0.33 |
| 2-Butanone (MEK) | 29 | 9.7 | 1,2,4-Trichlorobenzene | <2.4 | <0.33 |
| 1,2-Dichloroethane (EDC) | <0.13 | <0.033 | Naphthalene | 0.64 fb | 0.12 fb |
| 1,1,1-Trichloroethane | <1.8 | <0.33 | Hexachlorobutadiene | <0.7 | <0.066 |

# FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By Method TO-15

| | | | |
|---|---|---|---|
| Client Sample ID: | Method Blank | Client: | ESN NW |
| Date Received: | Not Applicable | Project: | Franciscan West Seattle 18-172 |
| Date Collected: | Not Applicable | Lab ID: | 08-1808 mb |
| Date Analyzed: | 08/09/18 | Data File: | 080908.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS |

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

| Compounds: | Concentration ug/m3 | Concentration ppbv | Compounds: | Concentration ug/m3 | Concentration ppbv |
|---|---|---|---|---|---|
| Chlorodifluoromethane | <0.35 | <0.1 | 1-Butanol | <6.1 | <2 |
| Propene | <0.69 | <0.4 | Carbon tetrachloride | <0.63 | <0.1 |
| Dichlorodifluoromethane | <0.49 | <0.1 | Benzene | <0.32 | <0.1 |
| Chloromethane | <0.21 | <0.1 | Cyclohexane | <6.9 | <2 |
| F-114 | <0.7 | <0.1 | 3-Pentanone | <3.5 | <1 |
| Isobutene | <0.92 | <0.4 | 2-Pentanone | <3.5 | <1 |
| Acetaldehyde | <9 | <5 | Pentanal | <3.5 | <1 |
| Vinyl chloride | <0.26 | <0.1 | 1,2-Dichloropropane | <0.23 | <0.05 |
| 1,3-Butadiene | <0.022 | <0.01 | 1,4-Dioxane | <0.36 | <0.1 |
| Bromomethane | <1.6 | <0.4 | Bromodichloromethane | <0.067 | <0.01 |
| Chloroethane | <0.26 | <0.1 | Trichloroethene | <0.27 | <0.05 |
| Ethanol | <7.5 | <4 | cis-1,3-Dichloropropene | <0.45 | <0.1 |
| Acetonitrile | <1.7 | <1 | 4-Methyl-2-pentanone | <4.1 | <1 |
| Acrolein | <0.92 | <0.4 | trans-1,3-Dichloropropene | <0.45 | <0.1 |
| Acrylonitrile | <0.22 | <0.1 | Toluene | <0.38 | <0.1 |
| Pentane | <3 | <1 | 1,1,2-Trichloroethane | <0.055 | <0.01 |
| Trichlorofluoromethane | <0.56 | <0.1 | 3-Hexanone | <4.1 | <1 |
| Acetone | <4.8 | <2 | 2-Hexanone | <4.1 | <1 |
| 2-Propanol | <8.6 | <3.5 | Hexanal | <4.1 | <1 |
| Isoprene | <0.28 | <0.1 | Tetrachloroethene | <0.68 | <0.1 |
| Iodomethane | <0.58 | <0.1 | Dibromochloromethane | <0.085 | <0.01 |
| 1,1-Dichloroethene | <0.4 | <0.1 | 1,2-Dibromoethane (EDB) | <0.077 | <0.01 |
| Methacrolein | <2.9 | <1 | Chlorobenzene | <0.46 | <0.1 |
| trans-1,2-Dichloroethene | <0.4 | <0.1 | Ethylbenzene | <0.43 | <0.1 |
| Cyclopentane | <0.29 | <0.1 | 1,1,2,2-Tetrachloroethane | <0.14 | <0.02 |
| Methyl vinyl ketone | <2.9 | <1 | m,p-Xylene | <0.87 | <0.2 |
| Butanal | <2.9 | <1 | o-Xylene | <0.43 | <0.1 |
| Methylene chloride | <87 | <25 | Styrene | <0.85 | <0.2 |
| CFC-113 | <0.77 | <0.1 | Bromoform | <2.1 | <0.2 |
| Carbon disulfide | <6.2 | <2 | Benzyl chloride | <0.052 | <0.01 |
| Methyl t-butyl ether (MTBE) | <1.8 | <0.5 | 1,3,5-Trimethylbenzene | <2.5 | <0.5 |
| Vinyl acetate | <7 | <2 | 1,2,4-Trimethylbenzene | <2.5 | <0.5 |
| 1,1-Dichloroethane | <0.4 | <0.1 | 1,3-Dichlorobenzene | <0.6 | <0.1 |
| cis-1,2-Dichloroethene | <0.4 | <0.1 | 1,4-Dichlorobenzene | <0.24 | <0.04 |
| Hexane | <3.5 | <1 | 1,2,3-Trimethylbenzene | <2.5 | <0.5 |
| Chloroform | <0.049 | <0.01 | 1,2-Dichlorobenzene | <0.6 | <0.1 |
| 2-Butanone (MEK) | <2.9 | <1 | 1,2,4-Trichlorobenzene | <0.74 | <0.1 |
| 1,2-Dichloroethane (EDC) | <0.04 | <0.01 | Naphthalene | 0.14 | 0.027 |
| 1,1,1-Trichloroethane | <0.55 | <0.1 | Hexachlorobutadiene | <0.21 | <0.02 |

Date of Report: 08/16/18
Date Received: 07/31/18
Project: Franciscan West Seattle 18-172, F&BI 807613

## QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD APH

Laboratory Code: Laboratory Control Sample

| Analyte | Reporting Units | Spike Level | Percent Recovery LCS | Acceptance Criteria |
|---|---|---|---|---|
| APH EC5-8 aliphatics | ug/m3 | 45 | 86 | 70-130 |
| APH EC9-12 aliphatics | ug/m3 | 45 | 119 | 70-130 |
| APH EC9-10 aromatics | ug/m3 | 45 | 97 | 70-130 |

Date of Report: 08/16/18
Date Received: 07/31/18
Project: Franciscan West Seattle 18-172, F&BI 807613

## 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 |
|---|---|---|---|---|
| Chlorodifluoromethane | ppbv | 5 | 95 | 70-130 |
| Propene | ppbv | 5 | 85 | 70-130 |
| Dichlorodifluoromethane | ppbv | 5 | 88 | 70-130 |
| Chloromethane | ppbv | 5 | 88 | 70-130 |
| F-114 | ppbv | 5 | 90 | 70-130 |
| Isobutene | ppbv | 5 | 86 | 70-130 |
| Acetaldehyde | ppbv | 5 | 108 | 70-130 |
| Vinyl chloride | ppbv | 5 | 89 | 70-130 |
| 1,3-Butadiene | ppbv | 5 | 95 | 70-130 |
| Bromomethane | ppbv | 5 | 136 vo | 70-130 |
| Chloroethane | ppbv | 5 | 87 | 70-130 |
| Ethanol | ppbv | 5 | 86 | 70-130 |
| Acetonitrile | ppbv | 5 | 88 | 70-130 |
| Acrolein | ppbv | 5 | 98 | 70-130 |
| Acrylonitrile | ppbv | 5 | 110 | 70-130 |
| Pentane | ppbv | 5 | 95 | 70-130 |
| Trichlorofluoromethane | ppbv | 5 | 92 | 70-130 |
| Acetone | ppbv | 5 | 92 | 70-130 |
| 2-Propanol | ppbv | 5 | 102 | 70-130 |
| Isoprene | ppbv | 5 | 96 | 70-130 |
| Iodomethane | ppbv | 5 | 93 | 70-130 |
| 1,1-Dichloroethene | ppbv | 5 | 92 | 70-130 |
| Methacrolein | ppbv | 5 | 93 | 70-130 |
| trans-1,2-Dichloroethene | ppbv | 5 | 95 | 70-130 |
| Cyclopentane | ppbv | 5 | 95 | 70-130 |
| Methyl vinyl ketone | ppbv | 5 | 105 | 70-130 |
| Butanal | ppbv | 5 | 98 | 70-130 |
| Methylene chloride | ppbv | 5 | 84 | 70-130 |
| CFC-113 | ppbv | 5 | 92 | 70-130 |
| Carbon disulfide | ppbv | 5 | 89 | 70-130 |
| Methyl t-butyl ether (MTBE) | ppbv | 5 | 102 | 70-130 |
| Vinyl acetate | ppbv | 5 | 89 | 70-130 |
| 1,1-Dichloroethane | ppbv | 5 | 96 | 70-130 |
| cis-1,2-Dichloroethene | ppbv | 5 | 97 | 70-130 |
| Hexane | ppbv | 5 | 98 | 70-130 |
| Chloroform | ppbv | 5 | 97 | 70-130 |
| 2-Butanone (MEK) | ppbv | 5 | 103 | 70-130 |
| 1,2-Dichloroethane (EDC) | ppbv | 5 | 99 | 70-130 |
| 1,1,1-Trichloroethane | ppbv | 5 | 98 | 70-130 |

Date of Report: 08/16/18
Date Received: 07/31/18
Project: Franciscan West Seattle 18-172, F&BI 807613

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

Laboratory Code: Laboratory Control Sample (continued)

| Analyte | Reporting Units | Spike Level | Percent Recovery LCS | Acceptance Criteria |
|---|---|---|---|---|
| 1-Butanol | ppbv | 5 | 98 | 70-130 |
| Carbon tetrachloride | ppbv | 5 | 93 | 70-130 |
| Benzene | ppbv | 5 | 99 | 70-130 |
| Cyclohexane | ppbv | 5 | 98 | 70-130 |
| 2-Pentanone | ppbv | 5 | 102 | 70-130 |
| 3-Pentanone | ppbv | 5 | 108 | 70-130 |
| Pentanal | ppbv | 5 | 95 | 70-130 |
| 1,2-Dichloropropane | ppbv | 5 | 96 | 70-130 |
| 1,4-Dioxane | ppbv | 5 | 97 | 70-130 |
| Bromodichloromethane | ppbv | 5 | 101 | 70-130 |
| Trichloroethene | ppbv | 5 | 92 | 70-130 |
| cis-1,3-Dichloropropene | ppbv | 5 | 97 | 70-130 |
| 4-Methyl-2-pentanone | ppbv | 5 | 92 | 70-130 |
| trans-1,3-Dichloropropene | ppbv | 5 | 99 | 70-130 |
| Toluene | ppbv | 5 | 94 | 70-130 |
| 1,1,2-Trichloroethane | ppbv | 5 | 97 | 70-130 |
| 3-Hexanone | ppbv | 5 | 97 | 70-130 |
| 2-Hexanone | ppbv | 5 | 96 | 70-130 |
| Hexanal | ppbv | 5 | 89 | 70-130 |
| Tetrachloroethene | ppbv | 5 | 93 | 70-130 |
| Dibromochloromethane | ppbv | 5 | 105 | 70-130 |
| 1,2-Dibromoethane (EDB) | ppbv | 5 | 102 | 70-130 |
| Chlorobenzene | ppbv | 5 | 96 | 70-130 |
| Ethylbenzene | ppbv | 5 | 99 | 70-130 |
| 1,1,2,2,-Tetrachloroethane | ppbv | 5 | 103 | 70-130 |
| m,p-Xylene | ppbv | 10 | 101 | 70-130 |
| o-Xylene | ppbv | 5 | 105 | 70-130 |
| Styrene | ppbv | 5 | 98 | 70-130 |
| Bromoform | ppbv | 5 | 98 | 70-130 |
| Benzyl chloride | ppbv | 5 | 112 | 70-130 |
| 1,3,5-Trimethylbenzene | ppbv | 5 | 101 | 70-130 |
| 1,2,4-Trimethylbenzene | ppbv | 5 | 99 | 70-130 |
| 1,3-Dichlorobenzene | ppbv | 5 | 99 | 70-130 |
| 1,4-Dichlorobenzene | ppbv | 5 | 107 | 70-130 |
| 1,2,3-Trimethylbenzene | ppbv | 5 | 101 | 70-130 |
| 1,2-Dichlorobenzene | ppbv | 5 | 104 | 70-130 |
| 1,2,4-Trichlorobenzene | ppbv | 5 | 94 | 70-130 |
| Naphthalene | ppbv | 5 | 95 | 70-130 |
| Hexachloro-1,3-butadiene | ppbv | 5 | 98 | 70-130 |

# Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

# SAMPLE CHAIN OF CUSTODY

Report To ~~EST~~ SHAWN / JENNIFER
Company AEG / ESN
Address 6051 10th AVE SE STE 201
City, State, ZIP OLYMPIA WA
Phone 360 352 9835 Email SLOMBARDENE@AEGcorp.com
~~LAB@ESN~~

SAMPLERS (*signature*)

PROJECT NAME: FRANCISCAN WEST SEATTLE
PO #: 18-172

REPORTING LEVEL
☐ Indoor Air ☐ Deep Soil Gas
☐ Sub Slab/Soil Gas ☐ SVE/Grab

INVOICE TO

Page # _____ of _____

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

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Archive Samples
☐ Other _____

ANALYSIS REQUESTED

| Sample Name | Lab ID | Canister ID | Flow Contr. ID | Date Sampled | Field Initial Press. (Hg) | Field Initial Time | Field Final Press. (Hg) | Field Final Time | TO-15 Full Scan | TO-15 BTEXN | TO-15 cVOCs | TO-15 / APH VOC | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SGV-1 | | 3259 | | 7.26.18 | ~30 | 20:25 | 5 | 2032 | | | X | X | |
| SGV-2 | | 2302 | | | ~30 | 21:0[illegible] | 5 | 2110 | | | | X | |
| SGV-3 | | 3256 | | | ~30 | 21:37 | 6 | 2148 | | | | X | |
| SGV-4 | | 2305 | | | ~30 | 22:14 | 5 | 2219 | | | | X | |
| SGV-5 | | 3252 | | | ~29 | 2242 | 5 | 2248 | | | | X | |
| SS-1 | | 3387 | | | ~30 | 2357 | 5 | 0002 | | | | X | |
| SS-2 | | 3250 | | | ~28 | 0014 | 3 | 0020 | | | | X | |
| SS-3 | | 3476 | | | ~28 | 0027 | 5 | 0033 | | | | X | |

| SIGNATURE | PRINT NAME | COMPANY | DATE | TIME |
|---|---|---|---|---|
| Relinquished by: | SHAWN LOMBARDENE | AEG | 7.26.18 | |
| Received by: | | | | |
| Relinquished by: | | | | |
| Received by: | | | | |

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

# SAMPLE CHAIN OF CUSTODY

Report To SHAWN / JENNIFER
Company AEG / FSN
Address 605 1ST AVE S
City, State, ZIP OLY WA
Phone 360-352-9835 Email SLOMBARDI@AEGWA.COM

SAMPLERS (*signature*)

PROJECT NAME: FRANCISCAN WEST SEATTLE
PO #: 18-172

REPORTING LEVEL
☐ Indoor Air ☐ Deep Soil Gas
☐ Sub Slab/Soil Gas ☐ SVE/Grab

INVOICE TO

Page # _____ of _____

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

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Archive Samples
☐ Other _____

ANALYSIS REQUESTED

| Sample Name | Lab ID | Canister ID | Flow Contr. ID | Date Sampled | Field Initial Press. (Hg) | Field Initial Time | Field Final Press. (Hg) | Field Final Time | TO-15 Full Scan | TO-15 BTEXN | TO-15 cVOCs | TO-15 VC / MeOH | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SS-4 | | 3344 | | 7.26.18 | -29 | 040 | -5 | 046 | | | | X | |
| SS-5 | | 3483 | | | -30 | 051 | -6 | 059 | | | | X | |
| SS-6 | | 2296 | | | -30 | 102 | -6 | 109 | | | | X | |
| SS-7 | | 2438 | | | -29 | 114 | -6 | 121 | | | | X | |
| SS-8 | | 3668 | | | -32 | 126 | -3 | 135 | | | | X | |
| | | | | | | | | | | | | | |
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FORMS\COC\COCTO-15.DOC

| | SIGNATURE | PRINT NAME | COMPANY | DATE | TIME |
|---|---|---|---|---|---|
| Relinquished by: | | SHAWN LOMBARDI | AEG | 7.26.18 | |
| Received by: | | | | | |
| Relinquished by: | | | | | |
| Received by: | | | | | |