Technical Memorandum

To: Khalil Alomari, Country Market | Date: February 7, 2025

From: Julie Pace | Project No.: M2809.01.001

Re: Vapor Intrusion Assessment Results, Country Market, 40490 Old Highway 30 (DEQ Site ID: 04-16-0669)

At the request of Country Market (client), Maul Foster & Alongi, Inc. (MFA) conducted a vapor intrusion (VI) assessment at the residence attached to the southeast portion of the Country Market, formerly Hunt's Marketplace (site), to evaluate potential indoor air vapor exposure from subsurface soil and groundwater contamination at the site. MFA collected indoor air and crawlspace vapor samples to assess whether vapors associated with the site contamination are present under or in the residence.

The site contamination is associated with an underground storage tank (UST) located on the north side of the Country Market that was identified during a geophysical survey in June 2015. Extensive subsurface investigations have been conducted at the site to assess the nature and extent of contamination associated with the UST, as summarized in the Oregon Department of Environmental Quality (DEQ) staff memorandum for Leaking Underground Storage Tank (LUST) site 04-16-0669[1]. In its staff memorandum DEQ stated that "Barring further cleanup, an E&ES [Easement and Equitable Servitude] that prohibits the construction of any new buildings for human occupation without DEQ's prior written approval would be needed to mitigate unacceptable vapor intrusion risks to the occupants of future buildings constructed at the site." DEQ subsequently became aware that around 2020 Clatsop County approved the remodeling of an on-site commercial building to include a residential living space. This residential use, which is ongoing, resulted in DEQ requiring the VI assessment.

This memorandum summarizes the indoor air and crawlspace sampling results and proposed mitigation plan. In summary, benzene, ethylbenzene, naphthalene, and gasoline-range organics (GRO) were detected in multiple indoor air samples and one of the two crawlspace samples at concentrations above the chronic VI risk-based concentrations (RBCs) for residential exposure. Currently, the residents are ventilating the home with window fans and exhausting the air outdoors, and have begun planning the implementation of active mitigation of the crawlspace.

Methodology

Indoor Air Sampling – June 2024

On June 13, 2024, MFA deployed four 6-liter Summa canisters fitted with seven-day regulators at the site. A canister was placed outside, in the yard on the south side of the residence as a background sample (Sample 1). Three canisters were placed in the residential building interior: in the

[1] DEQ. 2023. Letter re: *Hunt's Market, LUST # 04-16-0669; Staff Memorandum in support of a No Further Action determination*. From Rebecca Digiustino, Project Manager, DEQ Northwest Region to DEQ project file. June 14.

kitchen/dining room area (Sample 2), in a bedroom with a bathroom (Sample 3), and in a study (Sample 4). See the Figure for sample locations.

After seven days, the canister regulators were closed, and the canisters were shipped to Friedman & Bruya, Inc. in Seattle, Washington for analysis of GRO, benzene, toluene, ethylbenzene, and total xylenes (BTEX), and naphthalene by EPA Method TO-15.

Crawlspace Sampling – August 2024

Based on the results of the indoor air samples, as discussed below, on August 12, 2024, MFA collected two crawlspace samples to confirm that vapors are present under the residence and the cause of the vapors detected in the building interior.

Based on conversations with the client, it is MFA's understanding that the residence is built on 1.5-foot-high floor joists that rest on top of a concrete slab. The north portion of the residence, associated with three bedrooms and a study, rests on joists that are oriented east-west, and the south portion, associated with the kitchen and dining room area, rests on joists oriented north-south. This configuration creates enclosed/isolated crawlspace "cells" between the concrete slab and the floor of the residence. The perimeter of the residence rests on a concrete footer wall, about 1.5 feet high, that prevents access to the cells.

As approved by DEQ via email on July 25, 2024, MFA collected two vapor samples from the cells. One sample was collected from an east-west cell underlying the bedroom where Sample 3 was collected (sample 1-Crawlspace on the Figure). A second sample was collected from a north-south cell underlying the kitchen/dining room area where Sample 2 was collected (sample 2-Crawlspace on the Figure).

To access the cells for sampling, concrete cores were drilled through the footer wall on the west and south sides of the residence. Sampling tubing for the Summa canisters was inserted approximately 5 to 6 feet through the core hole into the cell. See the Figure for the sample locations. The cored hole was then sealed with plastic and duct tape to prevent outdoor air from entering the sampled cell. The tubing was then attached to the 6-liter Summa canisters fitted with 30-minute regulators. A rag soaked with alcohol (2-Propanol) was placed around the sample tubing adjacent to the core hole as a leak-check compound.

After 30 minutes, the canister regulators were closed, and the canisters were shipped to Friedman & Bruya, Inc for analysis of GRO, BTEX, and naphthalene by EPA Method TO-15.

Summary of Results

Below are the results for the indoor air and crawlspace vapor sampling events. The laboratory reports are provided in Attachment A, and a data validation memorandum is provided in Attachment B.

Indoor Air Vapor Results – June 2024

The following chemicals were detected at concentrations exceeding the chronic VI RBCs for residential exposure.

- Sample 1 - Background outdoor
  - GRO: 400 micrograms per cubic meter (ug/m^3)
  - Naphthalene: 0.12 ug/m^3
- Sample 2 – Kitchen/dining area
  - Benzene: 2.1 ug/m^3

  - GRO: 1,800 ug/m^3
  - Naphthalene: 0.44 ug/m^3

- **Sample 3 –Bedroom with bathroom**
  - Benzene: 3.0 ug/m^3
  - GRO: 1,100 ug/m^3
  - Naphthalene: 0.85 ug/m^3
- **Sample 4 –Study**
  - Benzene: 1.5 ug/m^3
  - GRO: 350 ug/m^3
  - Naphthalene: 0.38 ug/m^3

Crawlspace Vapor Results – August 2024

The following chemicals were detected at concentrations exceeding the chronic VI RBCs for residential exposure.

- **Sample 1 – Crawlspace beneath Bedroom**
  - Benzene: 0.55 ug/m^3
  - Ethylbenzene: 1.8 ug/m^3
  - GRO: 2,100 ug/m^3
  - Naphthalene: 4.7 ug/m^3
- **Sample 2 – Crawlspace beneath Kitchen (Qualified results. See DVM Attachment B)**
  - Naphthalene: 0.50 ug/m^3

As described in the attached data validation memorandum, 2-Propanol was detected only in Sample 2 at a concentration of 1,300 ug/m^3, indicating that outside air may have entered the Sample 2 cell during sample collection.

The chronic RBCs for residential exposure to which the data were compared are:

- Benzene 0.36 ug/m3
- Ethylbenzene 1.1 ug/m3
- Gasoline 300 ug/m3
- Naphthalene 0.083 ug/m3

VI Mitigation Approach

The indoor air and crawlspace sample results indicate vapors associated with the UST are entering the residence. The client has selected active mitigation of the crawl space as the preferred VI mitigation approach. In concept, the mitigation will consist of coring 2-inch-diameter holes through the concrete footer wall on one side of each crawlspace cell and installing an inline centrifugal fan with vent piping that attaches to a riser to exhaust the crawlspace air to the outside. Following DEQ's review of the VI assessment findings and preliminary approval of the VI mitigation approach, an MFA Oregon-registered Professional Engineer will develop plans for the VI mitigation system for DEQ review, as required by the draft Easement of Equitable Servitude for the site.

After operation of the active VI mitigation system for one month, MFA will conduct an indoor air sampling event to determine the effectiveness of the active system. Seven-day samples will be

collected at the same locations and using the same methods as described above for the June 2024 indoor air sampling event. If chemicals are detected in the indoor air samples at concentrations exceeding the chronic VI RBCs for residential exposure, MFA will contact DEQ to discuss options for improving the effectiveness of the system.

Attachments

Limitations

Figure

A—Analytical Laboratory Reports

B—Data Validation Memorandum

Limitations

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

Opinions and recommendations contained in this technical memorandum apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this technical memorandum.

Figure

MAUL
FOSTER
ALONGI

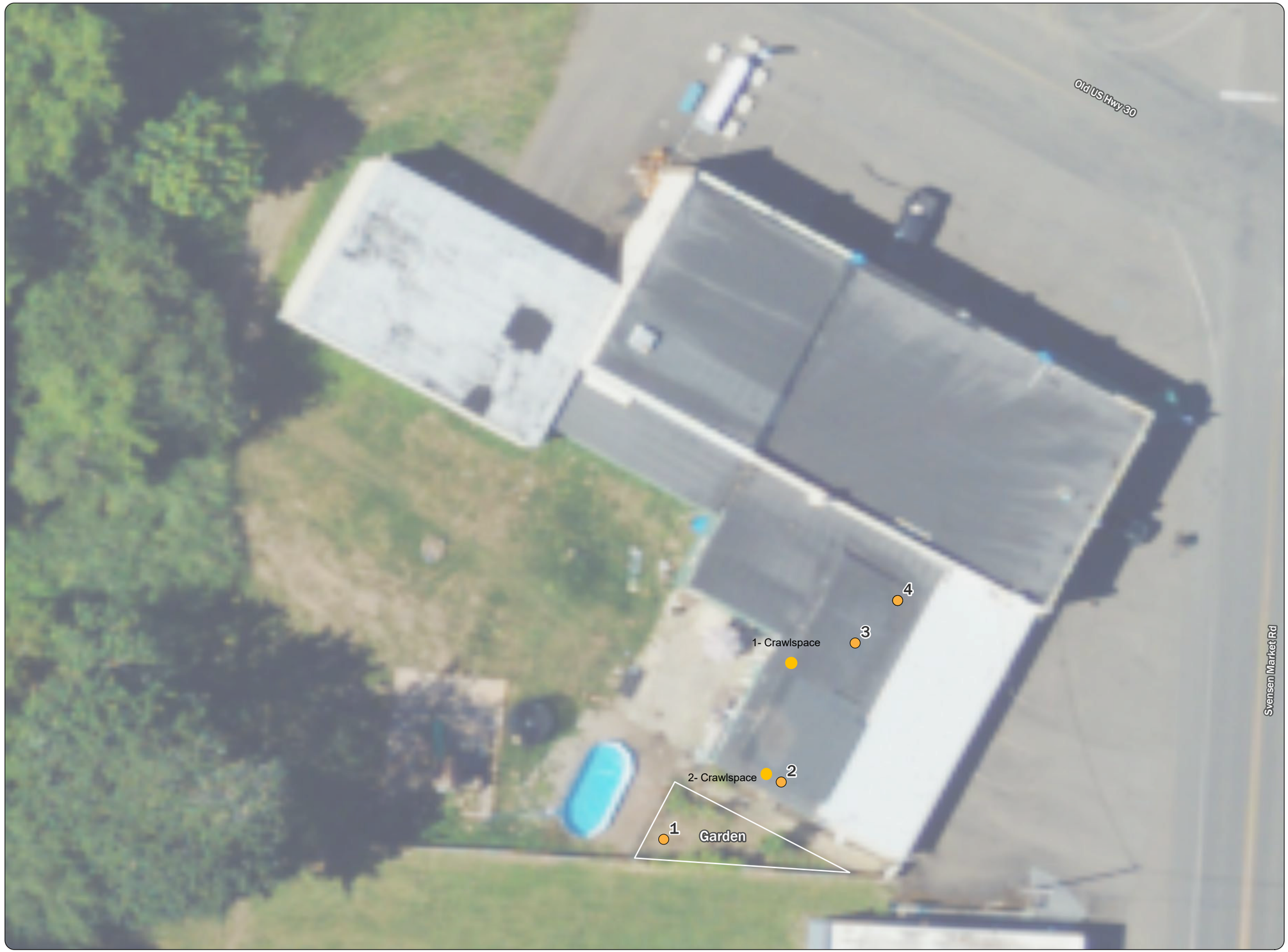


Figure
Vapor Intrusion Assessment Indoor and Crawlspace Air Sample Locations

40490 Old Highway 30
Astoria, Oregon 97103

Legend

- Vapor Intrusion Sample Location

0 20
Feet

Data Sources
Aerial photograph obtained from National Agriculture Imagery Program.

MAUL FOSTER ALONGI
p. 971 544 2139 | www.maulfoster.com

Attachment A

Analytical Laboratory Reports

MAUL FOSTER ALONGI

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

5500 4th Ave South
Seattle, WA 98108-2419
(206) 285-8282
office@friedmanandbruya.com
www.friedmanandbruya.com

July 8, 2024

Julie Pace, Project Manager
Maul Foster Alongi
3140 NE Broadway St
Portland, OR 97232

Dear Ms Pace:

Included are the results from the testing of material submitted on June 25, 2024 from the Haglund and Kelly VI Assessment M2366.02.001-001, F&BI 406350 project. There are 9 pages included in this report.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
MFA0708R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 25, 2024 by Friedman & Bruya, Inc. from the Maul Foster Alongi Haglund and Kelly VI Assessment M2366.02.001-001, F&BI 406350 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Maul Foster Alongi
406350 -01	1
406350 -02	2
406350 -03	3
406350 -04	4

Individually certified canisters were provided for TO15 sampling.

The TO-15 gasoline range concentrations were quantified using a single point calibration at 80 ppbv.

All quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	1	Client:	Maul Foster Alongi
Date Received:	06/25/24	Project:	Haglund and Kelly VI Assessment
Date Collected:	06/13/24	Lab ID:	406350-01
Date Analyzed:	06/28/24	Data File:	062819.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Benzene	<0.32	<0.1
Toluene	<7.5	<2
Ethylbenzene	<0.43	<0.1
m,p-Xylene	<0.87	<0.2
o-Xylene	<0.43	<0.1
Naphthalene	0.12	0.022
Gasoline Range Organics	400	98

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	2	Client:	Maul Foster Alongi
Date Received:	06/25/24	Project:	Haglund and Kelly VI Assessment
Date Collected:	06/13/24	Lab ID:	406350-02
Date Analyzed:	06/28/24	Data File:	062818.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	91	70	130

Compounds:	Concentration ug/m3	ppbv
Benzene	2.1	0.66
Toluene	<7.5	<2
Ethylbenzene	0.64	0.15
m,p-Xylene	2.0	0.46
o-Xylene	0.60	0.14
Naphthalene	0.44	0.083
Gasoline Range Organics	1,800	430

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	3	Client:	Maul Foster Alongi
Date Received:	06/25/24	Project:	Haglund and Kelly VI Assessment
Date Collected:	06/13/24	Lab ID:	406350-03
Date Analyzed:	06/28/24	Data File:	062817.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

Compounds:	Concentration ug/m3	ppbv
Benzene	3.0	0.94
Toluene	<7.5	<2
Ethylbenzene	0.84	0.19
m,p-Xylene	2.6	0.60
o-Xylene	0.69	0.16
Naphthalene	0.85	0.16
Gasoline Range Organics	1,100	260

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	4	Client:	Maul Foster Alongi
Date Received:	06/25/24	Project:	Haglund and Kelly VI Assessment
Date Collected:	06/13/24	Lab ID:	406350-04
Date Analyzed:	06/28/24	Data File:	062816.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Benzene	1.5	0.48
Toluene	<7.5	<2
Ethylbenzene	0.53	0.12
m,p-Xylene	1.6	0.37
o-Xylene	0.50	0.11
Naphthalene	0.38	0.073
Gasoline Range Organics	350	84

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Maul Foster Alongi
Date Received:	Not Applicable	Project:	Haglund and Kelly VI Assessment
Date Collected:	06/28/24	Lab ID:	04-1462 MB
Date Analyzed:	06/28/24	Data File:	062815.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Benzene	<0.32	<0.1
Toluene	<7.5	<2
Ethylbenzene	<0.43	<0.1
m,p-Xylene	<0.87	<0.2
o-Xylene	<0.43	<0.1
Naphthalene	<0.073 j	<0.014 j
Gasoline Range Organics	<210	<50

Date of Report: 07/08/24
Date Received: 06/25/24
Project: Haglund and Kelly VI Assessment M2366.02.001-001, F&BI 406350

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

Laboratory Code: 406380-01 1/5.2 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Benzene	ug/m3	<1.7	<1.7	nm
Toluene	ug/m3	<39	<39	nm
Ethylbenzene	ug/m3	<2.3	<2.3	nm
m,p-Xylene	ug/m3	<4.5	<4.5	nm
o-Xylene	ug/m3	<2.3	<2.3	nm
Naphthalene	ug/m3	<1.4	<1.4	nm

Date of Report: 07/08/24
Date Received: 06/25/24
Project: Haglund and Kelly VI Assessment M2366.02.001-001, F&BI 406350

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
Benzene	ug/m3	43	104	70-130
Toluene	ug/m3	51	115	70-130
Ethylbenzene	ug/m3	59	111	70-130
m,p-Xylene	ug/m3	120	113	70-130
o-Xylene	ug/m3	59	121	70-130
Naphthalene	ug/m3	71	118	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, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

j - The analyte concentration is reported below the standard reporting limit. 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.

k – The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

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.

406350

SAMPLE CHAIN OF CUSTODY

06/25/24 —

Page # 1 of 1

Report To Julie Pace
Company MFA
Address 3140 NE Broadway
City, State, ZIP Portland, OR 97232
Phone 971-544-7847 Email jpace@maufoster.com

SAMPLERS (signature)

PROJECT NAME & ADDRESS: Haglund + Kelly UI Assessment

PO #

NOTES: Proj # - M2366.02.001-00

INVOICE TO

TURNAROUND TIME
(Standard) RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Default: Clean following final report delivery
Hold (Fee may apply):

SAMPLE INFORMATION										ANALYSIS REQUESTED						
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium	TPHGX (GRO)	Notes
1	01	49856	20485	(IA) / SG	6/13-6/20	30	1533	7	1436		X				X	
2	02	49855	20494	(IA) / SG	"	30	1529	6	1435		X				X	
3	03	49854	20491	(IA) / SG	"	30	1530	5	1434		X				X	
4	04	40711	20480	(IA) / SG	"	30	1531	6	1433		X				X	
				IA / SG												
				IA / SG												
				IA / SG							Samples received at 21 °C					
				IA / SG												

Friedman & Bruya, Inc.
5500 4th Avenue South
Seattle, WA 98108
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COCTO-15.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Eric Faser	MFA	6/20/24	1700
Received by:		ANH PHAN	FBI	06/25/24	14:00
Relinquished by:					
Received by:					

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 406350 CLIENT MFA INITIALS/ DATE: AP 06/25/24

If custody seals are present on cooler, are they intact? ☑ NA ☐ YES ☐ NO

Cooler/Sample temperature 21 °C
Thermometer ID: Fluke 96312917

Were samples received on ice/cold packs? ☐ YES ☑ NO

How did samples arrive?
☐ Over the Counter ☐ Picked up by F&BI ☑ FedEx/UPS/GSO

Is there a Chain-of-Custody* (COC)? ☑ YES ☐ NO Initials/ Date: AP 06/25/24
*or other representative documents, letters, and/or shipping memos

Number of days samples have been sitting prior to receipt at laboratory 5-12 days

Are the samples clearly identified? (explain "no" answer below) ☐ YES ☑ NO

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below) ☑ YES ☐ NO

Were appropriate sample containers used? ☑ YES ☐ NO ☐ Unknown

If custody seals are present on samples, are they intact? ☑ NA ☐ YES ☐ NO

Are samples requiring no headspace, headspace free? ☑ NA ☐ YES ☐ NO

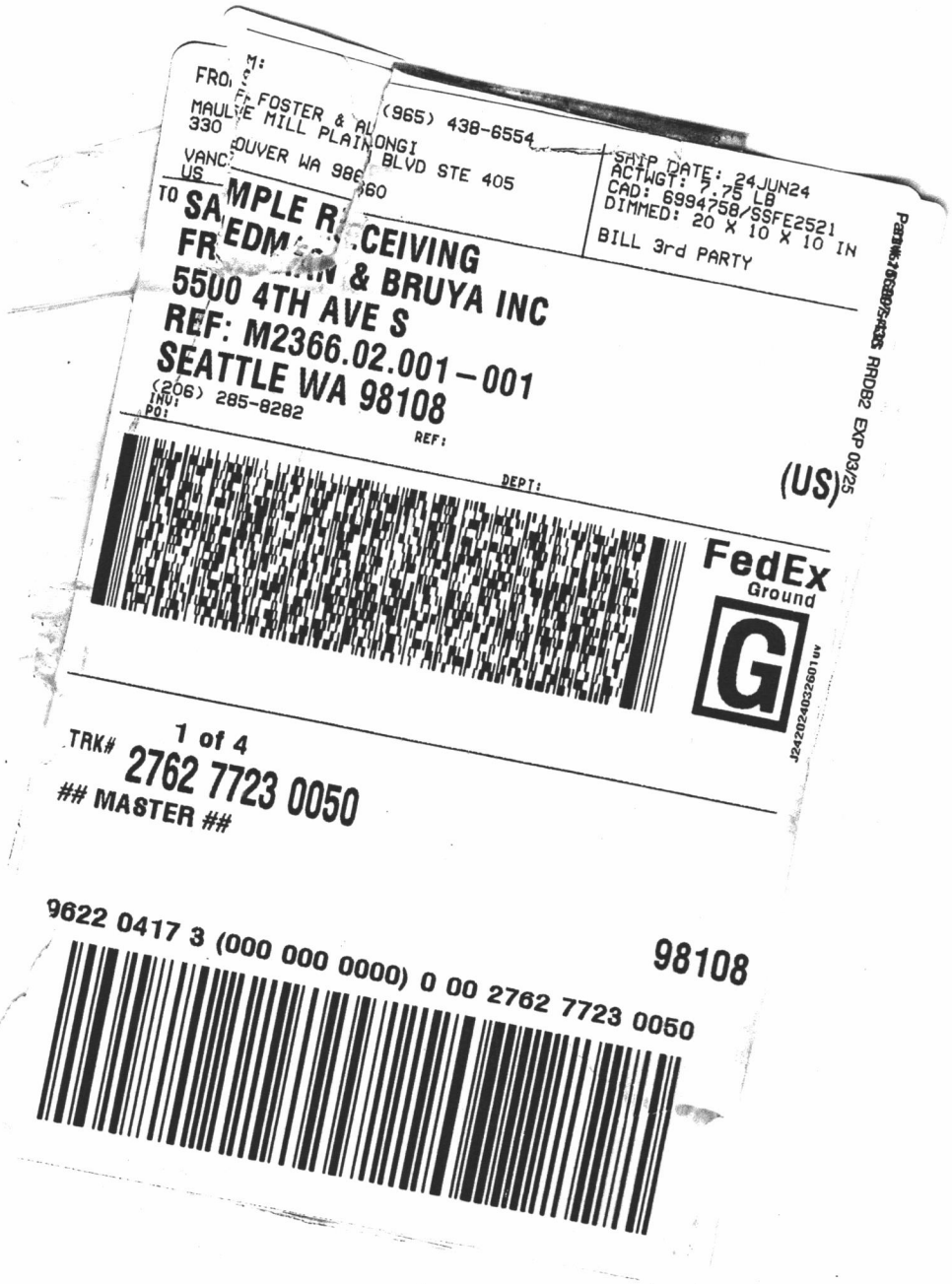
Is the following information provided on the COC, and does it match the sample label?
(explain "no" answer below)

Sample ID's	☐ Yes	☑ No	No ~~tag~~ Sample name on tags. ☐ Not on COC/label
Date Sampled	☑ Yes	☐ No	☐ Not on COC/label
Time Sampled	☑ Yes	☐ No	☐ Not on COC/label
# of Containers	☑ Yes	☐ No	
Relinquished	☑ Yes	☐ No	
Requested analysis	☑ Yes	☐ On Hold	

Other comments (use a separate page if needed)

Air Samples: Were any additional canisters/tubes received? ☐ NA ☐ YES ☑ NO

Number of unused TO15 canisters _____ **Number of unused TO17 tubes** _____


FROM:
FOSTER & ALONGI
MAULDIN MILL PLAIN BLVD STE 405
330
VANCOUVER WA 98660
US
(965) 438-6554
SHIP DATE: 24JUN24
ACTWGT: 7.75 LB
CAD: 6994758/SSFE2521
DIMMED: 20 X 10 X 10 IN
BILL 3rd PARTY
TO SAMPLE RECEIVING
FREEDMAN & BRUYA INC
5500 4TH AVE S
REF: M2366.02.001-001
SEATTLE WA 98108
(206) 285-8282
INV:
PO:
REF:
DEPT:
(US)
FedEx
Ground
1 of 4
TRK# 2762 7723 0050
MASTER
9622 0417 3 (000 000 0000) 0 00 2762 7723 0050
98108

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

5500 4th Ave South
Seattle, WA 98108-2419
(206) 285-8282
office@friedmanandbruya.com
www.friedmanandbruya.com

August 26, 2024

Julie Pace, Project Manager
Maul Foster Alongi
3140 NE Broadway St
Portland, OR 97232

Dear Ms Pace:

Included are the results from the testing of material submitted on August 14, 2024 from the Country Market M2809.01.001, F&BI 408232 project. There are 6 pages included in this report.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: JPace@MaulFoster.comMFA0826R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 14, 2024 by Friedman & Bruya, Inc. from the Maul Foster Alongi Country Market M2809.01.001, F&BI 408232 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Maul Foster Alongi
408232 -01	1
408232 -02	2

The TO-15 gasoline range concentrations were quantified using a single point calibration at 80 ppbv.

All quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	1	Client:	Maul Foster Alongi
Date Received:	08/14/24	Project:	Country Market M2809.01.001
Date Collected:	08/12/24	Lab ID:	408232-01
Date Analyzed:	08/22/24	Data File:	082213.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
2-Propanol	<8.6	<3.5
Benzene	0.55	0.17
Toluene	15	4.0
Ethylbenzene	1.8	0.41
m,p-Xylene	6.6	1.5
o-Xylene	2.1	0.47
Naphthalene	4.7	0.90
Gasoline Range Organics	2,100	500

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	2	Client:	Maul Foster Alongi
Date Received:	08/14/24	Project:	Country Market M2809.01.001
Date Collected:	08/12/24	Lab ID:	408232-02
Date Analyzed:	08/22/24	Data File:	082214.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
2-Propanol	1,300 ve	520 ve
Benzene	<0.32	<0.1
Toluene	<7.5	<2
Ethylbenzene	<0.43	<0.1
m,p-Xylene	<0.87	<0.2
o-Xylene	<0.43	<0.1
Naphthalene	0.50	0.095
Gasoline Range Organics	<210	<50

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Maul Foster Alongi
Date Received:	Not Applicable	Project:	Country Market M2809.01.001
Date Collected:	Not Applicable	Lab ID:	04-2009 MB
Date Analyzed:	08/22/24	Data File:	082212.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
2-Propanol	<8.6	<3.5
Benzene	<0.32	<0.1
Toluene	<7.5	<2
Ethylbenzene	<0.43	<0.1
m,p-Xylene	<0.87	<0.2
o-Xylene	<0.43	<0.1
Naphthalene	<0.073 j	<0.014 j
Gasoline Range Organics	<210	<50

Date of Report: 08/26/24
Date Received: 08/14/24
Project: Country Market M2809.01.001, F&BI 408232

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

Laboratory Code: 408323-01 1/5.5 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
2-Propanol	ug/m3	<47	<47	nm
Benzene	ug/m3	<1.8	<1.8	nm
Toluene	ug/m3	<41	<41	nm
Ethylbenzene	ug/m3	<2.4	<2.4	nm
m,p-Xylene	ug/m3	<4.8	<4.8	nm
o-Xylene	ug/m3	<2.4	<2.4	nm
Naphthalene	ug/m3	<1.4	<1.4	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
2-Propanol	ug/m3	33	100	70-130
Benzene	ug/m3	43	106	70-130
Toluene	ug/m3	51	113	70-130
Ethylbenzene	ug/m3	59	110	70-130
m,p-Xylene	ug/m3	120	112	70-130
o-Xylene	ug/m3	59	115	70-130
Naphthalene	ug/m3	71	105	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, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

j - The analyte concentration is reported below the standard reporting limit. 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.

k – The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

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.

408232

SAMPLE CHAIN OF CUSTODY

08/14/24

Page # 1 of 1

Report To: Julie Pace
Company: Maul Foster Alongi
Address: 3140 NE Broadway
City, State, ZIP: Portland, OR 97232
Phone: 5038408008 Email: jpace@maulfoster.com

SAMPLERS (signature): [signature]

PROJECT NAME & ADDRESS: Country Market

PO #:

NOTES: M2809.01.001

INVOICE TO:

TURNAROUND TIME
(Standard) circled
RUSH ______
Rush charges authorized by:

SAMPLE DISPOSAL
Default: Clean following final report delivery
Hold (Fee may apply): ______

SAMPLE INFORMATION / ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Isopropyl alcohol (~~Helium~~)	GRO	Notes
1	01	21453		(IA) / SG	8/12/24	8.5	1:00	4.0	1:30		X			X	X	IPA for leak test
2	02	35337		(IA) / SG	8/12/24	26	1:23	3.0	1:53		X			X	X	" "
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												

Samples received at 21 °C

Friedman & Bruya, Inc.
5500 4th Avenue South
Seattle, WA 98108
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Julie Pace	Julie Pace	MFA	8/12/24	17:20
Received by:	[signature]	Anh Phan	FBI	08/14/24	09:00
Relinquished by:					
Received by:					

FORMS\COC\COCTO-15.DOC

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 408232 CLIENT MFA INITIALS/ AP DATE: 08/14/24

If custody seals are present on cooler, are they intact? ☑ NA ☐ YES ☐ NO

Cooler/Sample temperature 21 °C
Thermometer ID: Fluke 96312917

Were samples received on ice/cold packs? ☐ YES ☑ NO

How did samples arrive?
☐ Over the Counter ☐ Picked up by F&BI ☑ FedEx/UPS/GSO

Is there a Chain-of-Custody* (COC)? ☑ YES ☐ NO Initials/ Date: ACB 8/14
*or other representative documents, letters, and/or shipping memos

Number of days samples have been sitting prior to receipt at laboratory 2 days

Are the samples clearly identified? (explain "no" answer below) ☑ YES ☐ NO

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below) ☑ YES ☐ NO

Were appropriate sample containers used? ☑ YES ☐ NO ☐ Unknown

If custody seals are present on samples, are they intact? ☑ NA ☐ YES ☐ NO

Are samples requiring no headspace, headspace free? ☑ NA ☐ YES ☐ NO

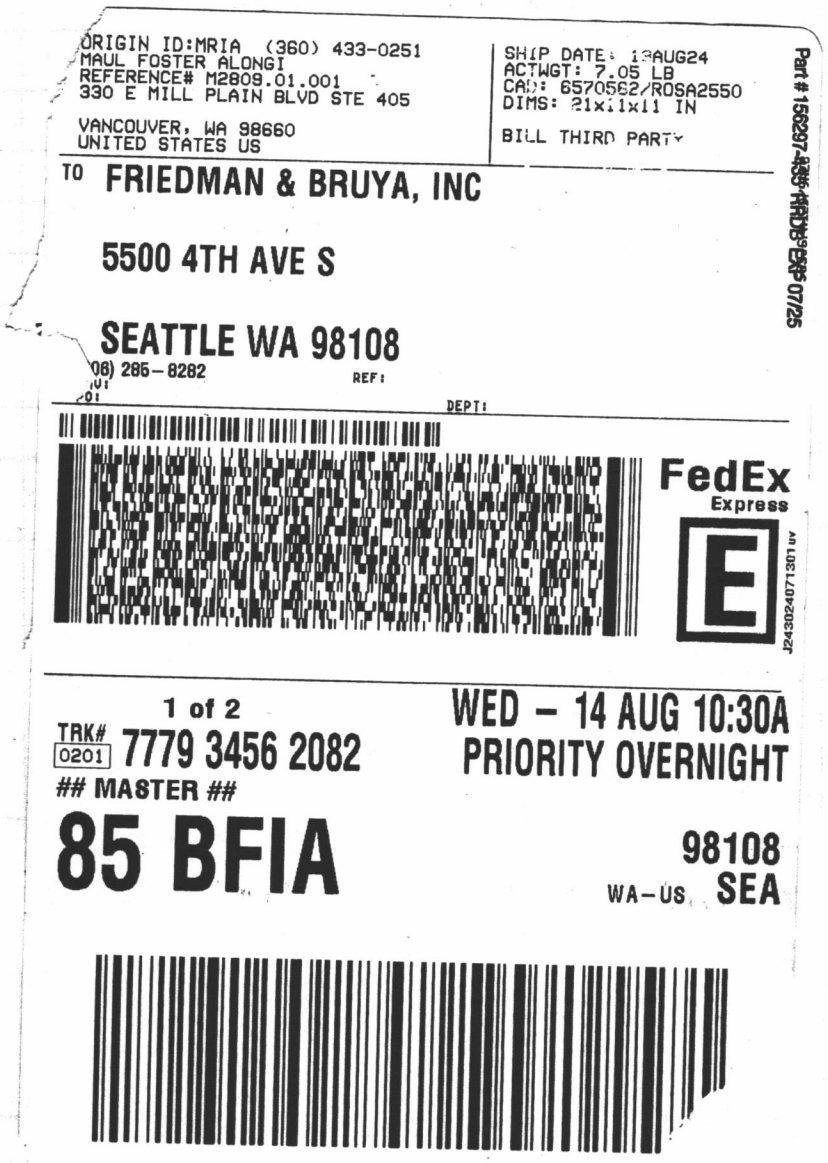
Is the following information provided on the COC, and does it match the sample label?
(explain "no" answer below)

Sample ID's	☑ Yes ☐ No	☐ Not on COC/label
Date Sampled	☑ Yes ☐ No	☐ Not on COC/label
Time Sampled	☑ Yes ☐ No	☐ Not on COC/label
# of Containers	☑ Yes ☐ No	
Relinquished	☑ Yes ☐ No	
Requested analysis	☑ Yes ☐ On Hold	

Other comments (use a separate page if needed)
Both flow controllers w/ quick connect ok per EY

Air Samples: Were any additional canisters/tubes received? ☑ NA ☐ YES ☐ NO ACB 8/14

Number of unused TO15 canisters _____ **Number of unused TO17 tubes** _____



ORIGIN ID:MRIA (360) 433-0251
MAUL FOSTER ALONGI
REFERENCE# M2809.01.001
330 E MILL PLAIN BLVD STE 405

VANCOUVER, WA 98660
UNITED STATES US

SHIP DATE: 13AUG24
ACTWGT: 7.05 LB
CAD: 6570562/ROSA2550
DIMS: 21x11x11 IN

BILL THIRD PARTY

Part # 156297-435-ARDB 07/25

TO FRIEDMAN & BRUYA, INC

5500 4TH AVE S

SEATTLE WA 98108

(206) 285-8282 REF:

DEPT:

FedEx Express

J243024071301uv

1 of 2

TRK# 0201 7779 3456 2082

MASTER

85 BFIA

WED - 14 AUG 10:30A
PRIORITY OVERNIGHT

98108
WA-US SEA

Attachment B

Data Validation Memorandum

MAUL
FOSTER
ALONGI

Data Validation Memorandum

Project No. M2809.01.001| September 12, 2024 | Country Market

Maul Foster & Alongi, Inc. (MFA), conducted an independent Stage 2A review of the quality of analytical results for indoor air vapor samples collected in June and August 2024 at the Country Market located at 40490 Old Highway 30 in Astoria, Oregon.

Friedman & Bruya, Inc (F&B) performed the analyses. MFA reviewed F&B report numbers 406350 and 408232. The analysis performed and the samples analyzed are listed in the following tables.

Analysis	Reference
Volatile organic compounds	EPA TO-15

Notes
EPA = U.S. Environmental Protection Agency.

Samples Analyzed	
Report 406350[a]	**Report 408232**[a]
1 (Outdoor)	1 (Bedroom Crawlspace)
2 (Kitchen)	2 (Kitchen Crawlspace)
3 (Master Bedroom)	--
4 (Study)	--
[a]The reviewer confirmed with the field sampler where each sample was collected, and revised the data validation memorandum and associated table to include the sampling location with the sample ID.	

Data Validation Procedures

Analytical results were evaluated according to applicable sections of U.S. Environmental Protection Agency (EPA) guidelines for data review (EPA 2020) and appropriate laboratory- and method-specific guidelines (F&B 2022, EPA 1986).

Based on the data quality assurance/quality control review described herein, the data, with the appropriate final data qualifiers assigned, are considered acceptable for their intended use. Final data qualifiers represent qualifiers originating from the laboratory and accepted by the reviewer, and data qualifiers assigned by the reviewer during validation.

Final data qualifiers:

- J = result is estimated.
- J+ = result is estimated, but the result may be biased high.
- J- = result is estimated, but the result may be biased low.
- U = result is non-detect at the method reporting limit (MRL).
- UJ = result is non-detect with an estimated MRL.

General Qualifications

According to report 408232, the 2-propanol result from sample 2 (kitchen crawlspace) was flagged by the laboratory as exceeding the instrument calibration range. The reviewer agreed with the laboratory that the result is considered estimated. The result was qualified with J, as estimated, as shown in the following table.

Report	Sample	Analyte	Original Result (ug/m^3)	Qualified Result (ug/m^3)
408232	2 (Kitchen Crawlspace)	2-Propanol	1,300	1,300 J

Notes
J = result is estimated.
ug/m^3 = micrograms per cubic meter.

Sample Conditions

Sample Collection

According to the COC attached to report 408232, 2-propanol (isopropyl alcohol) was requested for analysis as a leak test to qualitatively indicate whether ambient air had migrated into the crawl space (sampling area) during the 30-minute sampling period. Sample 1 (Bedroom crawlspace) was non-detect and sample 2 (kitchen crawlspace) had a detection of 1,300 micrograms per cubic meter (ug/m^3). All sample results from sample 2 were qualified, as shown in the following table.

Report	Sample	Analyte	Original Result (ug/m^3)	Qualified Result (ug/m^3)
408232	2 (Kitchen Crawlspace)	Benzene	0.32 U	0.32 UJ
		Toluene	7.5 U	7.5 UJ
		Ethylbenzene	0.43 U	0.43 UJ
		m,p-Xylene	0.87 U	0.87 UJ
		o-Xylene	0.43 U	0.43 UJ
		Naphthalene	0.50	0.50 J-
		Gasoline range organics	210 U	210 UJ

Notes
J- = result is estimated, but the result may be biased low.
U = result is non-detect at the method reporting limit.
UJ = result is non-detect with an estimated method reporting limit.
ug/m^3 = micrograms per cubic meters.

Sample Custody

Sample custody was appropriately documented on the chain-of-custody (COC) form accompanying the reports.

The reviewer confirmed that the gap in custody on the COC form accompanying reports 406350 and 408232 is due to shipment via a third-party service.

Holding Times

Extractions and analyses were performed within the recommended holding times.

Preservation and Sample Storage

The remaining samples were preserved and stored appropriately.

Reporting Limits

The laboratory evaluated results to MRLs.

Blank Results

Method Blanks

Laboratory method blanks are used to evaluate whether laboratory contamination was introduced during sample preparation and analysis. Laboratory method blank analyses were performed at the required frequencies, in accordance with laboratory- and method-specific requirements.

According to report 406350, the laboratory method blank naphthalene result was flagged by the laboratory as below the standard reporting limit. The naphthalene result is also flagged as non-detect below the MRL. Samples 2 (kitchen), 3 (master bedroom), and 4 (study) naphthalene results were greater than five times the concentration detected in the blank; thus, qualifications were not necessary. Sample 1 (outdoor) naphthalene result was within five times the concentration detected in the blank. The result was qualified, as shown in the following table.

Report	Sample	Analyte	Method Blank Concentration (ug/m^3)	Original Result (ug/m^3)	Qualified Result (ug/m^3)
406350	1 (Outdoor)	Naphthalene	0.073 J	0.12	0.12 J+

Notes
J = result is estimated.
J+ = result is estimated, but the result may be biased high.
ug/m^3 = micrograms per cubic meters.

According to report 408232, the laboratory method blank naphthalene result was flagged by the laboratory as below the standard reporting limit. The naphthalene result is also flagged as non-detect below the MRL. Samples 1 and 2 naphthalene results were greater than five times the concentration detected in the blank; thus, qualifications were not necessary.

All remaining laboratory method blank results were non-detect to MRLs.

Equipment Rinsate Blanks

Equipment rinsate blanks are used to evaluate the adequacy of the field equipment decontamination process when decontaminated sampling equipment is used to collect samples.

These blanks were not required for this sampling event, as all samples were collected using dedicated or single-use equipment.

Trip Blanks

Trip blanks are used to evaluate whether volatile organic compound contamination was introduced during shipping and field handling procedures.

Trip blanks are not necessary with air samples.

Laboratory Control Sample and Laboratory Control Sample Duplicate Results

Laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) results are used to evaluate laboratory precision and accuracy. Where LCSD results were not reported, laboratory precision was evaluated using laboratory duplicate results. The LCS samples were prepared and

analyzed at the required frequency, in accordance with laboratory- and method-specific requirements.

All LCS results were within acceptance limits for percent recovery.

Laboratory Duplicate Results

Laboratory duplicate results are used to evaluate laboratory precision and sample homogeneity. All laboratory duplicate samples were prepared and analyzed at the required frequency, in accordance with laboratory- and method-specific requirements.

All laboratory duplicate results met the acceptance criteria.

Matrix Spike and Matrix Spike Duplicate Results

Matrix spike (MS) and matrix spike duplicate (MSD) results are used to evaluate laboratory precision, accuracy, and the effect of the sample matrix on sample preparation and target analyte recovery.

MS and MSD analysis is not required for EPA Method TO-15.

Surrogate Results

Surrogate results are used to evaluate laboratory performance of target organic compounds for individual samples.

When surrogate results were outside percent recovery acceptance limits because of dilutions necessary to quantify high concentrations of target analytes, qualification by the reviewer was not required because surrogate concentrations could not be accurately quantified.

When batch quality control samples had surrogate percent recovery exceedances, qualification by the reviewer was not required when batch quality control target analyte results were within percent recovery acceptance limits.

All surrogate results were within percent recovery acceptance limits.

Field Duplicate Results

Field duplicate results are used to evaluate field precision and sample homogeneity.

No field duplicate samples were submitted for analysis.

Data Package

The data packages were reviewed for transcription errors, omissions, and anomalies.

According to the Sample Condition Upon Receipt Checklist attached to report 406350, the sample labels did not have sample names. The sample IDs were able to be matched with the chain of custody.

No additional issues were found.

References

EPA. 1986. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* EPA publication SW-846. 3rd ed. U.S. Environmental Protection Agency. Final updates I (1993), II (1995), IIA (1994), IIB (1995), III (1997), IIIA (1999), IIIB (2005), IV (2008), V (2015), VI phase I (2017), VI phase II (2018), VI phase III (2019), VII phase I (2019), and VII phase II (2020).

EPA. 2020. *National Functional Guidelines for Organic Superfund Methods Data Review.* EPA 540-R-20-005. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation: Washington, DC. November.

F&B. 2022. Quality Assurance Manual. Rev. 18. Friedman & Bruya, Inc.: Seattle, WA. December 9.