ZipperGeo
Geoprofessional Consultants

TECHNICAL MEMORANDUM: Sub-Slab Soil Vapor Assessment

Project Name:	West View Mart	Date:	August 20, 2021
ZGA Project No.:	1195.25	Prepared For:	The Whitestone, Inc. & Equilon Enterprises LLC, DBA Shell Oil Products, US
VCP Project No.:	NW2373		
Subject:	Sub-Slab Soil Vapor Assessment	Prepared By:	Zipper Geo Associates, LLC (ZGA)
Enclosures:	Figure 1: *Post-Remediation Soil Results and Sub-Slab Soil Vapor Results (SSSV July 29, 2021)* Table 1: *Sub-Slab Soil Vapor Analytical Results* Table 2: *Modified Method B Benzene Soil Gas Screening Level Calculation* Photograph Appendix Friedman & Bruya, Inc., Analytical Laboratory Report 107531, August 10, 2021		

Zipper Geo Associates, LLC (ZGA) is pleased to provide this Technical Memorandum presenting the results of our sub-slab soil vapor (SSSV) assessment for the West View Mart project. This investigation was completed in general accordance with our *Work Plan and Cost Estimate, Soil Vapor Assessment,* dated July 23, 2021. Based on the data presented herein, we conclude that residual petroleum contaminated soil (PCS) beneath the West View Mart building does not pose a vapor intrusion risk to the building's occupants under a commercial exposure scenario.

VaporPin® Installation

ZGA visited the site with a subcontracted private utility locating service on July 22, 2021 to select SSSV sampling locations. ZGA returned to the site on July 29, 2021 and installed three VaporPin-brand SSSV sampling points (VP-1, VP-2, and VP-3) in the approximate locations indicated on Figure 1. Within the limitations of site access, sampling locations were selected to be near to residual PCS identified by our post-remediation soil sampling efforts. Post-remediation soil sampling results are summarized on Figure 1 (see *Remedial Action Report, West View Mart,* January 27, 2021, for additional information).

VaporPins consist of a stainless-steel sampling device with a protruding hose barb that is installed through the building's slab to allow for collection of SSSV. Each VaporPin is installed into a ½-inch diameter slab penetration, which was created by ZGA with a roto-hammer. The annular space between the VaporPin and the surrounding concrete slab is sealed by an expanding silicone sleeve. Each VaporPin is equipped with a screw-on, flush-mount

monument to protect the VaporPin and allow for resampling, if necessary. A representative photograph of a VaporPin after installation is provided as *Photo. #1* in the enclosed photograph appendix.

SSSV Sampling Methodology

SSSV samples were collected from VP-1, VP-2, and VP-3 on July 29, 2021. SSSV samples were collected into laboratory supplied 1-liter summa canisters using the methodology generally described in the document: *Vapor Intrusion Technical Guidance*, New Jersey Department of Environmental Protection, January 2018, Version 4.1 (NJDEP, 2018). Sample canisters were connected to the VaporPin's hose barb by a "sampling train", which consisted of disposable ¼-inch ID fluorinated ethylene-propylene (FEP) tubing with silicone connections and nylon three-way valves at the junctures. A 6-liter summa "purge canister" was also connected to the sampling train. Each sample canister was equipped with a 150 cc/min flow regulator. The purge canister was equipped with a 200 cc/min flow regulator. A representative photograph of sampling train construction is presented as *Photo. #2* in the enclosed photograph appendix.

The airtightness of each sampling train was evaluated prior to and during sampling to avoid cross-contamination of the SSSV sample by ambient air. The airtightness of each sampling train was evaluated in general accordance with the methods described in NJDEP, 2018. Airtightness tests included a "water dam", a "shut-in test", and application of a tracer gas. No obvious leaks were detected during the water dam or shut-in tests of the three sampling trains. We elected to use isopropyl alcohol (aka rubbing alcohol or 2-propanol) as a tracer gas. During each sample collection, 70% rubbing alcohol was applied to a paper towel and placed beneath the sampling train. During subsequent laboratory analysis, each SSSV sample was additionally analyzed for 2-propanol. According to Section H.3.3.5 *Liquid Tracers,* NJDEP, 2018, a 0.1% leak of ambient air into the sample canister would conservatively equate to a detection of 100,000 µg/m^3 of 2-propanol. Laboratory analysis of SSSV samples collected from VP-1, VP-2, and VP-3 reported concentrations of 150 µg/m^3, 21,000 µg/m^3, and 15,000 µg/m^3, respectively. These reported tracer gas concentrations are well below the recommended 100,000 µg/m^3 threshold for a 0.1% leak. Based on these results, it is our opinion that the samples collected on July 29, 2021 are representative of SSSV conditions with insignificant possible cross-contamination by ambient air from within the West View Mart building.

Once the water dam and shut-in tests were completed, the ambient air within the sampling train was purged through application of a vacuum from the purge canister. The purging process also primes the sampling train with SSSV. After the purge, ZGA collected a SSSV sample from each VaporPin into a 1-liter summa canister. Sample collection times, starting negative pressure, and final negative pressure were recorded on the chain of custody. ZGA assigned sample identification nomenclature to each canister using the following format: *Vapor Pin ID - Date (Year, Month, Day)*, i.e., *VP1-20210729*, *VP2-20210729*, and *VP3-20210729*.

Laboratory Analysis

Samples were transported within hold times, under Chain of Custody procedures, to Friedman & Bruya, Inc. (Friedman), a Washington-State accredited analytical laboratory located in Seattle. Samples were analyzed for

benzene, toluene, ethylbenzene, xylenes (BTEX), naphthalene, and 2-propanol by EPA Method TO-15 and for air phase hydrocarbons (APH) by Massachusetts Method MA-APH.

All analyses were completed using standard turnaround times. Data packages were checked for completeness upon receipt from the laboratory to ensure that data and QA/QC information requested were present. Data quality was assessed by considering holding times, surrogate recovery, method blanks, matrix spike and matrix spike duplicate recovery, and detection limits. Based on our review of the laboratory reports, it is our opinion that the provided analytical data is suitable for usage in this SSSV assessment. The executed chain-of-custody forms and laboratory analytical certificates are enclosed with this Technical Memorandum.

Results

Laboratory results are summarized on Table 1. Except for benzene, reported concentrations of chemicals of concern were compared to Default MTCA Method B Sub-Slab Screening Levels as presented by the Washington State Department of Ecology's (Ecology's) Cleanup Level and Risk Calculation (CLARC) resource page. Reported benzene concentrations were compared to a Modified MTCA Method B Screening Level adjusted for a commercial exposure scenario (10 hours/day for 250 days compared to default residential scenario of 24 hours/day for 365 days). Our Modified MTCA Method B Screening Level for benzene was calculated using parameter values derived from MTCA Equation 750-2 and the CLARC database. The Modified Method B Screening Level for benzene calculated by ZGA is 35.61 µg/m^3.

Unless discussed below, analytes were not detected above their respective laboratory reporting detection limit (RDL).

- Benzene was detected at a concentration of 2.1 µg/m^3 in sample VP2-20210729. This concentration does not exceed the Default Method B Screening Level for benzene of 11 µg/m^3, nor does it exceed the Modified Method B Screening Level for benzene of 35.61 µg/m^3.
- Benzene was detected at a concentration of 19 µg/m^3 in sample VP3-20210729. This concentration exceeds the Default Method B Screening Level for benzene of 11 µg/m^3 but does not exceed the Modified Method B Screening Level for benzene of 35.61 µg/m^3.

Conclusions

ZGA has completed a SSSV assessment in general accordance with the scope of services outlined in our Work Plan dated July 23, 2021. Three SSSV samples were collected from VaporPins installed in the West View Mart building proximal to PCS identified in remedial excavation sidewalls. Laboratory analysis of three SSSV samples determined that contaminants of concern (COCs) were either not detected above laboratory RDLs or did not exceed applicable, risk based, MTCA Method B Sub-Slab Screening Levels for SSSV. Therefore, we conclude that residual PCS beneath the West View Mart building does not pose a vapor intrusion risk to the building's occupants under a commercial exposure scenario.

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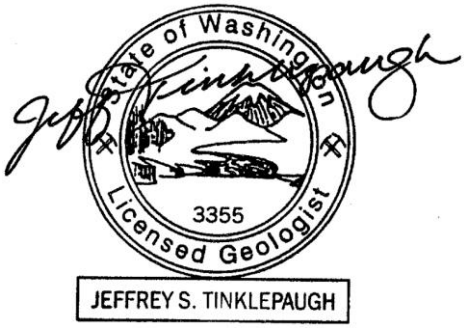
Geoprofessional Consultants

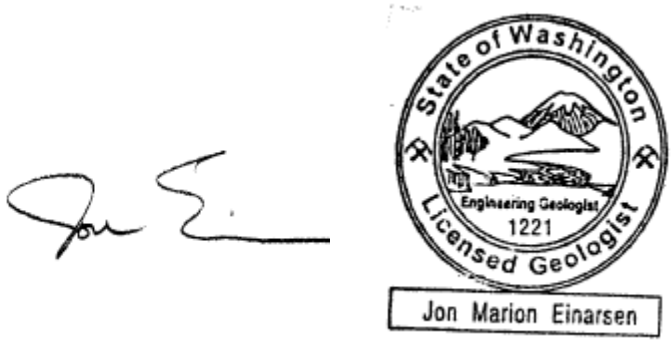
Closing

We appreciate the opportunity to be of service on this project. Based on the findings of this investigation, it is the professional opinion of the undesigned that the Property is worthy of a Property-Specific NFA from the Washington State Department of Ecology. We understand that an Environmental Covenant is warranted since residual soils exceeding site specific Method B direct contact cleanup levels remain in place beneath buildings and fuel distribution appurtenances (*Remedial Action Report, West View Mart,* ZGA, January 27, 2021). If you have questions regarding this Technical Memorandum or the investigation described herein, feel free to contact the undersigned.

Sincerely,
Zipper Geo Associates, LLC

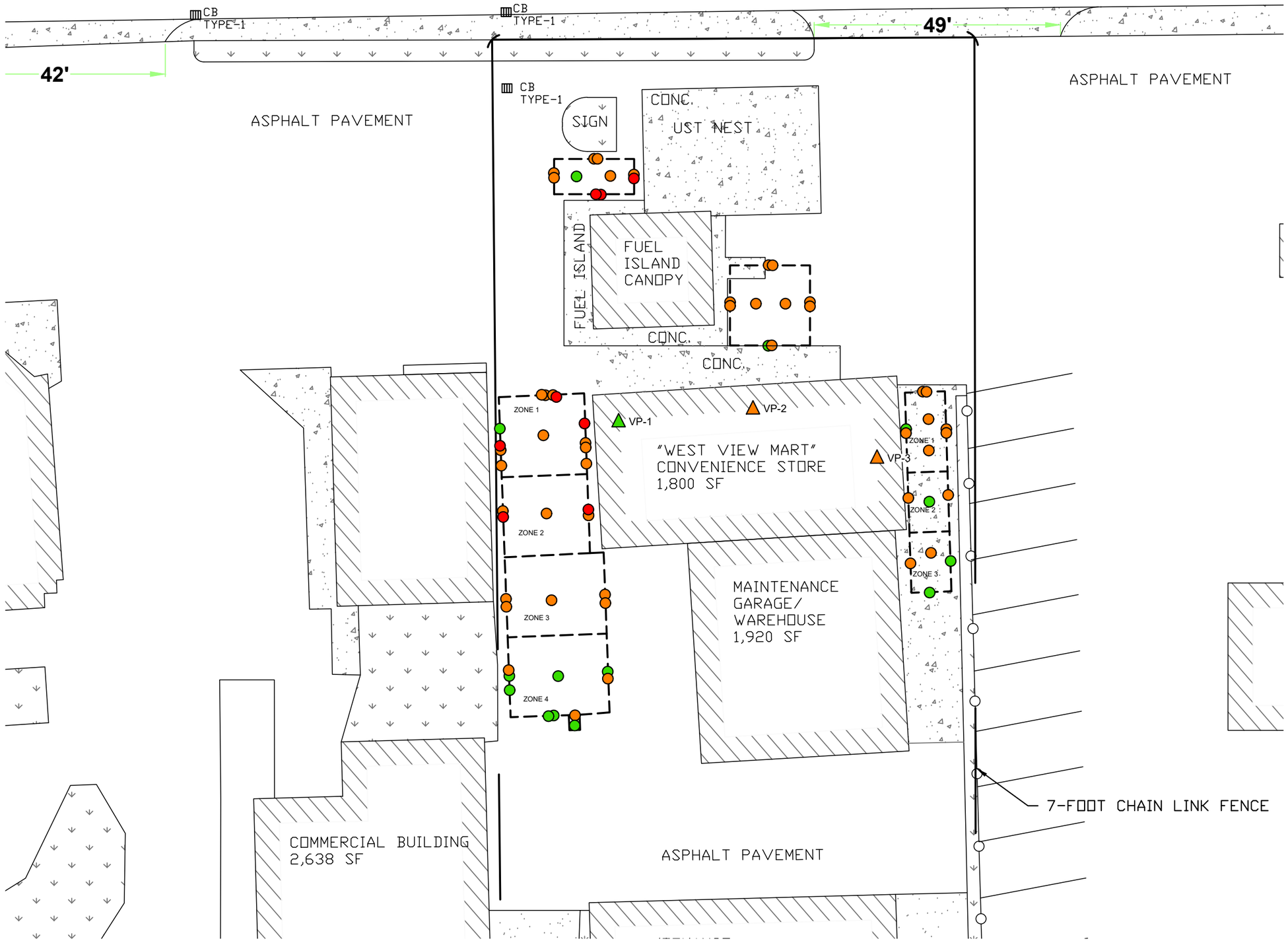


Jeffrey S. Tinklepaugh, L.G.
Project Geologist



Jon M. Einarsen, L.G., L.E.G., L.Hg.
Senior Consultant

Sean W. Donnan, P.G., L.E.G., L.Hg.
Principal



LEGEND

- APPROXIMATE LOCATION OF REMEDIAL EXCAVATION
- APPROXIMATE LOCATION OF SUB-SLAB SOIL VAPOR SAMPLE
- APPROXIMATE LOCATION OF POST-REMEDIATION SOIL SAMPLE

GREEN indicates COCs not detected above laboratory RDLs.

ORANGE indicates COC(s) detected above laboratory RDL(s), but below MTCA.

RED indicates COC(s) detected above MTCA.

COCs = Contaminants of Concern (Includes chemicals associated with gasoline releases, Table 830-1 MTCA).

MTCA = Applicable cleanup levels/screening levels per Chapter 70A. 305 RCW and its implementing regulations, the Model Toxics Control Act, Chapter 173-340 WAC.

RDLs = Reporting Detection Limits.

Grayscale reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

N

20 0 10 20

APPROXIMATE GRAPHICAL SCALE IN FEET

REFERENCE: GOOGLE EARTH SATELLITE IMAGE, 2018. ALL LOCATIONS ARE APPROXIMATE.

WEST VIEW MART REMEDIAL ACTION
971 Ault Field Rd.
Oak Harbor, Washington

POST-REMEDIATION SOIL RESULTS AND SUB-SLAB SOIL VAPOR RESULTS (SSSV JULY 29, 2021)

DATE: AUGUST 2021 Job No. 1195.25

Zipper Geo Associates, LLC
19019 36th Ave. W.,Suite E
Lynnwood, WA

FIGURE 1

SHT. 1 of 1

West View Mart
Sub-Slab Soil Vapor Assessment
ZGA Project No. 1195.25

Table 1. Sub-Slab Soil Vapor Analytical Results

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Date of Collection	Sampling Location	Sample ID	Air Phase Hydrocarbons (µg/m^3)			Volatile Organic Compounds (µg/m^3)						Tracer Gas (µg/m^3)
			EC5-8 ali.	EC9-12 ali.	EC9-10 aro.	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Naphthalene	2-Propanol
7/29/2021	VP-1	*VP1-20210729*	<500	<170	<170	<2.1	<130	<2.9	<5.8	<2.9	<1.8	**150**
	VP-2	*VP2-20210729*	<440	<150	<150	**2.1**	<110	<2.6	<5.1	<2.6	<1.5	**21,000 *ve***
	VP-3	*VP3-20210729*	<480	<160	<160	**19**	<120	<2.8	<5.6	<2.8	<1.7	**15,000 *ve***
Default MTCA Method B Sub-Slab Screening Level, Cancer			NE	NE	NE	**11**	NE	NE	NE	NE	**2.5**	N/A
Default MTCA Method B Sub-Slab Screening Level, Non-Cancer			**4,700 Total**			**460**	**76,000**	**15,000**	**1,500 Total**		**46**	N/A
Modified MTCA Method B Sub-Slab Screening Level, Cancer			NE	NE	NE	**37**	NE	NE	NE	NE	NE	N/A
Tracer Gas, Leak Detection Threshold (0.1% theoretical leak)			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**100,000**

LEGEND

<2.1	= "Less than" symbol indicates that the analyte was not detected above the specified laboratory RDL.
2.1	= Bold values indicate that the analyte was detected above the laboratory RDL at the specified concentration, but does not exceed MTCA screening levels.
19	= Shaded values indicate an exceedance of the MTCA screening level of the corresponding color.

ACRONYMS AND ABBREVIATIONS

ali.	Aliphatics
aro.	Aromatics
µg/m^3	Micrograms per cubic meter
MTCA	Chapter 70A.305 RCW and its implementing regulations, the Model Toxics Control Act, Chapter 173-340 WAC.
NE	Not Established
N/A	Not Applicable
RDL	Reporting Detection Limit

NOTES

Grayscale reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Table 2. Modified Method B Benzene Soil Gas Screening Level Calculation

West View Mart
Sub-Slab Soil Vapor Assessment
ZGA Project No. 1195.25

Equation 750-2 for Carcinogens			**Benzene**	
Parameters[1]		**Units**	**Default Method B[2]**	**Modified Method B[3]**
Carcinogenic risk	RISK	unitless	1.00E-06	1.00E-06
Average body weight	ABW	kg	70	70
Averaging time	AT	years	75	75
Unit conversion factor	UCF	ug/mg	1,000	1,000
Carcinogenic potency factor	CPF	kg-day/mg	0.0273	0.0273
Breathing rate	BR	m^3/day	20	20
Inhalation adsorption rate	ABS	unitless	1	1
Exposure duration	ED	years	30	30
Exposure frequency	EF	unitless	1	0.3
Method B Air Cleanup Level		**ug/m^3**	**0.32**	**1.07**
Method B Subslab Soil Gas Screening Level		**ug/m^3**	**10.68**	**35.61**

[1] Parameter values are derived from MTCA Equation 750-2 or the CLARC database (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx)

[2] Default Method B cleanup level calculation using default parameters protective in a residential setting
[3] Modified Method B cleanup level calculation using exposure duration and exposure frequency reflective of a commercial setting

Modified Method B Air Cleanup Level = RISK x ABW x AT x UCF / CPF x BR x ABS x ED x EF
Soil Gas Screening Level = Air Cleanup Level / 0.03 (Attenuation Factor)

Exposure Frequency
Default: 24 hours/day for 365 days = 8,760 hours/year for residential occupant
Modified: 10 hours/day for 250 days = 2,500 hours/year for occupational worker

Modified Exposure Frequency = 2,500/8,760 = 0.29 (Rounded to 0.30 in accordance with Implementation Memo 21)

Photo #1.

View facing west towards VP-1 equipped with a flush mount monument.

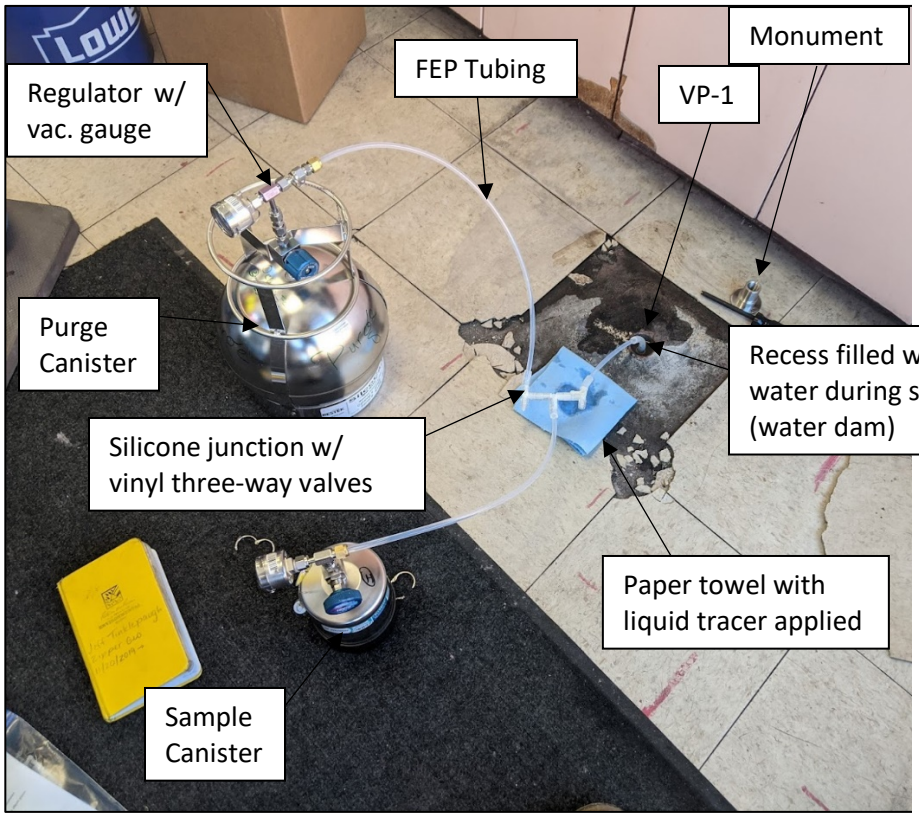

Photo #2.

View facing southeast towards VP-1 with monument open and sampling train connected.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
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August 10, 2021

Jeff Tinklepaugh, Project Manager
Zipper Geo Associates, LLC
19019 36th Ave W, Suite E
Lynnwood, WA 98036

Dear Mr Tinklepaugh:

Included are the results from the testing of material submitted on July 30, 2021 from the West View Mart 1195.25, F&BI 107531 project. There are 12 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
ZGA0810R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 30, 2021 by Friedman & Bruya, Inc. from the Zipper Geo Associates, LLC West View Mart 1195.25, F&BI 107531 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Zipper Geo Associates, LLC
107531 -01	IA-20210729
107531 -02	AA1-20210729
107531 -03	VP1-20210729
107531 -04	VP2-20210729
107531 -05	VP3-20210729

Non-petroleum compounds identified in the air phase hydrocarbon (APH) ranges were subtracted per the MA-APH method.

The TO-15 2-propanol concentration for samples VP2-20210729 and VP3-20210729 exceeded the calibration range. The data were flagged accordingly.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP1-20210729	Client:	Zipper Geo Associates, LLC
Date Received:	07/30/21	Project:	West View Mart 1195.25, F&BI 107531
Date Collected:	07/29/30	Lab ID:	107531-03 1/6.7
Date Analyzed:	08/02/21	Data File:	080214.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	84	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<500
APH EC9-12 aliphatics	<170
APH EC9-10 aromatics	<170

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP2-20210729	Client:	Zipper Geo Associates, LLC
Date Received:	07/30/21	Project:	West View Mart 1195.25, F&BI 107531
Date Collected:	07/29/30	Lab ID:	107531-04 1/5.9
Date Analyzed:	08/02/21	Data File:	080215.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	83	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<440
APH EC9-12 aliphatics	<150
APH EC9-10 aromatics	<150

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP3-20210729	Client:	Zipper Geo Associates, LLC
Date Received:	07/30/21	Project:	West View Mart 1195.25, F&BI 107531
Date Collected:	07/29/30	Lab ID:	107531-05 1/6.4
Date Analyzed:	08/02/21	Data File:	080216.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	83	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<480
APH EC9-12 aliphatics	<160
APH EC9-10 aromatics	<160

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	Method Blank	Client:	Zipper Geo Associates, LLC
Date Received:	Not Applicable	Project:	West View Mart 1195.25, F&BI 107531
Date Collected:	Not Applicable	Lab ID:	01-1715 MB
Date Analyzed:	08/02/21	Data File:	080210.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<75
APH EC9-12 aliphatics	<25
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP1-20210729	Client:	Zipper Geo Associates, LLC
Date Received:	07/30/21	Project:	West View Mart 1195.25, F&BI 107531
Date Collected:	07/29/21	Lab ID:	107531-03 1/6.7
Date Analyzed:	08/02/21	Data File:	080214.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
2-Propanol	150	61
Benzene	<2.1	<0.67
Toluene	<130	<33
Ethylbenzene	<2.9	<0.67
m,p-Xylene	<5.8	<1.3
o-Xylene	<2.9	<0.67
Naphthalene	<1.8	<0.33

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP2-20210729	Client:	Zipper Geo Associates, LLC
Date Received:	07/30/21	Project:	West View Mart 1195.25, F&BI 107531
Date Collected:	07/29/21	Lab ID:	107531-04 1/5.9
Date Analyzed:	08/02/21	Data File:	080215.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
2-Propanol	21,000 ve	8,700 ve
Benzene	2.1	0.64
Toluene	<110	<29
Ethylbenzene	<2.6	<0.59
m,p-Xylene	<5.1	<1.2
o-Xylene	<2.6	<0.59
Naphthalene	<1.5	<0.29

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP3-20210729	Client:	Zipper Geo Associates, LLC
Date Received:	07/30/21	Project:	West View Mart 1195.25, F&BI 107531
Date Collected:	07/29/21	Lab ID:	107531-05 1/6.4
Date Analyzed:	08/02/21	Data File:	080216.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
2-Propanol	15,000 ve	6,200 ve
Benzene	19	5.8
Toluene	<120	<32
Ethylbenzene	<2.8	<0.64
m,p-Xylene	<5.6	<1.3
o-Xylene	<2.8	<0.64
Naphthalene	<1.7	<0.32

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Zipper Geo Associates, LLC
Date Received:	Not Applicable	Project:	West View Mart 1195.25, F&BI 107531
Date Collected:	Not Applicable	Lab ID:	01-1715 MB
Date Analyzed:	08/02/21	Data File:	080210.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
2-Propanol	<8.6	<3.5
Benzene	<0.32	<0.1
Toluene	<19	<5
Ethylbenzene	<0.43	<0.1
m,p-Xylene	<0.87	<0.2
o-Xylene	<0.43	<0.1
Naphthalene	<0.26	<0.05

Date of Report: 08/10/21
Date Received: 07/30/21
Project: West View Mart 1195.25, F&BI 107531

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

Laboratory Code: 107526-01 1/5.6 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
APH EC5-8 aliphatics	ug/m3	560	610	9
APH EC9-12 aliphatics	ug/m3	710	750	5
APH EC9-10 aromatics	ug/m3	<140	<140	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
APH EC5-8 aliphatics	ug/m3	67	73	70-130
APH EC9-12 aliphatics	ug/m3	67	92	70-130
APH EC9-10 aromatics	ug/m3	67	93	70-130

Date of Report: 08/10/21
Date Received: 07/30/21
Project: West View Mart 1195.25, F&BI 107531

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

Laboratory Code: 107526-01 1/5.6 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
2-Propanol	ug/m3	<48	<48	nm
Benzene	ug/m3	<1.8	<1.8	nm
Toluene	ug/m3	<110	<110	nm
Ethylbenzene	ug/m3	5.7	5.6	2
m,p-Xylene	ug/m3	23	23	0
o-Xylene	ug/m3	9.6	9.6	0
Naphthalene	ug/m3	1.5	1.5	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
2-Propanol	ug/m3	33	89	70-130
Benzene	ug/m3	43	96	70-130
Toluene	ug/m3	51	100	70-130
Ethylbenzene	ug/m3	59	95	70-130
m,p-Xylene	ug/m3	120	99	70-130
o-Xylene	ug/m3	59	102	70-130
Naphthalene	ug/m3	71	104	70-130

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

107531

SAMPLE CHAIN OF CUSTODY

ME 07/30/21

Page # 1 of 1

Report To J. Tinklepaugh

Company ZGA

Address 19019 36th Ave. W, Suite E

City, State, ZIP Lynnwood, WA 98036

Phone (425) 582-9928 Email

SAMPLERS (*signature*)

PROJECT NAME & ADDRESS: West View Mart

PO # 1195.25

NOTES: Hold IA samples pending results of SG sample analysis

INVOICE TO: Same

TURNAROUND TIME
- ☑ Standard
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☑ Default: Clean after 3 days
- ☐ Archive (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	2-Propanol	Notes
IA1-20210729	01	35338	0781	(IA) / SG	7/29	29	08:58	5	16:50							HOLD
AA1-20210729	02	20554	06603	(IA) / SG		30	08:51	6	16:51							HOLD
VP1-20210729	03	3251	35	IA / (SG)		29	10:25	8	10:29		X		X		X	
VP2-20210729	04	2296	102	IA / (SG)		30+	11:03	8	11:07		X		X		X	
VP3-20210729	05	3385	229	IA / (SG)		30	11:45	8	11:52		X		X		X	
				IA / SG												
				IA / SG												
				IA / SG												Samples received at 26 °C

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Jeff Tinklepaugh	ZGA	7/30	16:57
Received by:	Eric Young	TFB	7/30	1652
Relinquished by:				
Received by:				