SUCCEED ENVIRONMENTAL CONSULTING, LLC

Memorandum

To:	Kum Kang	From:	Andrew S. Blake, L.G., R.G.
Company:	TH & JP LLC	Date:	July 31, 2024
Address:	11150 SE Rimrock Drive Happy Valley, OR 97086		

cc:	Mark Pugh, Oregon Department of Environmental Quality Tera Heintz, TH & JP LLC Kum Kang, TH & JP LLC

SEC Project:	ECSI# 6478
RE:	July 2024 Technical Memorandum: Indoor Air, Sub-Slab, & 3rd Quarter VES Monitoring 4300 NE Hancock Street Portland, Oregon 97213-1428

Succeed Environmental Consulting LLC (SEC) is pleased to present this memorandum discussing the results of indoor air sampling, sub-slab vapor sampling, and 3rd Quarterly VES monitoring activities completed at 4300 NE Hancock Street in Portland, Oregon (project site). The 0.34-acre Subject Property includes the western portion of tax lot 4900 of Multnomah County tax map 1N2E30CC and consists of a multi-tenant commercial building. The property is currently occupied by a commercial dry-cleaning facility (Tie's), a gym, and a fish store. A release of chlorinated solvents [primarily tetrachloroethylene (PCE)] was identified in soil and sub-slab vapor at the project site in 2021. Between September 2022 and March 2023, several samples were collected from the site, as discussed in as discussed in SEC's March 2023 memorandum[1], and indicated that sub-slab vapor and indoor air was adversely impacted by the previous release of VOCs (see Tables 1 and 2).

On May 31, 2023, SEC and Advanced Remediation Technologies, Inc. (ARM) prepared an Interim Remedial Action Plan (IRAP)[2] to construct a sub-surface depressurization (SSD) system at the site. The Oregon Department of Environmental Quality (DEQ) reviewed the IRAM and suggested the addition of a granular activated carbon (GAC) filter, which was incorporated into SSD system design. SEC proceeded with the IRAM on June 8, 2023. The SSD system was activated on August 8, 2023, and system monitoring commenced in accordance with the IRAM shortly thereafter. The results of previous monitoring events are included in the memorandum and confirm that the SSD system is removing and successfully filtering sub-slab vapor that was impacted by the previous release of VOCs.

A vicinity map is presented on Figure 1. The approximate configuration of the SSD system and the sub-slab monitoring ports are presented on Figure 2. The approximate indoor air sample locations are shown relative to soil-gas sample locations on Figure 3.

[1] Technical Memorandum Re: *March 2023 Vapor Sample Results; 4300 NE Hancock Street; Portland, Oregon 97213-1428*, prepared by SEC, dated March 25, 2023.

[2] *Interim Remedial Action Plan; Tie's Drycleaner Property; 4300 NE Hancock Street; Portland, Oregon 97213; ECSI #6478*, prepared by ARM and SEC, dated May 12, 2023, revised May 31, 2023.

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INDOOR AIR EVALUATION: MAY 2024

On May 30, 2024, SEC collected six indoor air samples (Gym, Fish Front, Fish Back, Tie's Front, Tie's Middle, and Tie's Rear) at the Subject Property and one ambient air sample (Ambient) for analysis of cVOCs by Environmental Protection Agency (EPA) method TO-15. All air samples were collected using laboratory provided 6-liter Summa™ canisters with in-line filters restricting air flow to evaluate indoor air representative of a workday. Each sample was shipped to Friedman and Bruya of Seattle, Washington, under general chain-of-custody protocols for analysis of volatile organic compounds (VOCs) by U.S. Environmental Protection Agency (EPA) Method TO-15.

Neither trichloroethylene (TCE) nor tetrachloroethylene (PCE) was detected in any of the samples collected during this event. As previously noted, low levels of 1,2 DCA were detected in samples collected at the site, but the source of this compound does not appear to originate from the sub-surface and does not appear to be related to current or past drycleaning operations. No other cVOCs were detected during this event at concentrations greater than corresponding DEQ Risk-Based Concentrations (RBCs). The results are presented on Table 1. A copy of the corresponding chemical analytical laboratory report is attached to this memorandum.

EFFLUENT EVALUATION: MAY 2024

On May 30, 2024, SEC collected samples at the system effluent (before and after the GAC filter) for analysis of cVOCs by Environmental Protection Agency (EPA) method TO-15.

All samples were collected using sampling equipment consisting of laboratory a provided 1-liter Summa™ canister with in-line filters (0.7 micron) and a flow controller (restricting air flow to a rate of less than 200 milliliters per minute), which was connected to the system effluent and influent pipes via Teflon™ tubing. Each sample was shipped to Friedman and Bruya of Seattle, Washington, under general chain-of-custody protocols for analysis of chlorinated volatile organic compounds (cVOCs) by U.S. Environmental Protection Agency (EPA) Method TO-15.

A copy of the corresponding chemical analytical laboratory report is attached to this memorandum. The results of this event are compared to previous sample results and reference air dispersion values on Table 2 and summarized below. The corresponding reference air dispersion (Aerscreen) model parameters are presented on Table 3.

- The GAC continues to successfully filter contamination, primarily PCE and TCE, from the influent air prior to discharge.
- PCE and TCE concentrations have decreased continuously since the SSD system was activated in August 2023. VOCs continue to decrease in samples collected from the influent, which indicates that the SSV is still actively removing residual PCE from beneath the Subject Property.
- Although the GAC is filtering most of the VOCs from effluent air, the laboratory results show a slight increase of cVOC concentrations in the effluent sample. However, the detected effluent concentrations are significantly less than the reference air dispersion values that have been calculated for the Subject Property.

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SUB-SLAB VAPOR EVALUATION: JUNE 2024

On May 30, 2024, SEC deactivated the sub-slab depressurization system to allow for soil gas beneath the site to equilibrate for one week. On June 6, 2024, SEC accessed and sampled soil gas from three dedicated sample ports (SS Fish, SS Tie's ENE, and SS Tie's SE), which previously exhibited high concentrations of PCE and/or TCE in soil gas.

All three samples were collected using sampling equipment consisting of laboratory a provided 1-liter Summa™ canister with in-line filters (0.7 micron) and a flow controller (restricting air flow to a rate of less than 200 milliliters per minute), which was connected to the dedicated stainless steel sample ports via Teflon™ tubing. Each sample was shipped to Friedman and Bruya of Seattle, Washington, under general chain-of-custody protocols for analysis of chlorinated volatile organic compounds (cVOCs) by U.S. Environmental Protection Agency (EPA) Method TO-15. The Sub-Slab Depressurization system was reactivated following collection of sub-slab vapor samples at the site.

Resulting data indicates decreases in TCE and PCE at each sample location. Further, there were no RBC exceedances associated with SSV samples collected beneath the drycleaning space (Tie's ESE and Tie's SW), which previously exhibited high levels of PCE and TCE. The June 2024 sub-slab vapor samples are compared to previous sub-slab vapor sample results and corresponding DEQ RBCs on Table 4. A copy of the corresponding chemical analytical laboratory report is attached to this memorandum.

CONCLUSION

Neither trichloroethylene (TCE) nor tetrachloroethylene (PCE) was detected in any of the indoor air samples collected at the site. VOCs continue to decrease at the site with decreasing concentrations of cVOCs measured in samples collected from the SSD influent and from soil-gas at the site. Based on the results of this assessment, operation of the SSD system has created safe indoor air conditions and continues to improve sub-slab vapor conditions beneath the subject property. Continued operation of the SSD system is recommended.

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Memorandum

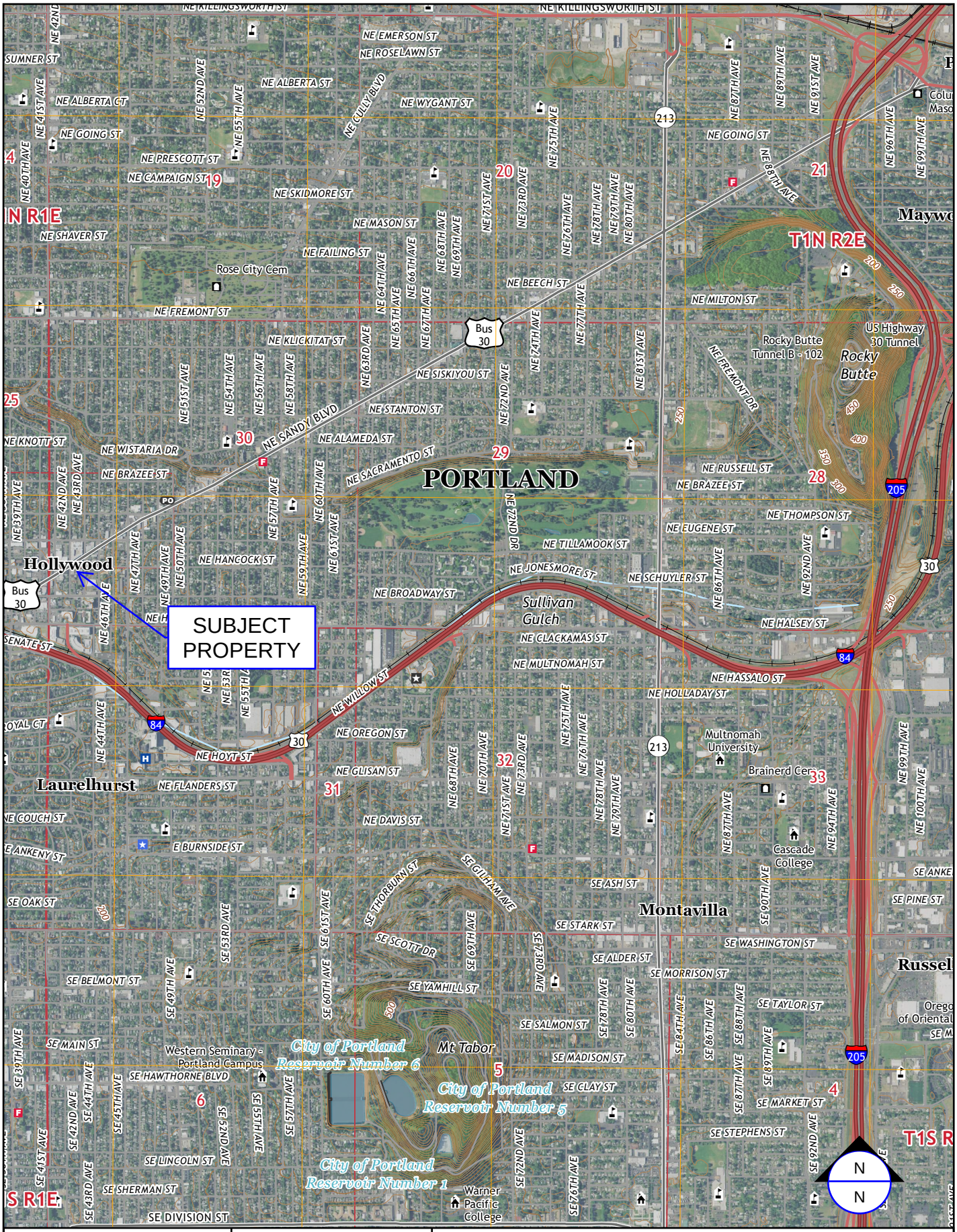
We truly appreciate the opportunity to be of service to you and stand ready to provide you with any further assistance that may be required for this project.

Sincerely,
Succeed Environmental Consulting, LLC

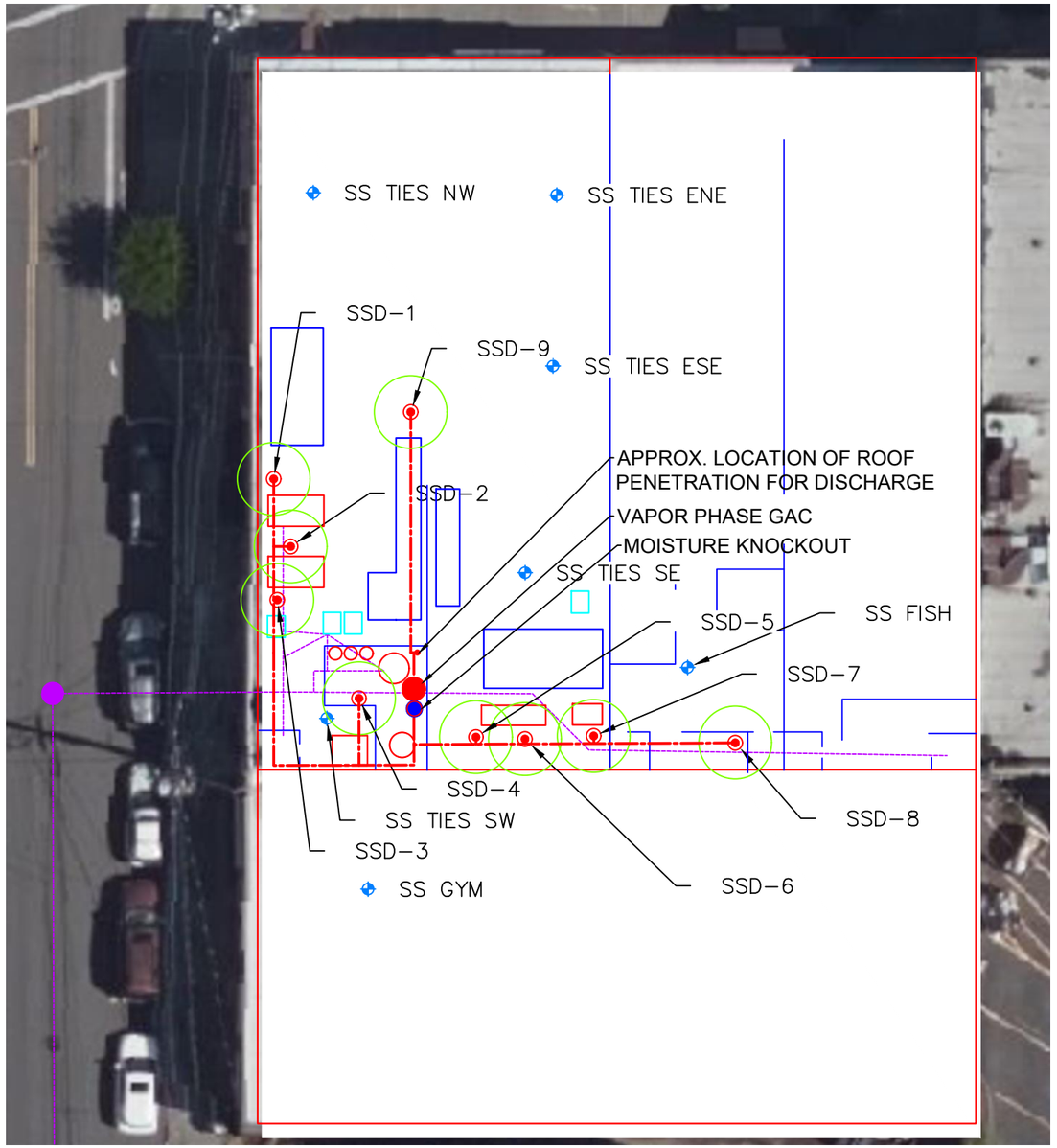
Andrew S. Blake, R.G.
Principal Geologist

Expires 06/30/2025

One electronic copy submitted
Document ID: 2024-07-31-SEC-TIE'S-1-envm VES_Monitoring-QTR_3



SUCCEED ENVIRONMENTAL CONSULTING, LLC	TIE'S-1-01	VICINITY MAP	
	JULY 2024	4300 NE HANCOCK ST PORTLAND, OREGON 97213	FIGURE 1

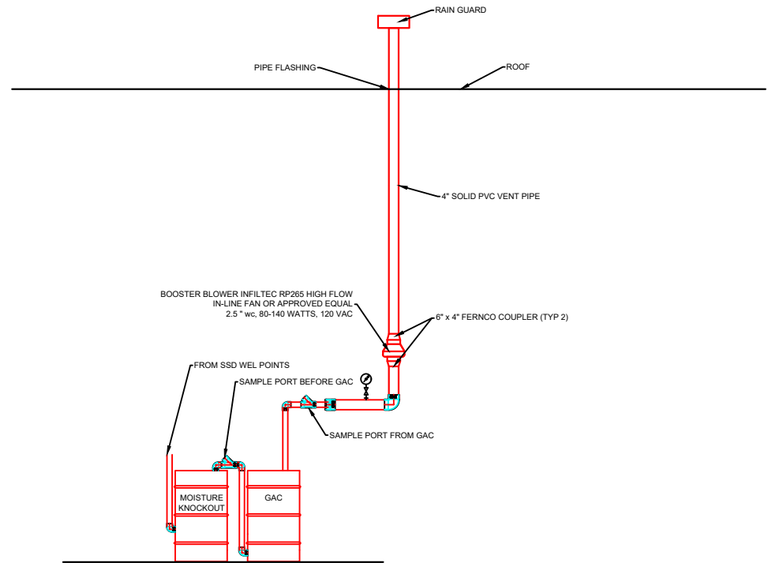


0 20 40 Feet

LEGEND

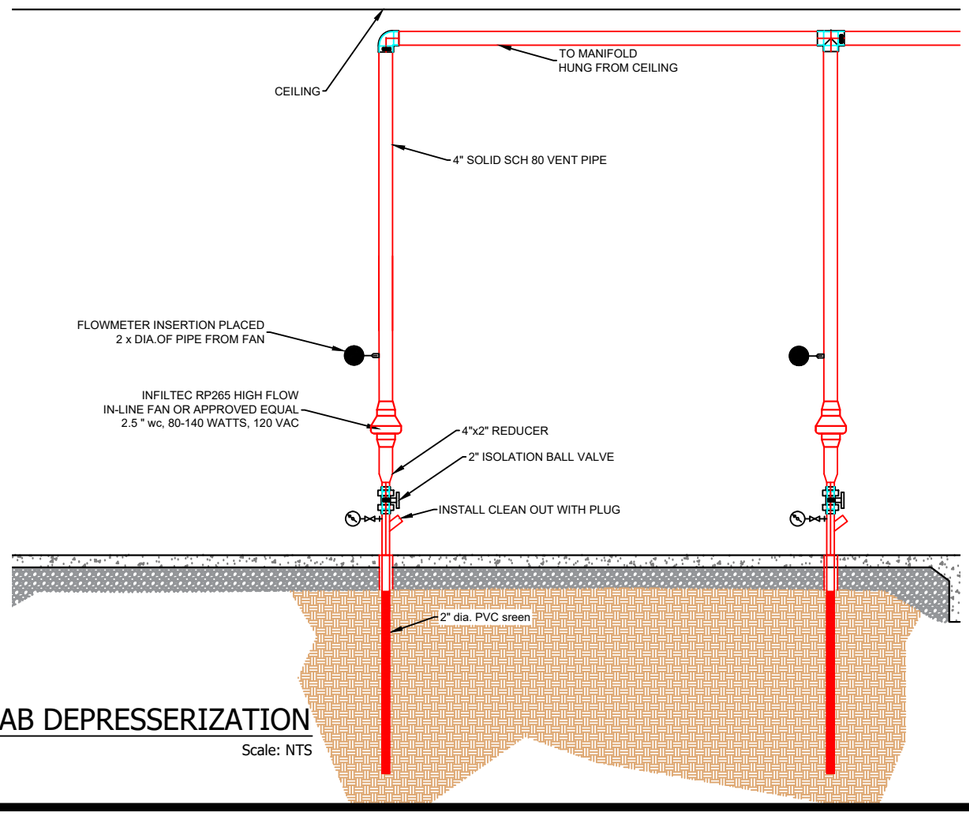
- SUB SLAB VAPOR SAMPLE LOCATION
- SUB SLAB DEPRESSURIZATION POINT
- SANITARY SEWER
- VACUUM GAUGE
- AIR FLOW GAUGE

N W E S



1 DISCHARGE DETAIL

Scale: NTS



2 SUBSLAB DEPRESSERIZATION

Scale: NTS

REVISION INFORMATION

MILESTONE	DATE	REVIEWING AGENCY
SSD		DEQ
SDD AS–BUILT		

"PARTNERS IN SERVICE"

Advanced Remediation Technologies, Inc

6910 NW 1ST AVENUE, SUITE 109
CANBY, OREGON 97013
(503)-266-2122

SUCCEED ENVIRONMENTAL, LLC

TIE'S DRYCLEANERS

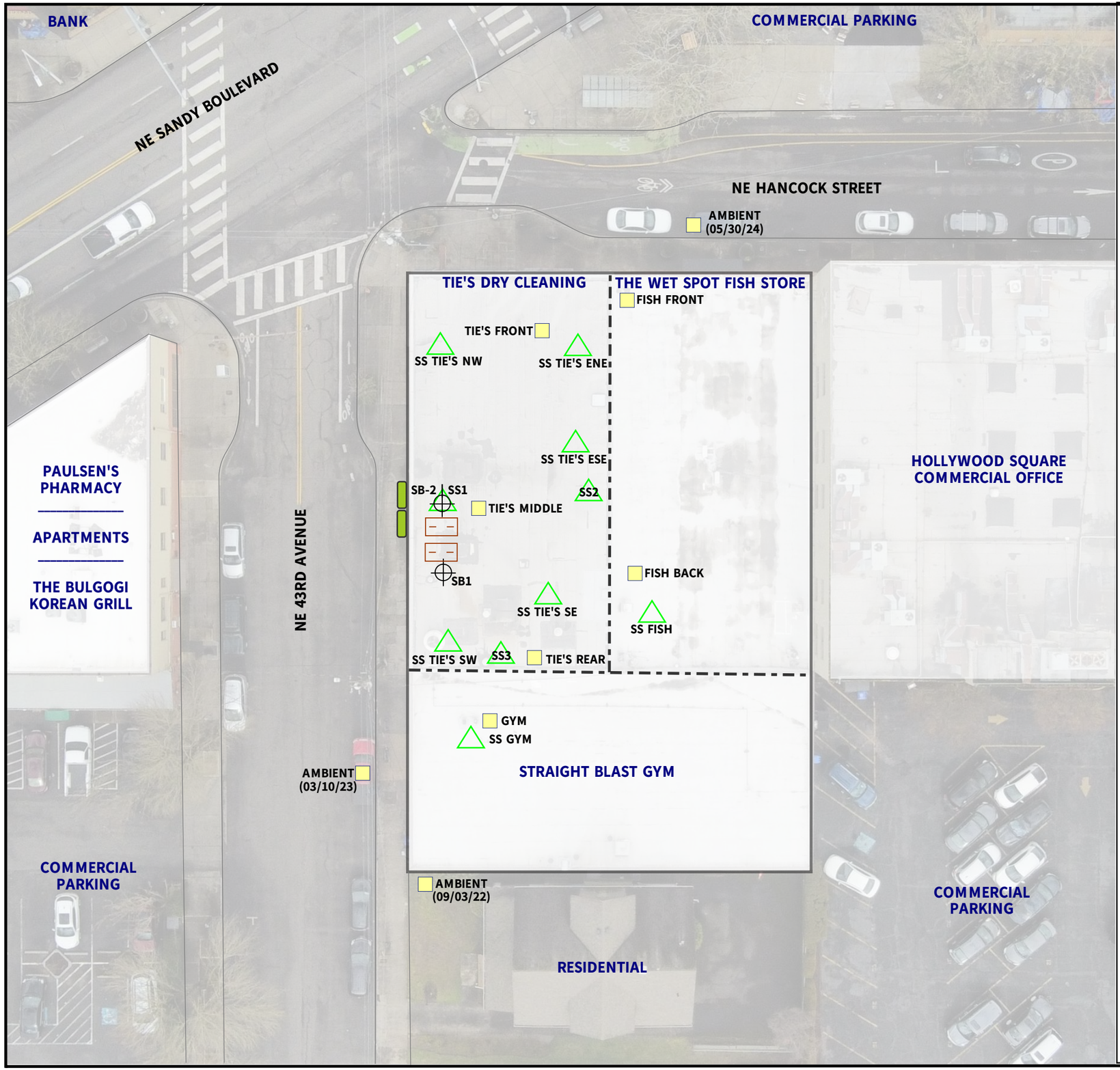
4300 NE HANCOCK ST, PORTLAND, OREGON

SITE PLAN, FIGURE 2

DATE	04/21/23
DRAWN	LAD
DESIGN	LAD
CHECK	KAD
SCALE	D

SITE PLAN

SHEET 1 OF 1



LEGEND:

- SITE BOUNDARY (APPROXIMATE)
- DRY-CLEANING MACHINE LOCATION (APPROXIMATE)
- SOLID WASTE DUMPSTERS (APPROXIMATE)
- SOIL BORING LOCATION (PSS 2021)
- SUB-SLAB VAPOR SAMPLE LOCATION (PSS, AEG, & SEC 2021-2024)
- INDOOR AIR SAMPLE LOCATION (AEG & SEC 2022-2024)

N
N

(APPROXIMATE SCALE IN FEET)

50

SITE PLAN BASED ON OBSERVATIONS MADE BY SEC. MEASUREMENTS DERIVED FROM THIS FIGURE SHOULD BE CONSIDERED APPROXIMATE.

SITE PLAN - SAMPLE LOCATIONS

FIGURE 3

4300 NE HANCOCK ST
PORTLAND, OREGON 97213

TIE'S-1-01

JULY 2024

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TABLE 1

SUMMARY OF INDOOR AIR SAMPLE ANALYTICAL RESULTS

cVOCs DETECTED BY EPA METHOD TO-15

4300 NE HANCOCK STREET

PORTLAND, OREGON

Matrices: Air

Client Sample ID			Ambient			Gym			Tie's Front			Tie's Middle			Tie's Rear					Fish Front					Fish Back			DEQ Risk-Based Concentration (RBC) for Air Inhalation (Commercial Screening Level Value Updated March 2024)	
Collected By			AEG	SEC	SEC	AEG	SEC	SEC	AEG	SEC	SEC	AEG	SEC	SEC	AEG	SEC	SEC	SEC	SEC	AEG	SEC	SEC	SEC	SEC	AEG	SEC	SEC		
Date Collected			9/3/2022	3/10/2023	5/30/2024	9/3/2022	3/10/2023	5/30/2024	9/3/2022	3/10/2023	5/30/2024	9/3/2022	3/10/2023	5/30/2024	9/3/2022	3/10/2023	11/2/2023	2/28/2024	5/30/2024	9/3/2022	3/10/2023	11/2/2023	2/28/2024	5/30/2024	9/3/2022	3/10/2023	5/30/2024		
Method	Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Chronic	Acute
TO-15	Tetrachloroethene	ug/m3	**0.568**	8.8 U	6.8 U	**8.16**	**14**	6.8 U	**0.404 U**	**27**	6.8 U	**3.28**	**31**	6.8 U	**3.89**	**46**	6.1 U	5.8 U	6.8 U	**0.404**	**300 ve**	**6.9 J**	5.8 U	6.8 U	**14.7**	**210 ve**	6.8 U	47	120
TO-15	Trichloroethene	ug/m3	0.0537 U	0.14 U	0.11 U	0.0537 U	0.13 U	0.11 U	0.0537 U	**0.24**	0.11 U	**0.139**	**0.28**	0.11 U	**0.165**	**0.32**	0.16 U	**0.44**	0.11 U	0.0537 U	**0.59**	0.17 U	0.18 U	0.11 U	0.0537 U	**0.40**	0.11 U	3	6.3
TO-15	1,2-Dichloroethane	ug/m3	0.0405 U	**0.15**	**0.12**	0.0405 U	**0.15**	**0.077**	0.0405 U	**0.15**	**0.069**	0.0405 U	**0.17**	**0.073**	0.0405 U	**0.24**	**0.079**	**0.083**	**0.085**	0.0405 U	**3**	**1.5**	**0.096**	**0.52**	**1.13**	**2.55**	**0.54**	0.47	NE
TO-15	cis-1,2-Dichloroethene	ug/m3	0.396 U	0.52 U	0.4 U	0.396 U	0.48 U	0.4 U	0.396 U	0.52 U	0.4 U	0.396 U	0.4 U	0.4 U	0.396 U	0.4 U	0.59 U	0.67 U	0.4 U	0.396 U	0.4 U	0.63 U	0.67 U	0.4 U	0.396 U	0.63 U	0.4 U	180	NE
TO-15	trans-1,2-Dichloroethene	ug/m3	0.198 U	0.52 U	0.4 U	0.198 U	0.48 U	0.4 U	0.198 U	0.52 U	0.4 U	0.198 U	0.4 U	0.4 U	0.198 U	0.4 U	0.59 U	0.67 U	0.4 U	0.198 U	0.4 U	0.63 U	0.67 U	0.4 U	0.198 U	0.63 U	0.4 U	180	180
TO-15	Vinyl Chloride	ug/m3	0.0256 U	0.17 Uj	0.26 U	0.0256 U	0.16 Uj	0.26 U	0.0256 U	0.17 Uj	0.26 U	0.0256 U	0.26 U	0.26 U	0.0256 U	0.26 U	0.23 U	0.26 U	0.26 U	0.0256 U	0.26 U	0.25 U	0.26 U	0.26 U	0.0256 U	0.21 Uj	0.26 U	2.8	3,900

Notes:

Bolding indicates analyte detection.

NE: not established.

>Pv: The air concentration reported for the RBC exceeds the vapor pressure of the pure chemical.

U: Analyte was not detected at a concentration greater thatn the laboratory reporting limit (shown).

j: The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.

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

Shading indicates RBC exceedance.

TABLE 2
SUMMARY OF PRE- & POST-TREATEMENT SAMPLE ANALYTICAL RESULTS
cVOCs DETECTED BY EPA METHOD TO-15
4300 NE HANCOCK STREET
PORTLAND, OREGON

Matrices: Air

Sample Location			INFLUENT (PRE GAC)							EFFLUENT (POST GAC)							Reference Air Dispersion Value (Calculated Aerscreen Threshold)
Collected By			SEC	SEC	SEC	SEC	SEC	SEC	SEC	SEC	SEC	SEC	SEC	SEC	SEC	SEC	
Date Collected			8/8/2023	8/17/2023	9/6/2023	10/4/2023	11/2/2023	2/28/2024	5/30/2024	8/8/2023	8/17/2023	9/6/2023	10/4/2023	11/2/2023	2/28/2024	5/30/2024	
Method	Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Table 3 Value
TO-15	Tetrachloroethene	ug/m3	**100,000 ve**	**56,000 ve**	--	**16,000 ve**	**14,000 ve**	**19,000 ve**	**11,000 ve**	43 U	130 U	58 U	62 U	64 U	64 U	**280**	8,250
TO-15	Trichloroethene	ug/m3	**1200**	**660**	--	**210**	**190**	**170**	**95**	0.69 U	2 U	0.91 U	0.98 U	1.0 U	**25**	**57**	500
TO-15	1,2-Dichloroethane	ug/m3	2 U	1.9 U	--	0.73 U	0.77 U	1.8 U	6.7 U	0.26 U	0.77 U	0.34 U	0.37 U	0.38 U	0.38 U	0.73 U	--
TO-15	cis-1,2-Dichloroethene	ug/m3	**710**	**600**	--	**220**	**380**	**360**	**230**	2.5 U	7.5 U	3.4 U	3.6 U	3.7 U	**610 ve**	**540**	--
TO-15	trans-1,2-Dichloroethene	ug/m3	19 U	18 U	--	7.1 U	7.5 U	18 U	6.7 U	2.5 U	7.5 U	3.4 U	3.6 U	3.7 U	**5.9**	7.1 U	--
TO-15	Vinyl Chloride	ug/m3	13 U	12 U	--	4.6 U	4.9 U	12 U	4.3 U	1.6 U	4.9 U	2.2 U	2.3 U	2.4 U	2.4 U	4.6 U	--
TO-15	Chloroform	ug/m3	**47**	**14**	--	**4.7**	--	--	--	0.31 U	**1.7**	0.42 U	**0.53**	--	--	--	--
TO-15	Tetrahydrofuran	ug/m3	**140**	27 U	--	11 U	--	--	--	3.8 U	11 U	5 U	5.4 U	--	--	--	--
TO-15	Styrene	ug/m3	**390**	39 U	--	15 U	--	--	--	5.5 U	16 U	7.2 U	7.8 U	--	--	--	--
--	PID Field Reading	ug/m3	24.0	17.7	3.1	--	--	--	--	40.2	38.4	4.6	--	--	--	--	--

Notes:
Bolding indicates analyte detection.
--: not established.
U: Analyte was not detected at a concentration greater thatn the laboratory reporting limit (shown).
ve: The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.
Shading indicates Screening Level Value exceedance.

TABLE 3

AERSCREEN MODEL PARAMETERS (BASED ON 05/30/2024 DATA)

4300 NE HANCOCK STREET

PORTLAND, OREGON

Site Information	
Building Length (m)	44.0
Building Width (m)	30.0
Building Height (m)	5.0
Stack Height (m)	0.91
SSV Exit Velocity (m/s)	2.54
SSV Exit Flow Rate (m^3/s)	0.0255
Stack Inside Diameter (m)	0.089
Ground Elevation (Default Selected)	0.0
Base Elevation (m)	5.0
Roof Height (m)	5.91
Ambient Temperature (C)	25.0
Ambient Temperature (K)	298.15
Distance to Nearest Building (m)	22.00

May 2024 Vapor Sample Concentrations		
Compound of Interest	**Effluent Concentration (ug/m^3)**	**Emmission Rate (g/s)**
PCE	280	0.00000714
TCE	57	0.00000145

SSD Filtration Threshold (Approximate Maximum Allowable - Would Not Require Filtration)		
Compound of Interest	**Concentration (ug/m^3)**	**Emmission Rate (g/s)**
PCE	*8,250*	0.000210375
TCE	*500*	0.00001275

AERSCREEN DEFAULT PARAMETERS		
Min.Wind Speed (m/s):	0.5 (Default)	**MIN/MAX TEMPS (K)**
Albedo:	0.2 (Typical Roof)	258.1 / 311.5 (Typical)
Bowen Ratio:	1.5 (Typical Urban/Residential Area)	**ANEMOMETER HT. (m)**
Roughness Length (m):	1	10 (Default)

Notes:

1. Downwash Is Not Considered (Distance between Stack and Nearby Buildings is Less than the Length of the Building)
2. Background Concentration of Compounds Modeled is Negligible.
3. Flat Terrian Assumptions Have Been Utilized for this Study.
4. No Fumigation Requested

TABLE 4

SUMMARY OF SUB-SLAB VAPOR SAMPLE ANALYTICAL RESULTS

cVOCs DETECTED BY EPA METHOD TO-15

4300 NE HANCOCK STREET

PORTLAND, OREGON

Matrices: Air

Client Sample ID			SS Fish			SS Gym		SS Tie's ENE		SS Tie's ESE			SS Tie's NW		SS Tie's SE			SS Tie's SW			DEQ Risk-Based Concentration (RBC) for Vapor Intrusion (Commercial Screening Level Value Updated March 2024)	
Collected By			AEG	SEC	SEC	AEG	SEC	AEG	SEC	AEG	SEC	SEC	AEG	SEC	AEG	SEC	SEC	AEG	SEC	SEC		
Date Collected			9/3/2022	3/10/2023	6/6/2024	9/3/2022	3/10/2023	9/3/2022	3/10/2023	9/3/2022	3/10/2023	6/6/2024	9/3/2022	3/10/2023	9/3/2022	3/10/2023	6/6/2024	9/3/2022	3/10/2023	6/6/2024		
Method	Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Chonic	Acute
TO-15	Tetrachloroethene	ug/m3	**14,200 e**	**220,000 ve**	**38,000 ve**	**10,400 e**	**13,000 ve**	**10,000 e**	**29,000 ve**	**11,900 e**	**110,000 ve**	**880**	**9,340 e**	**13,000 ve**	**14,200 e**	**170,000 ve**	**44,000 ve**	**13,500 e**	**76,000 ve**	**93**	1,600	4,000
TO-15	Trichloroethene	ug/m3	515 e	**250**	**38**	**44.1**	**25**	**33.7**	**14**	**120**	**57**	1 U	**645 e**	**40**	**515 e**	**300**	**56**	**9,950 e**	**5,800**	**4.8**	100	210
TO-15	1,2-Dichloroethane	ug/m3	0.162 U	220 U	16 U	0.162 U	0.77 U	0.162 U	0.73 U	0.162 U	11 U	3.8 U	0.162 U	0.81 U	0.162 U	21 U	2.1 U	0.162 U	11 U	2.8 U	16	NE
TO-15	cis-1,2-Dichloroethene	ug/m3	**1.80**	220 U	15 U	1.59 U	**17**	**1.92**	7.1 U	**2.66**	110 U	3.7 U	**174**	**44**	**1.80**	210 U	20 U	**3,170 e**	**7,400**	**3.3**	5800	NE
TO-15	trans-1,2-Dichloroethene	ug/m3	**1.44**	220 U	15 U	0.793 U	7.5 U	0.793 U	7.1 U	0.793 U	110 U	3.7 U	**1.9**	7.9 U	**1.44**	210 U	20 U	**231**	110 U	2.8 U	5800	80000
TO-15	Vinyl Chloride	ug/m3	0.0102 U	140 U	10 U	0.102 U	4.9 U	0.102 U	4.6 U	0.102 U	72 U	2.4 U	0.102 U	5.1 U	0.102 U	140 U	13 U	**0.729**	72 U	1.8 U	93	130,000

Notes:

Bolding indicates analyte detection.

NE: not established.

>Pv: The air concentration reported for the RBC exceeds the vapor pressure of the pure chemical.

U: Analyte was not detected at a concentration greater thatn the laboratory reporting limit (shown).

j: The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.

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

e: value above quantative range.

Shading indicates RBC exceedance.

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.

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Seattle, WA 98108-2419
(206) 285-8282
office@friedmanandbruya.com
www.friedmanandbruya.com

June 12, 2024

Andrew Blake, Project Manager
Succeed Environmental Consulting, LLC
1631 NE Broadway 211
Portland, OR 97232

Dear Mr Blake:

Included are the results from the testing of material submitted on June 3, 2024 from the Ties-1, F&BI 406018 project. There are 13 pages included in this report.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
SCD0612R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 3, 2024 by Friedman & Bruya, Inc. from the Succeed Environmental Consulting, LLC Ties-1, F&BI 406018 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Succeed Environmental Consulting, LLC
406018 -01	Ambient
406018 -02	Gym
406018 -03	Fish Front
406018 -04	Fish Back
406018 -05	Tie's Front
406018 -06	Tie's Middle
406018 -07	Tie's Rear
406018 -08	Influent
406018 -09	Effluent

The tetrachlorethene concentration in sample Influent exceeded the calibration range of the instrument. The data were flagged accordingly.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Ambient	Client:	Succeed Environmental Consulting, LLC
Date Received:	06/03/24	Project:	Ties-1, F&BI 406018
Date Collected:	05/30/24	Lab ID:	406018-01
Date Analyzed:	06/07/24	Data File:	060714.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
Chloroethane	<2.6	<1
1,1-Dichloroethene	<0.4	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
1,1-Dichloroethane	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
1,2-Dichloroethane (EDC)	0.12	0.029
1,1,1-Trichloroethane	<0.55	<0.1
Trichloroethene	<0.11	<0.02
1,1,2-Trichloroethane	<0.055	<0.01
Tetrachloroethene	<6.8	<1

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Gym	Client:	Succeed Environmental Consulting, LLC
Date Received:	06/03/24	Project:	Ties-1, F&BI 406018
Date Collected:	05/30/24	Lab ID:	406018-02
Date Analyzed:	06/07/24	Data File:	060715.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
Chloroethane	<2.6	<1
1,1-Dichloroethene	<0.4	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
1,1-Dichloroethane	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
1,2-Dichloroethane (EDC)	0.077	0.019
1,1,1-Trichloroethane	<0.55	<0.1
Trichloroethene	<0.11	<0.02
1,1,2-Trichloroethane	<0.055	<0.01
Tetrachloroethene	<6.8	<1

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Fish Front	Client:	Succeed Environmental Consulting, LLC
Date Received:	06/03/24	Project:	Ties-1, F&BI 406018
Date Collected:	05/30/24	Lab ID:	406018-03
Date Analyzed:	06/07/24	Data File:	060716.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
Chloroethane	<2.6	<1
1,1-Dichloroethene	<0.4	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
1,1-Dichloroethane	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
1,2-Dichloroethane (EDC)	0.52	0.13
1,1,1-Trichloroethane	<0.55	<0.1
Trichloroethene	<0.11	<0.02
1,1,2-Trichloroethane	<0.055	<0.01
Tetrachloroethene	<6.8	<1

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Fish Back	Client:	Succeed Environmental Consulting, LLC
Date Received:	06/03/24	Project:	Ties-1, F&BI 406018
Date Collected:	05/30/24	Lab ID:	406018-04
Date Analyzed:	06/07/24	Data File:	060717.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
Chloroethane	<2.6	<1
1,1-Dichloroethene	<0.4	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
1,1-Dichloroethane	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
1,2-Dichloroethane (EDC)	0.54	0.13
1,1,1-Trichloroethane	<0.55	<0.1
Trichloroethene	<0.11	<0.02
1,1,2-Trichloroethane	<0.055	<0.01
Tetrachloroethene	<6.8	<1

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Tie's Front	Client:	Succeed Environmental Consulting, LLC
Date Received:	06/03/24	Project:	Ties-1, F&BI 406018
Date Collected:	05/30/24	Lab ID:	406018-05
Date Analyzed:	06/07/24	Data File:	060718.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
Chloroethane	<2.6	<1
1,1-Dichloroethene	<0.4	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
1,1-Dichloroethane	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
1,2-Dichloroethane (EDC)	0.069	0.017
1,1,1-Trichloroethane	<0.55	<0.1
Trichloroethene	<0.11	<0.02
1,1,2-Trichloroethane	<0.055	<0.01
Tetrachloroethene	<6.8	<1

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Tie's Middle	Client:	Succeed Environmental Consulting, LLC
Date Received:	06/03/24	Project:	Ties-1, F&BI 406018
Date Collected:	05/30/24	Lab ID:	406018-06
Date Analyzed:	06/07/24	Data File:	060719.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
Chloroethane	<2.6	<1
1,1-Dichloroethene	<0.4	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
1,1-Dichloroethane	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
1,2-Dichloroethane (EDC)	0.073	0.018
1,1,1-Trichloroethane	<0.55	<0.1
Trichloroethene	<0.11	<0.02
1,1,2-Trichloroethane	<0.055	<0.01
Tetrachloroethene	<6.8	<1

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Tie's Rear	Client:	Succeed Environmental Consulting, LLC
Date Received:	06/03/24	Project:	Ties-1, F&BI 406018
Date Collected:	05/30/24	Lab ID:	406018-07
Date Analyzed:	06/08/24	Data File:	060720.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
Chloroethane	<2.6	<1
1,1-Dichloroethene	<0.4	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
1,1-Dichloroethane	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
1,2-Dichloroethane (EDC)	0.085	0.021
1,1,1-Trichloroethane	<0.55	<0.1
Trichloroethene	<0.11	<0.02
1,1,2-Trichloroethane	<0.055	<0.01
Tetrachloroethene	<6.8	<1

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Influent	Client:	Succeed Environmental Consulting, LLC
Date Received:	06/03/24	Project:	Ties-1, F&BI 406018
Date Collected:	05/30/24	Lab ID:	406018-08 1/17
Date Analyzed:	06/08/24	Data File:	060724.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<4.3	<1.7
Chloroethane	<45	<17
2-Propanol	<150	<59
1,1-Dichloroethene	<6.7	<1.7
trans-1,2-Dichloroethene	<6.7	<1.7
1,1-Dichloroethane	<6.9	<1.7
cis-1,2-Dichloroethene	230	57
1,2-Dichloroethane (EDC)	<0.69	<0.17
1,1,1-Trichloroethane	<9.3	<1.7
Trichloroethene	95	18
1,1,2-Trichloroethane	<0.93	<0.17
Tetrachloroethene	11,000 ve	1,700 ve

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Effluent	Client:	Succeed Environmental Consulting, LLC
Date Received:	06/03/24	Project:	Ties-1, F&BI 406018
Date Collected:	05/30/24	Lab ID:	406018-09 1/18
Date Analyzed:	06/08/24	Data File:	060722.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	107	70	130

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<4.6	<1.8
Chloroethane	<47	<18
2-Propanol	<150	<63
1,1-Dichloroethene	<7.1	<1.8
trans-1,2-Dichloroethene	<7.1	<1.8
1,1-Dichloroethane	<7.3	<1.8
cis-1,2-Dichloroethene	540	140
1,2-Dichloroethane (EDC)	<0.73	<0.18
1,1,1-Trichloroethane	<9.8	<1.8
Trichloroethene	57	11
1,1,2-Trichloroethane	<0.98	<0.18
Tetrachloroethene	280	41

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Succeed Environmental Consulting, LLC
Date Received:	Not Applicable	Project:	Ties-1, F&BI 406018
Date Collected:	Not Applicable	Lab ID:	04-1252 mb
Date Analyzed:	06/07/24	Data File:	060713.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
Chloroethane	<2.6	<1
2-Propanol	<8.6	<3.5
1,1-Dichloroethene	<0.4	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
1,1-Dichloroethane	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01
1,1,1-Trichloroethane	<0.55	<0.1
Trichloroethene	<0.11	<0.02
1,1,2-Trichloroethane	<0.055	<0.01
Tetrachloroethene	<6.8	<1

Date of Report: 06/12/24
Date Received: 06/03/24
Project: Ties-1, F&BI 406018

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

Laboratory Code: 406018-09 1/18 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Vinyl chloride	ug/m3	<4.6	<4.6	nm
Chloroethane	ug/m3	<47	<47	nm
2-Propanol	ug/m3	<150	<150	nm
1,1-Dichloroethene	ug/m3	<7.1	<7.1	nm
trans-1,2-Dichloroethene	ug/m3	<7.1	<7.1	nm
1,1-Dichloroethane	ug/m3	<7.3	<7.3	nm
cis-1,2-Dichloroethene	ug/m3	540	550	2
1,2-Dichloroethane (EDC)	ug/m3	<0.73	<0.73	nm
1,1,1-Trichloroethane	ug/m3	<9.8	<9.8	nm
Trichloroethene	ug/m3	57	57	0
1,1,2-Trichloroethane	ug/m3	<0.98	<0.98	nm
Tetrachloroethene	ug/m3	280	280	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Vinyl chloride	ug/m3	35	93	70-130
Chloroethane	ug/m3	36	94	70-130
2-Propanol	ug/m3	33	103	70-130
1,1-Dichloroethene	ug/m3	54	100	70-130
trans-1,2-Dichloroethene	ug/m3	54	101	70-130
1,1-Dichloroethane	ug/m3	55	101	70-130
cis-1,2-Dichloroethene	ug/m3	54	100	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	111	70-130
1,1,1-Trichloroethane	ug/m3	74	109	70-130
Trichloroethene	ug/m3	73	105	70-130
1,1,2-Trichloroethane	ug/m3	74	105	70-130
Tetrachloroethene	ug/m3	92	111	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.

406018

SAMPLE CHAIN OF CUSTODY 06/03/24

Report To A. Blake
Company SEC
Address 1631 NE Broadway #411
City, State, ZIP Portland, OR 97232
Phone 971-371-0404 Email ablake@secad-env.com

SAMPLERS (*signature*)

PROJECT NAME & ADDRESS: Tics-1

PO #: —

NOTES: —

INVOICE TO: SEC

Page # 1 of 2

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	2 Propanol	Notes
Ambient	01	49724	7847	(IA) / SG	5/30/24	-30	1000	-11	1628			X				
Gym	02	18571	7846	(IA) / SG	5/30/24	-30	1005	-27	1630			X				
Fish Front	03	49460	7851	(IA) / SG	5/30/24	-30	1010	-11	1623			X				
Fish Back	04	47616	7859	(IA) / SG	5/30/24	-30	1015	-4	1626			X				
Tics Front	05	18575	5556	(IA) / SG	5/30/24	-30	1020	-11	1618			X				
Tics Middle	06	20545	5552	(IA) / SG	5/30/24	-30	1025	-12	1620			X				
Tics Rear	07	46707	7870	(IA) / SG	5/30/24	-30	1030	-10	1615			X				
Influent	08	8528	67	IA / (SG)	5/30/24	-30	1600	-8	1605			X			X	

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:		A. Blake	SEC	5/31/24	FEDEX
Received by:		ANH PHAN	F&B	06/03/24	14:41
Relinquished by:			Samples received at 20 °C		
Received by:					

406018

SAMPLE CHAIN OF CUSTODY

06/03/24 —

Report To A Blinks

Company SEC

Address 1631 NE Broadway #211

City, State, ZIP Portland, OR 97232

Phone 971 371 0404 Email ablinks@sweed-env.com

SAMPLERS (*signature*)	
PROJECT NAME & ADDRESS Tire 1	PO # —
NOTES: —	INVOICE TO SEC

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	2-Propanol	Notes
Ethanol	09	9564	63	IA / (SG)	5/31/24	-30	1605	-6	1610			X			X	
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												

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:	A. Blinks	SEC	5/31/24	FED EX
Received by:	ANH PHAN	FBB	06/03/24	14:41
Relinquished by:		Samples received at 20 °C		
Received by:				

FORMS\COC\COCTO-15.DOC

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 406018 CLIENT SEC INITIALS/ DATE: AP 06/03/24

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

Cooler/Sample temperature 20 °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 06/03/24
*or other representative documents, letters, and/or shipping memos

Number of days samples have been sitting prior to receipt at laboratory 4 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)

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

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

FROM:
ANDREW BLAKE
(971) 371-0404
5217 NE 35TH AVE
PORTLAND OR 97211
US

SHIP DATE: 31MAY24
ACTWGT: 7.70 LB
CAD: 6998048/SSFO2500
DIMMED: 20 X 10 X 10 IN

TO
Friedman & Bruya
5500 4TH AVE S

SEATTLE WA 98108
(206) 285-8282
INV:
PO:
REF:
DEPT:

(US)

FedEx
Ground

7 of 7
MPS# 2753 5723 5398
Mstr# 2753 5723 5332

98108

9622 0019 0 (000 000 0000) 0 00 2753 5723 5398

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

June 12, 2024

Andrew Blake, Project Manager
Succeed Environmental Consulting, LLC
1631 NE Broadway 211
Portland, OR 97232

Dear Mr Blake:

Included are the results from the testing of material submitted on June 7, 2024 from the Ties-1, F&BI 406104 project. There are 8 pages included in this report.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
SCD0612R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 7, 2024 by Friedman & Bruya, Inc. from the Succeed Environmental Consulting, LLC Ties-1, F&BI 406104 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Succeed Environmental Consulting, LLC
406104 -01	SS Fish
406104 -02	Ties ESE
406104 -03	Ties SE
406104 -04	Ties SW

The tetrachlorethene concentration in samples SS Fish and Ties SE exceeded the calibration range of the instrument. The data were flagged accordingly.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SS Fish	Client:	Succeed Environmental Consulting, LLC
Date Received:	06/07/24	Project:	Ties-1, F&BI 406104
Date Collected:	06/06/24	Lab ID:	406104-01 1/39
Date Analyzed:	06/11/24	Data File:	061031.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<10	<3.9
Chloroethane	<100	<39
2-Propanol	<340	<140
1,1-Dichloroethene	<15	<3.9
trans-1,2-Dichloroethene	<15	<3.9
1,1-Dichloroethane	<16	<3.9
cis-1,2-Dichloroethene	<15	<3.9
1,2-Dichloroethane (EDC)	<1.6	<0.39
1,1,1-Trichloroethane	<21	<3.9
Trichloroethene	38	7.0
1,1,2-Trichloroethane	<2.1	<0.39
Tetrachloroethene	38,000 ve	5,600 ve

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Ties ESE	Client:	Succeed Environmental Consulting, LLC
Date Received:	06/07/24	Project:	Ties-1, F&BI 406104
Date Collected:	06/06/24	Lab ID:	406104-02 1/9.4
Date Analyzed:	06/11/24	Data File:	061029.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<2.4	<0.94
Chloroethane	<25	<9.4
2-Propanol	<81	<33
1,1-Dichloroethene	<3.7	<0.94
trans-1,2-Dichloroethene	<3.7	<0.94
1,1-Dichloroethane	<3.8	<0.94
cis-1,2-Dichloroethene	<3.7	<0.94
1,2-Dichloroethane (EDC)	<0.38	<0.094
1,1,1-Trichloroethane	<5.1	<0.94
Trichloroethene	<1	<0.19
1,1,2-Trichloroethane	<0.51	<0.094
Tetrachloroethene	880	130

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Ties SE	Client:	Succeed Environmental Consulting, LLC
Date Received:	06/07/24	Project:	Ties-1, F&BI 406104
Date Collected:	06/06/24	Lab ID:	406104-03 1/51
Date Analyzed:	06/11/24	Data File:	061030.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	86	70	130

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<13	<5.1
Chloroethane	<130	<51
2-Propanol	<440	<180
1,1-Dichloroethene	<20	<5.1
trans-1,2-Dichloroethene	<20	<5.1
1,1-Dichloroethane	<21	<5.1
cis-1,2-Dichloroethene	<20	<5.1
1,2-Dichloroethane (EDC)	<2.1	<0.51
1,1,1-Trichloroethane	<28	<5.1
Trichloroethene	56	10
1,1,2-Trichloroethane	<2.8	<0.51
Tetrachloroethene	44,000 ve	6,500 ve

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Ties SW	Client:	Succeed Environmental Consulting, LLC
Date Received:	06/07/24	Project:	Ties-1, F&BI 406104
Date Collected:	06/06/24	Lab ID:	406104-04 1/7.0
Date Analyzed:	06/11/24	Data File:	061028.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<1.8	<0.7
Chloroethane	<18	<7
2-Propanol	<60	<24
1,1-Dichloroethene	<2.8	<0.7
trans-1,2-Dichloroethene	<2.8	<0.7
1,1-Dichloroethane	<2.8	<0.7
cis-1,2-Dichloroethene	3.3	0.83
1,2-Dichloroethane (EDC)	<0.28	<0.07
1,1,1-Trichloroethane	<3.8	<0.7
Trichloroethene	4.8	0.89
1,1,2-Trichloroethane	<0.38	<0.07
Tetrachloroethene	93	14

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Succeed Environmental Consulting, LLC
Date Received:	Not Applicable	Project:	Ties-1, F&BI 406104
Date Collected:	Not Applicable	Lab ID:	04-1295 mb
Date Analyzed:	06/10/24	Data File:	061012.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
Chloroethane	<2.6	<1
2-Propanol	<8.6	<3.5
1,1-Dichloroethene	<0.4	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
1,1-Dichloroethane	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01
1,1,1-Trichloroethane	<0.55	<0.1
Trichloroethene	<0.11	<0.02
1,1,2-Trichloroethane	<0.055	<0.01
Tetrachloroethene	<6.8	<1

Date of Report: 06/12/24
Date Received: 06/07/24
Project: Ties-1, F&BI 406104

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

Laboratory Code: 406091-01 1/5.4 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Vinyl chloride	ug/m3	<1.4	<1.4	nm
Chloroethane	ug/m3	<14	<14	nm
2-Propanol	ug/m3	<46	<46	nm
1,1-Dichloroethene	ug/m3	<2.1	<2.1	nm
trans-1,2-Dichloroethene	ug/m3	<2.1	<2.1	nm
1,1-Dichloroethane	ug/m3	<2.2	<2.2	nm
cis-1,2-Dichloroethene	ug/m3	<2.1	<2.1	nm
1,2-Dichloroethane (EDC)	ug/m3	<0.22	<0.22	nm
1,1,1-Trichloroethane	ug/m3	<2.9	<2.9	nm
Trichloroethene	ug/m3	<0.58	<0.58	nm
1,1,2-Trichloroethane	ug/m3	<0.29	<0.29	nm
Tetrachloroethene	ug/m3	<37	<37	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Vinyl chloride	ug/m3	35	101	70-130
Chloroethane	ug/m3	36	98	70-130
2-Propanol	ug/m3	33	96	70-130
1,1-Dichloroethene	ug/m3	54	107	70-130
trans-1,2-Dichloroethene	ug/m3	54	108	70-130
1,1-Dichloroethane	ug/m3	55	107	70-130
cis-1,2-Dichloroethene	ug/m3	54	106	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	117	70-130
1,1,1-Trichloroethane	ug/m3	74	115	70-130
Trichloroethene	ug/m3	73	115	70-130
1,1,2-Trichloroethane	ug/m3	74	106	70-130
Tetrachloroethene	ug/m3	92	114	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.

406104

SAMPLE CHAIN OF CUSTODY 06/07/24

Report To ~~SEC~~ A. Blake

Company SEC

Address 1631 NE Broadway #211

City, State, ZIP Portland, OR 97232

Phone 971-371-0404 Email ablake@[illegible]

SAMPLERS (*signature*)

PROJECT NAME: Tics-1

PO #: —

REMARKS: —

Project specific RLs? - Yes / No

INVOICE TO: SEC

Page # 1 of 1

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

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type / Flow ID / Can ID	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	cVOCs	EPA TO-15	+2 (Propanol)		Notes
SS Fish	01	6/6/24	1500	242/417	ACR								X				-30" HG to -8
Tics FSE	02	↑	1520	81/8532	(1)								X				-30" Hg to -8
Tics SE	03	|	1540	243/9894	|								X				-30" Hg to -8
Tics SW	04	↓	1600	79/2733	↓								X				-30" Hg to -8
									Samples received at 22 °C								

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Andrew Blake	SEC	6/6/24	FEDEX
Received by:	ANH PHAN	F&B	06/07/24	13:36
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 406104 CLIENT SEC. INITIALS/ DATE: AP 06/07/24

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

Cooler/Sample temperature 22 °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 06/07/24
*or other representative documents, letters, and/or shipping memos

Number of days samples have been sitting prior to receipt at laboratory 1 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

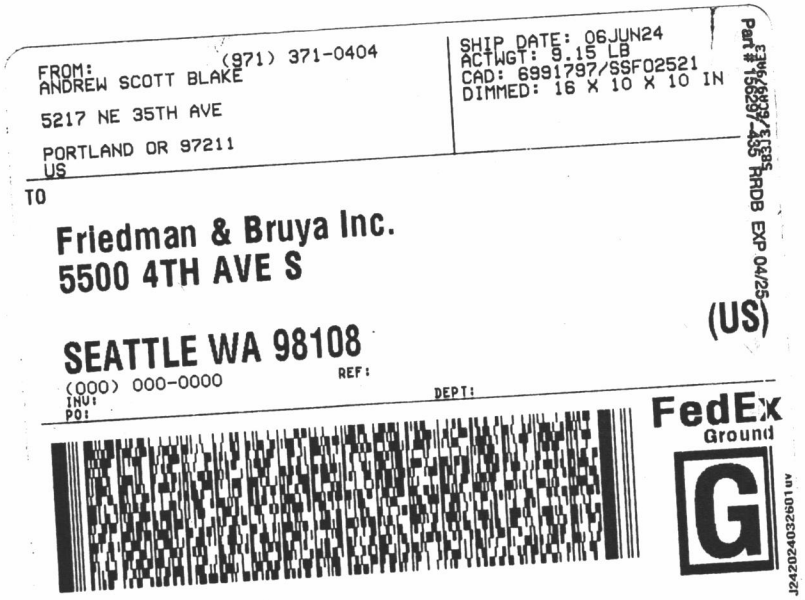
Is the following information provided on the COC, and does it match the sample label?
(explain "no" answer below)

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)

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

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



FROM:
ANDREW SCOTT BLAKE
(971) 371-0404
5217 NE 35TH AVE
PORTLAND OR 97211
US

SHIP DATE: 06JUN24
ACTWGT: 9.15 LB
CAD: 6991797/SSFO2521
DIMMED: 16 X 10 X 10 IN

Part # 156297-435 RRDB EXP 04/25

TO
Friedman & Bruya Inc.
5500 4TH AVE S
SEATTLE WA 98108
(000) 000-0000
REF:
INV:
PO:
DEPT:

(US)

FedEx Ground

J242024032601uv

TRK# 2756 1358 6293

98108

9622 0019 0 (000 000 0000) 0 00 2756 1358 6293