

**Four Star
Petroleum Contaminated Soil
Vapor Intrusion Investigation**

**Pullman Marketing Building
325 NW State Street
Pullman, Washington**

Project Number: 233516.01

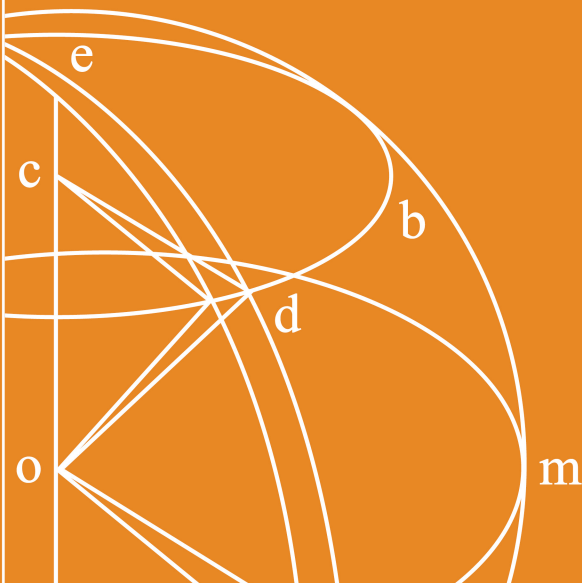
Date: June 3, 2024

Prepared for:

Four Star Supply
Attn: Kevin McDonnell
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Report Title: Four Star Petroleum Contaminated Soil Vapor Intrusion Investigation

Project Number: 223516.01

Date: June 3, 2024

Site: Pullman Marketing
325 NW State Street
Pullman, Washington

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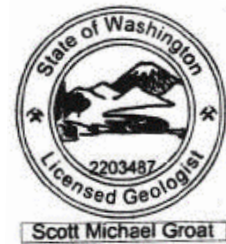
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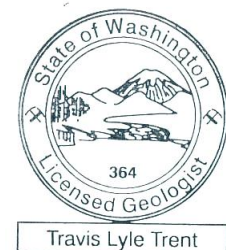
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Reviewed by: Travis Trent **Date:** 06/03/2024

Travis Trent, LHG, CIH
Principal





Report Integrity

Fulcrum Environmental Consulting, Inc.'s scope of service for this project was limited to those services as established in the proposal, contract, verbal direction, and/or agreement. This report is subject to applicable federal, state, and local regulations governing project-specific conditions and was performed using recognized procedures and standards of the industry. Scientific data collected in situ may document conditions that may be specific to the time and day of service, and subject to change as a result of conditions beyond Fulcrum's control or knowledge. Fulcrum makes no warranties, expressed or implied, as to the accuracy or completeness of other's work included herein. Fulcrum has performed these services in accordance with generally accepted environmental science standards of care at the time of the inspection. No warranty, expressed or implied, is made.



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1.0 INTRODUCTION

Fulcrum Environmental Consulting, Inc. (Fulcrum) completed passive vapor sampling and sub-slab vapor intrusion sampling at the Pullman Marketing building to evaluate for potential impact associated with petroleum contaminated soil presence at the adjacent Four Star Supply, Inc. (Four Star) property located at 355 NW State Street in Pullman, Washington. Figure 1 presents a general Site Location Map.



***Pullman Marketing Building
325 NW State Street, Pullman, Washington***

Fulcrum completed an initial passive vapor sampling event of background ambient air within the Pullman Marketing building in July of 2023. The preliminary testing of ambient indoor air in the facility identified benzene and naphthalene concentrations above levels of

regulatory concern. The extent to which these results were the result of, or impacted by, residual petroleum contaminated soil (PCS) on the adjacent Four Star site could not be determined without additional evaluation. Fulcrum conducted two addition soil vapor testing events, the first in October of 2023 and the second in January of 2024.

The October 2023 soil vapor intrusion sampling event consisted of collection three sub-slab soil vapor samples from beneath the Pullman Marketing Building. Concentrations of analyzed constituents were below applicable regulatory thresholds.

The January 2024 soil vapor intrusion sampling event consisted of one sub-slab sample and two indoor ambient air samples at the Pullman Marketing Building. One exterior background air sample was also collected. Results of the sub-slab sample identified concentrations of all tested constituents to be below applicable regulatory thresholds. Consistent with the July 2024 testing, ambient indoor air results were identified with concentrations of benzene and naphthalene above levels of regulatory concern. Ambient indoor air concentrations were identified with higher concentrations than those identified in the sub-slab sample. The exterior background air sample also identified benzene to be present.

Based on the results of the three sampling events, it is Fulcrum's professional opinion that the residual PCS at the Four Star site does not pose a risk of soil vapor intrusion to the adjacent Pullman Marketing Building.

Site services were completed by Scott Groat, a Washington State Licensed Geologist with Fulcrum, assisted by Ethan Ducken, a Washington State recognized Geologist-in-Training both with Fulcrum. The work was completed under the direction of Travis Trent, a Washington State Licensed Hydrogeologist and Certified Industrial Hygienist. Relevant professional certifications are presented in Appendix A.



1.1 Scope of Services

Fulcrum was retained by Four Star to complete vapor intrusion sampling at the Pullman Marketing building located at 325 NW State Street in Pullman, Washington. Fulcrum completed three separate sampling events to characterize potential for soil vapor intrusion associated with residual PCS from the adjacent Four Star property.

All samples were collected in accordance with the industry standard of care and were submitted under a standard chain of custody to Fremont Analytical, Inc. (Fremont) or SGS Galson, both Washington State accredited laboratories. Samples were analyzed for benzene, toluene, ethylbenzene, xylene, (BTEX) naphthalene, and air-phase petroleum hydrocarbons (APH).

1.2 Background

On April 25, 2022, Four Star identified a diesel fuel leak from an AST on their property located adjacent to the Pullman Marketing building in Pullman, Washington. The diesel leaked into a concrete secondary containment and then down through cracks in the containment to underlying site soils.

Emergency services, Department of Transportation, and Department of Ecology staff responded to the release. Able Clean-up Technologies Inc. (Able) was retained by Four Star to provide spill response and cleanup services. Fulcrum was retained by Four Star to provide oversight of the spill cleanup.



Areas of pre-existing PCS were identified below and surrounding the soil contaminated by the 2022 spill event. The date, source, or cause of the pre-existing PCS was not determined. Based on location, presentation, and site history, it was Fulcrum's opinion that the pre-existing PCS was likely the result of one or more events that occurred decades ago.

All current and historic contaminated soil was removed from the subject site except a small area along the stream bank that was contained in place to minimize disruption to the river. Contaminated soil was removed to the extent possible up to property margins shared with NW State Street, Poplar Street, and the adjacent Pullman Marketing Building.

An engineered clay barrier was placed at the north, northwest, and northeast property boundary between the site and the South Fork Palouse River. The barrier extends from a native compact clay layer that was



encountered across the site at approximately 20 feet bgs to approximately 3 feet bgs. It extends the full length of the bank frontage and wraps back to the south at the east and west property boundaries.

Fulcrum installed three groundwater monitoring wells onsite in June 2023. June 2023 monitoring results identified all constituents to be below applicable regulatory thresholds. Additional sampling events conducted in September and December of 2023 identified diesel/oil in one well at concentrations above regulatory thresholds.

The Site is recognized on the Washington State Cleanup Program as Grange Supply Company Pullman (Cleanup Site ID 16631, Facility/Site ID 3394273, UST ID 171).

2.0 DISCUSSION OF PERTINENT REGULATIONS AND GUIDANCE

2.1 MTCA Regulations

In March 1989, the Model Toxics Control Act (MTCA) went into effect in Washington State. The MTCA regulations, WAC 173-340, set standards to ensure quality of cleanup and protection of human health and the environment. A major portion of the MTCA regulation (completed in 1991) was the development of numerical cleanup standards and requirements for cleanup actions. Three options were established under MTCA for site-specific cleanup levels: Method A, B, and C. Method A defines cleanup levels for 25 of the most common hazardous substances found at sites. Method B levels are set using a site risk assessment, which enables consideration of site-specific characteristics. Method C is similar to Method B; however, the individual substance's cancer risk portion of the assessment is set at 1 in 100,000 rather than 1 in 1,000,000.

Rule amendments to MTCA became effective August 15, 2001, and changed the cleanup levels of petroleum hydrocarbon contamination. Whereas diesel and heavy oil concentrations were increased, the MTCA Method A cleanup levels for gasoline and gasoline components Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) were lowered significantly. Updates since 2001 have been primarily administrative in nature, although review and adjustment of cleanup levels are ongoing.

2.2 MTCA Cleanup Standards

Ecology has established MTCA Method B and C cleanup levels for indoor air and sub-slab soil gas levels related to vapor intrusion. Method B levels were developed to for use at all sites and uses a more conservative approach. Therefore, Fulcrum has determined that Ecology's MTCA Method B cleanup levels to be the most appropriate regulatory guidance for evaluating the need for site cleanup at the site.

2.3 Vapor Intrusion Standards

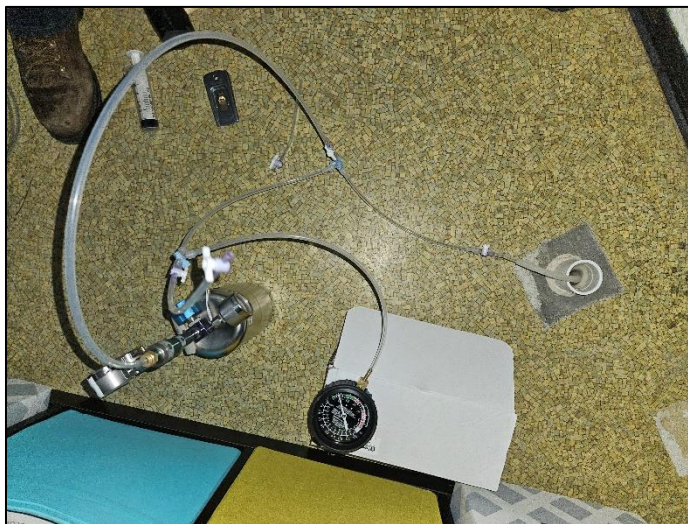
Vapor intrusion is addressed under MTCA regulations which provide the criteria for evaluating the potential for vapor intrusion into buildings from release of VOCs and VOC bearing products into soil or groundwater.



Sampling and evaluation of the data was completed consistent with Ecology's *Guidance for Evaluating Vapor Intrusion in Washington State: Investigation and Remedial Action*, Publication No. 09-09-047, March 2022.

3.0 SAMPLING METHODOLOGY

Fulcrum utilized industry standard of care, including those of the industrial hygiene and indoor air quality industry as specified in the U.S. EPA Method TO-15, for the collection of the air samples. Method TO-15 collects a sample in a summa canister. A Summa canister is used to maintain a sub-atmospheric pressure resulting in vacuum sampling wherein the canister is opened to the atmosphere; the differential pressure causes the sample air to flow into the canister.



The summa canisters are reusable stainless steel containment vessels that are certified clean and purged with nitrogen by the laboratory prior to reuse. Summa canisters were provided by SGS of Dayton, New Jersey and Fremont Analytical, Inc. (Fremont) of Seattle, Washington. Fremont of Seattle (C910-23) and SGS of Dayton (C1068-24a) are Ecology accredited laboratories for the analysis of VOCs in air.

4.0 FIELD ACTIVITIES

4.1 Vapor Intrusion Investigation

Fulcrum's 2022 Fuel Spill Remediation of the adjacent property fulfilled the requirements of a preliminary assessment in accordance with Ecology's Vapor Intrusion Guidance (Publication No. 09-09-047, March 2022). The preliminary assessment identified the following chemicals present in site soils adjacent to the Pullman Marketing building.

- Diesel-range Hydrocarbons
- Gasoline-range Hydrocarbons
- BTEX

Investigation and testing demonstrated that PCS was present at western edge of the remedial excavation, approximately 15-feet east of the Pullman Marketing building. Fulcrum determined that a Tier 2 vapor



intrusion evaluation should be performed. Immediate action was determined to not be necessary based on concentrations of contaminated soil.

Since the contaminant of concern was gasoline-range hydrocarbons, diesel-range hydrocarbons, and BTEX Fulcrum assessed the release under Appendix B of the Vapor Intrusion Guidance (Assessing the vapor intrusion pathway for sites with petroleum contamination) to determine if a Tier 2 Assessment was required. Results of the assessment summarized as follows:

- Step 1: Confirm the release – Yes
- Step 2: Determine if immediate action is necessary – No
- Step 3: Characterize the site and develop a conceptual site model – Completed
- Step 4: Evaluate whether there are any contaminants besides petroleum – No
- Step 5: Determine if there are any precluding factors – None
- Step 6: Determine if buildings are within the lateral inclusion zone (30 feet) –Yes
- Step 7: Evaluate the vertical screening distance for buildings (15 feet) – Yes
- Step 8: Conduct a Tier 2 assessment – Yes

Soil analytical results documented gasoline-range hydrocarbons, diesel-range hydrocarbons, and BTEX presence within 30 lateral feet and 15 vertical feet (Table B-1 required separation distances for petroleum) of the Pullman Marketing building at concentrations in excess of the applicable regulatory standard.

Fulcrum's preliminary assessment determined that a Tier 2 investigation should be conducted for the site. Locations were also selected to maximize the potential of characterizing any preferential pathway associated with plumbing below the building and sub-grade electrical conduit. Potential soil gas sampling limitations were reviewed as follows:

- 1) The water table is very shallow and either contacts or is within several feet of the building foundation – No, groundwater was identified to be at 12-14 ft bgs during sampling.
- 2) Vadose zone contamination is very shallow and/or is likely to contacts or be present directly adjacent to the building – No
- 3) The potential for soil gas migration through preferential pathways has been confirmed or determined likely – No

4.1.1 Preliminary Passive Vapor Investigation – July 19, 2023

On July 19, 2023, Fulcrum completed an initial assessment of indoor air quality within the Pullman Marketing Building located at 325 NW State Street in Pullman, Washington. Samples were collected from ambient air within the building.

The preliminary investigation consisted of the placement of two 6-liter summa canisters allowed to collect ambient air within the building for a 24-hour sampling period. Samples were shipped for analysis under chain-of-custody to Fremont Analytical, an Ecology accredited laboratory in Seattle, Washington for



analysis by EPA Method TO-15. See Table 1 for a summary of preliminary indoor air testing results. See Appendix B for laboratory results.

Table 1: Indoor Air Sample Results ($\mu\text{g}/\text{m}^3$) – July 19, 2023

Analyte	FS-071923-01 East Stairwell	FS-071923-02 Central Lobby	Method B Noncancer Cleanup Level	Method B Cancer Cleanup Level
Benzene	6.09	1.17	13.7	0.321
Toluene	1.69	1.66	2290	-
Ethylbenzene	< 0.651	< 0.651	457	-
Xylenes	2.195	2.309	45.7	-
Naphthalene	0.478	0.612	1.37	0.0735
Aliphatic Hydrocarbons (EC5-8)	< 28.5	< 28.5	-	-
Aliphatic Hydrocarbons (EC9-12)	< 29.4	< 29.4	-	-
Aromatic Hydrocarbons (EC9-10)	< 6.29	< 6.29	-	-

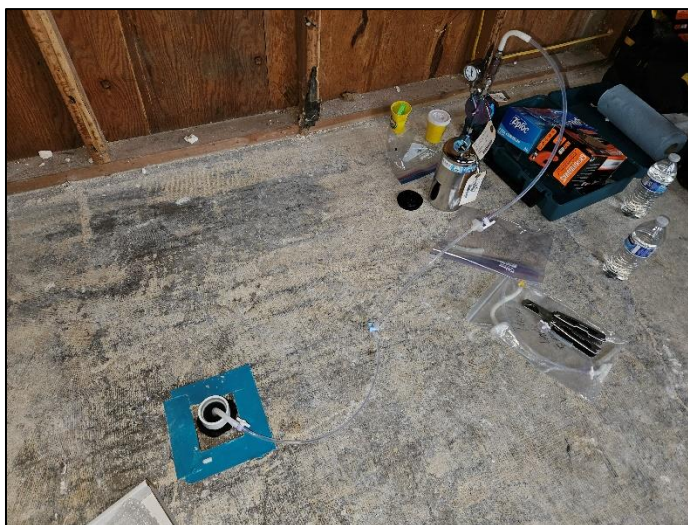
Bold Represents sample result above the Method B Cancer Cleanup Level
“-” Cleanup level is not established for this specific analyte

Results of the initial indoor air assessment identified elevated concentrations of benzene and naphthalene above applicable regulatory thresholds, in both samples. All other analytes were below applicable regulatory thresholds. Fulcrum’s preliminary assessment conducted in July 2023 determined that additional interior sub-slab soil gas sampling should be conducted for the site.

4.1.2 Sub-slab Vapor Investigation – October 11, 2023

On October 11, 2023, Fulcrum completed a follow up investigation consisting of three sub-slab soil gas samples collected from the western, central, and eastern portion of the building. Prior to sampling, a water dam seal was completed and the sample collection train was connected to the Teflon tubing and verified to be leak free after maintaining a constant 0.25-inch of mercury vacuum pressure for a 5-minute period during the pre-sample shut-in verification test.

After the sample collection train passed the leak test, a 1-liter summa canister that was verified to have a pressure gauge reading of 28-30 inches of mercury was connected for collection of the soil gas sample. A soil gas sample was collected through a vapor pin installed through the concrete slab at a flow rate of ~180 milliliters per min (ml/min) for approximately 5-minutes or until the 1-liter summa can had a inches of mercury (in. Hg) pressure reading of -5 in. hg or less.



Samples were submitted under chain-of-custody by common carrier to SGS in Dayton, New Jersey for analysis by EPA Method TO-15. Results of the follow-up investigation are summarized below in Table 2.



Table 2: Sub-Slab Sample Results (µg/m³) – October 11, 2023

Analyte	FS- 101123-01 Central	FS- 101123-02 East	FS- 101123-03 West	Method B Noncancer Cleanup Level	Method B Cancer Cleanup Level
Benzene	< 1.9	< 1.9	< 1.9	460	11
Toluene	0.71	3.7	3.8	76,000	-
Ethylbenzene	< 1.0	< 1.0	1.7	15,000	-
Xylenes	3.9	9.8	8.6	1,500	-
Naphthalene	< 2.7	< 2.7	< 2.7	46	2.5
Aliphatic Hydrocarbons (EC5-8)	205	417	729	--	--
Aliphatic Hydrocarbons (EC9-12)	306	317	2,150	--	--
Aromatic Hydrocarbons (EC9-10)	< 6.5	< 6.5	< 6.5	--	--

Bold Represents sample result above the Method B Cancer Cleanup Level
 "--" Cleanup level is not established for this specific analyte

Results of the follow-up sub-slab soil gas investigation identified all analytes to be below applicable regulatory thresholds. Benzene and naphthalene concentrations were reported below the laboratory detection limit in all samples. Fulcrum notes that the laboratory detection limit for naphthalene was greater than the Method B Cancer Cleanup Level.

4.1.3 January 2024 – Passive and Sub-slab Vapor Sampling Events

On December 8, 2023, Fulcrum received a Technical Assistance letter from Ecology which recommended additional sub-slab vapor intrusion sampling to be performed within the Pullman Marketing Building when outdoor temperatures were at least 30 degrees Fahrenheit (F) lower than indoor temperatures to account for periods when a greater degree of vapor intrusion is likely to occur.

Passive Vapor Sampling

On January 18, 2024, Fulcrum completed 24-hour passive sampling for two interior locations and one exterior location, recorded exterior temperatures during the passive sampling were documented to be between 1-25° F with an interior building temperature of 72° F. All samples were submitted under chain-of-custody by common carrier to Fremont Analytical, an Ecology accredited laboratory in Seattle, Washington for analysis by EPA Method TO-15. Results of the passive vapor sampling is summarized in Table 3 below.

Table 3: Indoor and Exterior Ambient Air Sample Results (µg/m³) – January 19, 2024

Analyte	Interior- West	Interior- East	Exterior- North	Method B Noncancer Cleanup Level	Method B Cancer Cleanup Level
Benzene	0.572	0.693	0.36	13.7	0.321
Toluene	1.48	1.72	< 0.754	2290	-
Ethylbenzene	2.10	2.4	< 0.651	457	-
Xylenes	14.59	15.24	< 1.734	45.7	-
Naphthalene	< 0.0734	0.105	< 0.0734	1.37	0.0735
Aliphatic Hydrocarbons (EC5-8)	42.0	47.2	< 28.5	-	-



Analyte	Interior-West	Interior-East	Exterior-North	Method B Noncancer Cleanup Level	Method B Cancer Cleanup Level
Aliphatic Hydrocarbons (EC9-12)	75.3	69.7	< 29.4	-	-
Aromatic Hydrocarbons (EC9-10)	7.37	< 6.29	< 6.29	-	-

Bold Represents sample result above regulatory threshold
 "--" Cleanup level is not established for this specific analyte

Consistent with July 2023 sampling, laboratory analytical results identified indoor ambient air concentrations for benzene and naphthalene to be at levels above applicable regulatory thresholds. Benzene was also present above regulatory thresholds in the exterior background air sample.

Sub-slab Vapor Sampling

On January 30, 2024, Fulcrum completed sub-slab sampling from the east central stairwell. Exterior temperatures were documented to be at 42° F as compared to interior temperatures at 72° F. Prior to completing the sub-slab sampling, a water dam seal was completed and the sample collection train was connected to the Teflon tubing and verified to be leak free after maintaining a constant 0.25-inch of mercury vacuum pressure for a 5-minute period during the pre-sample shut-in verification test.

After the sample collection train passed the leak test, a 1-liter summa canister that was verified to have a pressure gauge reading of 28-30 inches of mercury was connected for collection of the soil gas sample. A soil gas sample was collected through a vapor pin installed through the concrete slab at a flow rate of ~180 milliliters per min (ml/min) for approximately 5-minutes or until the 1-liter summa can had a inches of mercury (in. Hg) pressure reading of -5 in. hg or less. Results of the sub-slab vapor sampling is summarized in Table 4 below.

Table 4: Sub-Slab Sample Results ($\mu\text{g}/\text{m}^3$) – January 30, 2024

Analyte	FS-101123-01 Central	Method B Noncancer Cleanup Level	Method B Cancer Cleanup Level
Benzene	4.17	460	11
Toluene	43.3	76,000	-
Ethylbenzene	4.26	15,000	-
Xylenes	19.6	1,500	-
Naphthalene	1.60	46	2.5
Aliphatic Hydrocarbons (EC5-8)	918	--	--
Aliphatic Hydrocarbons (EC9-12)	466	--	--
Aromatic Hydrocarbons (EC9-10)	65.4	--	--

Bold Represents sample result above the Method B Cancer Cleanup Level
 "--" Cleanup level is not established for this specific analyte

Laboratory analytical results identified all analytes to be below applicable regulatory thresholds specifically noting that benzene and naphthalene concentrations were again below concentrations identified in interior ambient air sampling.

Fulcrum also evaluated analytical results using the site-specific calculation presented in Appendix E of the Guidance. Results of the calculation for sample 110323-HZ-B07 are presented in Tables 5 and 6 as follows.



Table 5: Petroleum Vapor Intrusion (PVI) Calculation

Petroleum Fraction or Compound	Measured Concentration (ug/m3)	Fraction of Total Concentration	RfDi (mg/kg day)	Screening Level for Non-Carcinogenic (ug/m3)	Fraction / CUL	Total TPH Cleanup Level for Non-Carcinogenic (ug/m3)
Aliphatics EC5-8	918	0.60	1.7	2,720	0.00023	-
Aromatics EC9-10	466	0.31	0.114	182	0.00170	-
Aliphatics EC9-12	65.4	0.04	0.029	46.4	0.00086	-
Benzene	4.17	0.003	0.00857	13.7	0.00022	-
Toluene	43.3	0.03	1.4	2240	0.00001	-
Ethylbenzene	4.26	0.003	0.286	458	0.000006	-
Xylene	19.6	0.013	0.029	46.4	0.00028	-
Naphthalene	1.60	0.001	0.00086	1.38	0.00072	-
Total TPH	1,522.33	1.00			0.00402	248.76
Total TPH Cleanup Level with Attenuation Factor					0.03	8,292
MTCA Method B Soil Vapor Cleanup Level						1,500

Results of site-specific calculations indicate a total TPH cleanup level in exterior or sub-slab soil of 8,292 ug/m³ as compared to the measured concentration of 1,522.33 ug/m³.

Table 6: Calculated Carcinogenic Cleanup Levels

Carcinogenic Compound	Measured Concentration (ug/m3)	CPF _i (Kg-day/mg)	Cleanup Level Method B Cancer (ug/m3)	Cleanup Level with Attenuation Factor of 0.03	Method B Soil Vapor Cleanup Level	Measured Conc. Exceeds Cleanup Level (Yes/No)
Benzene	4.17	0.0273	0.321	10.70	11.00	No
Naphthalene	1.60	0.119	0.0735	2.45	2.50	No

Calculated carcinogenic levels with the attenuation factor for sub-slab or exterior soils yielded clearance values consistent with the default CLARC Vapor Intrusion default values which demonstrated that measured concentrations of both benzene and naphthalene were below applicable cleanup levels.

Fulcrum reviewed laboratory provided QA/QC and identified no anomalies or indications that analytical results generated would not be suitable for evaluation under this Tier 2 assessment.

4.2 Data Quality

Samples were shown as received by the laboratory at an acceptable temperature. The results for Fulcrum's field duplicate were within an acceptable range of variance. Qualifiers were not present in the laboratory quality control (QC) sample results report. Based on reported analytical results, identified cleanup standards, and the absence of lab data qualifiers, it is Fulcrum's opinion that field and laboratory data quality results confirm acceptable accuracy of analytical data.



5.0 DISCUSSION

Fulcrum conducted a soil vapor gas investigation in accordance with Ecology's Vapor Intrusion Guidance (Publication No. 09-09-047, March 2022). Based on the lateral and vertical distance between identified PCS on the eastern boundary of the Pullman Marketing building, Fulcrum determined that a Tier 2 evaluation should be performed.

A total of nine samples were collected throughout the duration of the investigation, including four interior air samples, four sub-slab soil gas samples, and one ambient exterior air sample. Indoor ambient air samples showed elevated concentrations of benzene and naphthalene above regulatory thresholds. Benzene was also identified above the regulatory threshold in the exterior background air sample. Sub-slab testing identified no analytes above regulatory thresholds indicating that the benzene and naphthalene concentrations identified for the indoor ambient air samples are the result of normal site use and are not associated with or caused by the residual PCS on the adjacent site.

6.0 RECOMMENDATIONS

Based on the results of this investigation, Fulcrum recommends no additional sampling to further characterize the potential for impact. Due to the presence of groundwater, annual monitoring will continue to evaluate the changes in site conditions over time.



FIGURES



Subject Site

LEGEND

Site Location

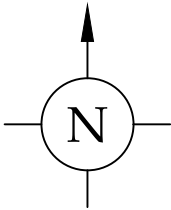
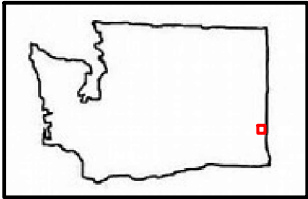


Figure 1: Site Location Map

Second Quarter Groundwater Sampling Event September 2023
Four Star Supply
355 NW State Street
Pullman, Washington



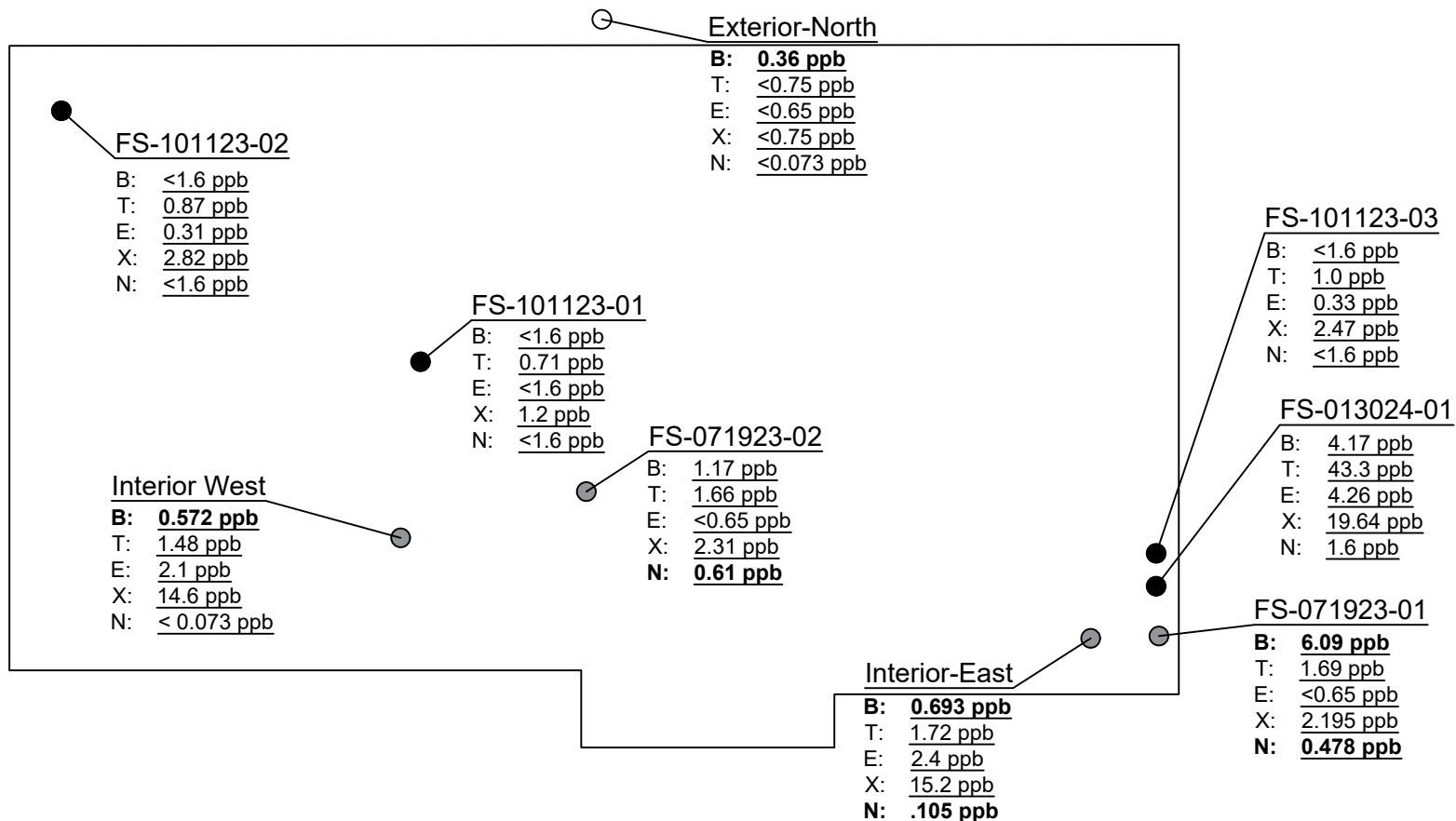
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MAP BY: Abby Whitmore

PROJECT NUMBER: 223516.01

DATE: November 10, 2023

REVIEWED BY: S. Groat



- Ambient (exterior) Soil Vapor Sample Location
- Interior Air Soil Vapor Sample Location
- Sub-Slab Soil Vapor Sample Location

LEGEND

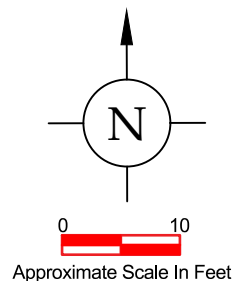


Figure 2: Sample Location Map

355 Northwest State Street
Pullman, Washington 99163



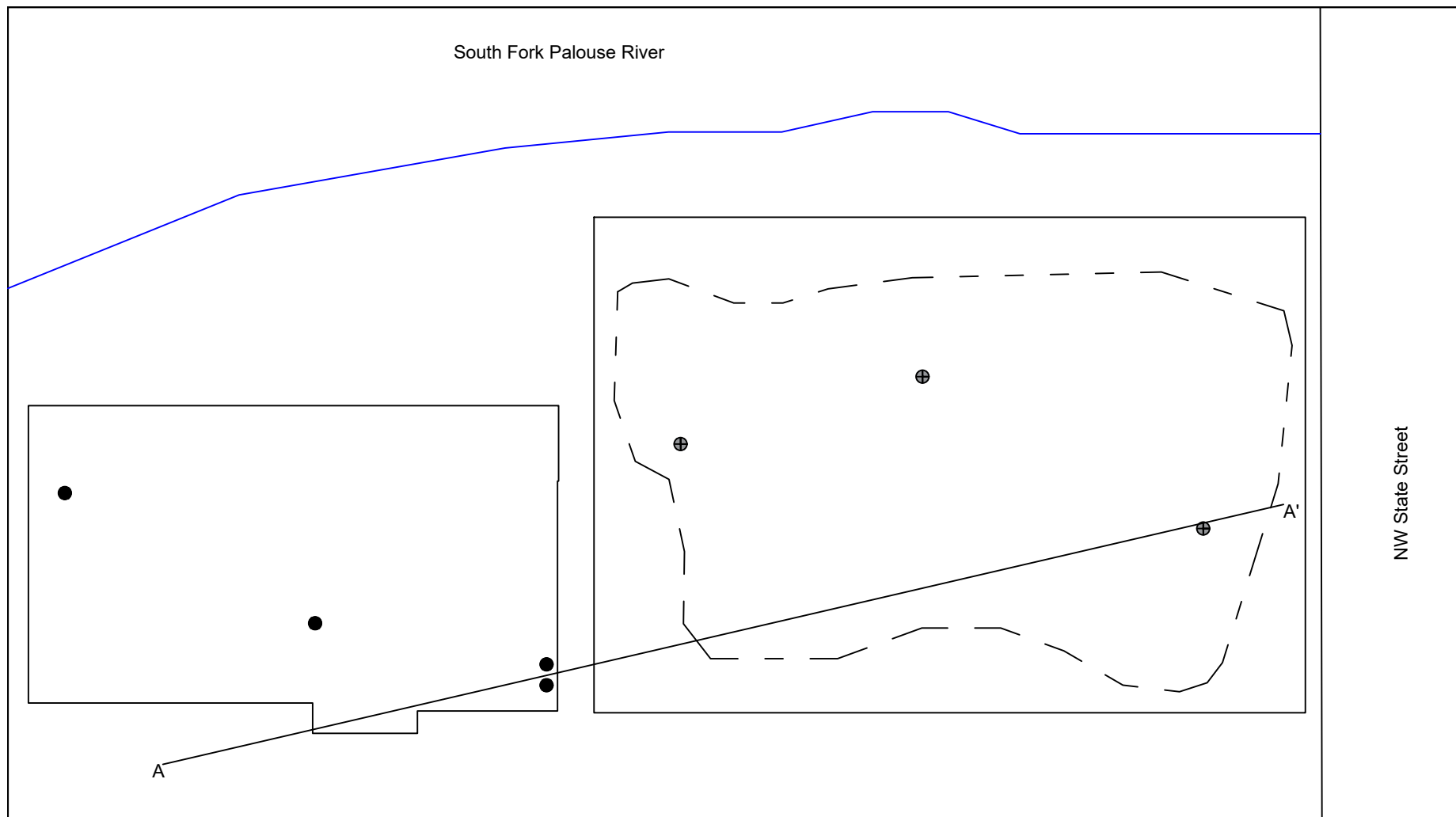
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MAP BY: Ethan Ducken

UPDATED: February 12, 2024

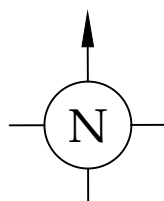
PROJECT NUMBER: 223516.01

REVIEWED BY: Travis Trent



-  Extent of Four Star Property
-  Extent of Remedial Excavation
-  Sub Slab Sample Location
-  Monitoring Well Location

LEGEND



0 10

Approximate Scale In Feet

Figure 3: Conceptual Site Model - Areal View

355 Northwest State Street
Pullman, Washington 99163



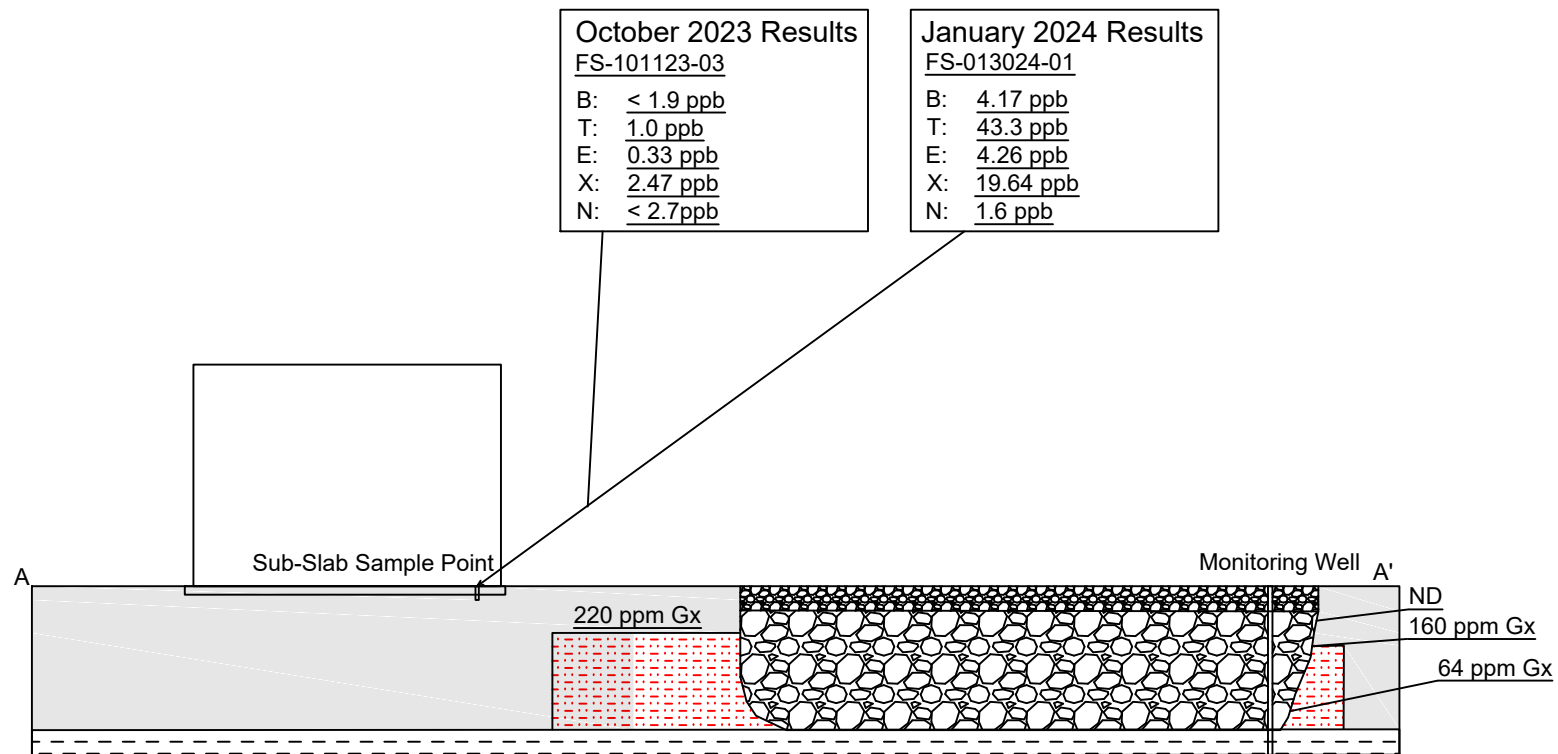
FULCRUM ENVIRONMENTAL CONSULTING, INC.
207 W. BOONE AVENUE
SPOKANE, WASHINGTON 99201
(509) 459-9220 www.efulcrum.net

MAP BY: Ethan Ducken

UPDATED: February 12, 2024

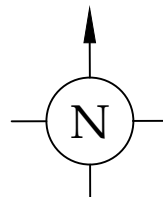
PROJECT NUMBER: 223516.01

REVIEWED BY: Travis Trent



-  Petroleum Impacted Soil
-  Backfilled Clean Gravel
-  Undefined Horizontal Extents
-  Native Clay Layer

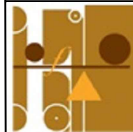
LEGEND



0 10
Approximate Scale In Feet

Figure 4: Conceptual Site Model - Cross Sectional View

355 Northwest State Street
Pullman, Washington 99163



FULCRUM ENVIRONMENTAL CONSULTING, INC.
207 W. BOONE AVENUE
SPOKANE, WASHINGTON 99201
(509) 459-9220 www.efulcrum.net

MAP BY: Ethan Ducken

UPDATED: May 31, 2024

PROJECT NUMBER: 223516.01

REVIEWED BY: Travis Trent



APPENDIX A

Professional Certifications



STATE OF WASHINGTON

DEPARTMENT OF LICENSING - BUSINESS AND PROFESSIONS DIVISION



THIS CERTIFIES THE PERSON OR BUSINESS NAMED BELOW IS AUTHORIZED AS A

**GEOLOGIST
HYDROGEOLOGIST**

TRAVIS L TRENT

364

License Number

01/08/2002

Issue Date

06/06/2025

Expiration Date



Marcus J Glasper, Director

The Board for Global EHS Credentialing (BGC)

through its vested authority, hereby confirms that

Travis L. Trent

has met all requirements of education, experience, and examination, and on-going maintenance set forth through the BGC's American Board of Industrial Hygiene®'s (ABIH®) credentialing division for re-certification in the Comprehensive Practice of Industrial Hygiene and is thereby conferred the credential of

Certified Industrial Hygienist® (CIH®)

The aforementioned individual is given all rights, privileges, and responsibilities as both a diplomate of the BGC and holder of the CIH credential, provided that the credential is not suspended or revoked, and it is renewed annually. Moreover, the holder must meet all recertification requirements, including the obligation to practice ethically as prescribed by the BGC.

Credential Number: 9850 CP

Award Date: November 19, 2010

Expiration Date: June 1, 2026



A handwritten signature in blue ink, reading "Cynthia Hanko", is written over a horizontal line.

Cynthia Hanko, CIH
Chair of the Board of Directors

A handwritten signature in blue ink, reading "Ulric K. Chung", is written over a horizontal line.

Ulric K. Chung, MCS, PhD
Chief Executive Officer and Secretary





STATE OF WASHINGTON

DEPARTMENT OF LICENSING - BUSINESS AND PROFESSIONS DIVISION



THIS CERTIFIES THE PERSON OR BUSINESS NAMED BELOW IS AUTHORIZED AS A

GEOLOGIST

SCOTT MICHAEL GROAT

22034387

License Number

11/17/2022

Issue Date

12/03/2024

Expiration Date





Marcus J Glasper, Director



APPENDIX B

Laboratory Analytical Results



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

Fulcrum Environmental

Scott Groat
207 W Boone Ave.
Spokane, WA 99201

RE: Four Star Monitoring
Work Order Number: 2307258

July 26, 2023

Attention Scott Groat:

Fremont Analytical, Inc. received 2 sample(s) on 7/21/2023 for the analyses presented in the following report.

Petroleum Fractionation by EPA Method TO-15
Volatile Organic Compounds by EPA Method TO-15

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

DoD-ELAP Accreditation #79636 by PJLA, ISO/IEC 17025:2017 and QSM 5.3 for Environmental Testing
ORELAP Certification: WA 100009 (NELAP Recognized) for Environmental Testing
Washington State Department of Ecology Accredited for Environmental Testing, Lab ID C910

Original

www.fremontanalytical.com

CLIENT: Fulcrum Environmental
Project: Four Star Monitoring
Work Order: 2307258

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2307258-001	FS-071923-01	07/19/2023 8:31 AM	07/21/2023 9:05 AM
2307258-002	FS-071923-02	07/19/2023 8:31 AM	07/21/2023 9:05 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: Fulcrum Environmental

Project: Four Star Monitoring

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Air samples are reported in ppbv and ug/m3.

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

III. ANALYSES AND EXCEPTIONS:

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

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

Qualifiers:

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

Acronyms:

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



Client: Fulcrum Environmental

WorkOrder: 2307258

Project: Four Star Monitoring

Client Sample ID: FS-071923-01

Date Sampled: 7/19/2023

Lab ID: 2307258-001A

Date Received: 7/21/2023

Sample Type: Summa Canister

Analyte	Concentration	Reporting Limit	Qual	Method	Date/Analyst
---------	---------------	-----------------	------	--------	--------------

Petroleum Fractionation by EPA Method TO-15

	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
Aliphatic Hydrocarbon (EC5-8)	<7.50	<28.5	7.50	28.5	EPA-TO-15	07/22/2023	LB
Aliphatic Hydrocarbon (EC9-12)	<5.00	<29.4	5.00	29.4	EPA-TO-15	07/22/2023	LB
Aromatic Hydrocarbon (EC9-10)	<1.25	<6.29	1.25	6.29	EPA-TO-15	07/22/2023	LB
Surr: 4-Bromofluorobenzene	98.0 %Rec	--	70-130	--	EPA-TO-15	07/22/2023	LB

Volatile Organic Compounds by EPA Method TO-15

	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
Benzene	1.91	6.09	0.0100	0.0319	EPA-TO-15	07/22/2023	LB
Ethylbenzene	<0.150	<0.651	0.150	0.651	EPA-TO-15	07/22/2023	LB
m,p-Xylene	0.365	1.59	0.300	1.30	EPA-TO-15	07/22/2023	LB
Naphthalene	0.0912	0.478	0.0140	0.0734	EPA-TO-15	07/22/2023	LB
o-Xylene	0.139	0.605	0.100	0.434	EPA-TO-15	07/22/2023	LB
Toluene	0.448	1.69	0.0500	0.188	EPA-TO-15	07/22/2023	LB
Surr: 4-Bromofluorobenzene	103 %Rec	--	70-130	--	EPA-TO-15	07/22/2023	LB



Client: Fulcrum Environmental

WorkOrder: 2307258

Project: Four Star Monitoring

Client Sample ID: FS-071923-02

Date Sampled: 7/19/2023

Lab ID: 2307258-002A

Date Received: 7/21/2023

Sample Type: Summa Canister

Analyte	Concentration	Reporting Limit	Qual	Method	Date/Analyst
---------	---------------	-----------------	------	--------	--------------

Petroleum Fractionation by EPA Method TO-15

	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
Aliphatic Hydrocarbon (EC5-8)	<7.50	<28.5	7.50	28.5	EPA-TO-15	07/22/2023	LB
Aliphatic Hydrocarbon (EC9-12)	<5.00	<29.4	5.00	29.4	EPA-TO-15	07/22/2023	LB
Aromatic Hydrocarbon (EC9-10)	<1.25	<6.29	1.25	6.29	EPA-TO-15	07/22/2023	LB
Surr: 4-Bromofluorobenzene	97.3 %Rec	--	70-130	--	EPA-TO-15	07/22/2023	LB

Volatile Organic Compounds by EPA Method TO-15

	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
Benzene	0.365	1.17	0.0100	0.0319	EPA-TO-15	07/22/2023	LB
Ethylbenzene	<0.150	<0.651	0.150	0.651	EPA-TO-15	07/22/2023	LB
m,p-Xylene	0.381	1.65	0.300	1.30	EPA-TO-15	07/22/2023	LB
Naphthalene	0.117	0.612	0.0140	0.0734	EPA-TO-15	07/22/2023	LB
o-Xylene	0.152	0.659	0.100	0.434	EPA-TO-15	07/22/2023	LB
Toluene	0.441	1.66	0.0500	0.188	EPA-TO-15	07/22/2023	LB
Surr: 4-Bromofluorobenzene	103 %Rec	--	70-130	--	EPA-TO-15	07/22/2023	LB

Work Order: 2307258
CLIENT: Fulcrum Environmental
Project: Four Star Monitoring

QC SUMMARY REPORT

Petroleum Fractionation by EPA Method TO-15

Sample ID: LCS-R85486		SampType: LCS			Units: ppbv		Prep Date: 7/22/2023			RunNo: 85494		
Client ID: LCSW		Batch ID: R85494			Analysis Date: 7/22/2023					SeqNo: 1784028		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Aliphatic Hydrocarbon (EC5-8)	11.3	7.50	12.00	0	94.2	70	130				
Aliphatic Hydrocarbon (EC9-12)	11.6	5.00	12.00	0	97.0	70	130				
Aromatic Hydrocarbon (EC9-10)	8.89	1.25	10.00	0	88.9	70	130				
Surr: 4-Bromofluorobenzene	4.02		4.000		101	70	130				

Sample ID: MB-R85486		SampType: MBLK			Units: ppbv		Prep Date: 7/22/2023			RunNo: 85494		
Client ID: MBLKW		Batch ID: R85494			Analysis Date: 7/22/2023					SeqNo: 1784029		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Aliphatic Hydrocarbon (EC5-8)	ND	7.50									
Aliphatic Hydrocarbon (EC9-12)	ND	5.00									
Aromatic Hydrocarbon (EC9-10)	ND	1.25									
Surr: 4-Bromofluorobenzene	3.25		4.000		81.2	70	130				

Sample ID: 2307260-001AREP		SampType: REP			Units: ppbv		Prep Date: 7/22/2023			RunNo: 85494		
Client ID: BATCH		Batch ID: R85494			Analysis Date: 7/22/2023			SeqNo: 1784034				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Aliphatic Hydrocarbon (EC5-8)	1,570	30.0						1,745	10.8	25	E
Aliphatic Hydrocarbon (EC9-12)	894	20.0						882.9	1.22	25	E
Aromatic Hydrocarbon (EC9-10)	38.7	5.00						38.10	1.44	25	
Surr: 4-Bromofluorobenzene	17.8		16.00		112	70	130		0		

Work Order: 2307258
CLIENT: Fulcrum Environmental
Project: Four Star Monitoring

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID: LCS-R85463	SampType: LCS	Units: ppbv			Prep Date: 7/22/2023			RunNo: 85463			
Client ID: LCSW	Batch ID: R85463				Analysis Date: 7/22/2023			SeqNo: 1783140			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1.82	0.0100	2.000	0	91.1	70	130				
Toluene	1.88	0.200	2.000	0	93.8	70	130				
Ethylbenzene	1.99	0.150	2.000	0	99.3	70	130				
m,p-Xylene	4.30	0.300	4.000	0	107	70	130				
o-Xylene	1.83	0.100	2.000	0	91.5	70	130				
Naphthalene	2.03	0.0140	2.000	0	102	70	130				
Surr: 4-Bromofluorobenzene	4.35		4.000		109	70	130				

Sample ID: MB-R85463	SampType: MBLK	Units: ppbv			Prep Date: 7/22/2023				RunNo: 85463		
Client ID: MBLKW	Batch ID: R85463	Analysis Date: 7/22/2023							SeqNo: 1783141		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0100									
Toluene	ND	0.200									
Ethylbenzene	ND	0.150									
m,p-Xylene	ND	0.300									
o-Xylene	ND	0.100									
Naphthalene	ND	0.0140									
Surr: 4-Bromofluorobenzene	3.43		4.000		85.8	70	130				

Sample ID: 2307260-001AREP		SampType: REP		Units: ppbv		Prep Date: 7/22/2023			RunNo: 85463		
Client ID: BATCH		Batch ID: R85463					Analysis Date: 7/22/2023			SeqNo: 1783144	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1.27	0.0400						1.310	2.94	25	I
Toluene	5.46	0.800						5.634	3.16	25	I
Ethylbenzene	3.64	0.600						3.637	0.111	25	I
m,p-Xylene	16.2	1.20						16.47	1.42	25	I
o-Xylene	6.94	0.400						7.098	2.29	25	I
Naphthalene	0.525	0.0560						0.5573	5.98	25	I
Surr: 4-Bromofluorobenzene	18.8		16.00		118	70	130		0		I

Work Order: 2307258
CLIENT: Fulcrum Environmental
Project: Four Star Monitoring

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID: 2307260-001AREP	SampType: REP	Units: ppbv	Prep Date: 7/22/2023	RunNo: 85463							
Client ID: BATCH	Batch ID: R85463		Analysis Date: 7/22/2023	SeqNo: 1783144							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:

I - Internal standards were outside of acceptance criteria. Re-analysis and/or matrix spike samples yielded the same result indicating a possible matrix effect.

Sample Log-In Check List

Client Name: FES
 Logged by: Clare Griggs

Work Order Number: 2307258
 Date Received: 7/21/2023 9:05:00 AM

Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
 2. How was the sample delivered? FedEx

Log In

3. Custody Seals present on shipping container/cooler?
 (Refer to comments for Custody Seals not intact) Yes ☐ No ☐ Not Present ☒
 4. Was an attempt made to cool the samples? Yes ☐ No ☐ NA ☒
 5. Were all items received at a temperature of >2°C to 6°C * Yes ☐ No ☐ NA ☒
 6. Sample(s) in proper container(s)? Yes ☒ No ☐
 7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
 8. Are samples properly preserved? Yes ☒ No ☐
 9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
 10. Is there headspace in the VOA vials? Yes ☐ No ☐ NA ☒
 11. Did all samples containers arrive in good condition(unbroken)? Yes ☒ No ☐
 12. Does paperwork match bottle labels? Yes ☒ No ☐
 13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
 14. Is it clear what analyses were requested? Yes ☒ No ☐
 15. Were all holding times able to be met? Yes ☒ No ☐

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:		Date:	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

17. Additional remarks:

Item Information

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

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Fulcrum

Air sampling, WA

Four Star Vapor - 223516.01

SGS Job Number: JD74628R

Sampling Date: 10/11/23

Report to:

sgroat@efulcrum.net

ATTN: Distribution4

Total number of pages in report: **10**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

David Chastain
General Manager

Client Service contact: Angela Lattanzio 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA(68-00408), RI, SC, TX, UT, VA, WV

This report shall not be reproduced, except in its entirety, without the written approval of SGS.
Test results relate only to samples analyzed.

Sample Summary

Fulcrum

Job No: JD74628R

Air sampling, WA
Project No: Four Star Vapor - 223516.01

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
---------------	----------------	---------	----------	-------------	------	------------------

This report contains results reported as ND = Not detected. The following applies:
Organics ND = Not detected above the MDL

JD74628-1R	10/11/23	12:21 AE	10/12/23	AIR	Soil Vapor Comp.	CENTRAL/FS-101123-01
JD74628-2R	10/11/23	13:02 AE	10/12/23	AIR	Soil Vapor Comp.	EAST/FS-101123-02
JD74628-3R	10/11/23	14:46 AE	10/12/23	AIR	Soil Vapor Comp.	WEST/FS-101123-03

Report of Analysis

Page 1 of 1

Client Sample ID:	CENTRAL/FS-101123-01		
Lab Sample ID:	JD74628-1R	Date Sampled:	10/11/23
Matrix:	AIR - Soil Vapor Comp.	Date Received:	10/12/23
Method:	MADEP APH	Percent Solids:	n/a
Project:	Air sampling, WA		
Summa ID:	A2386		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2W66506.D	1	10/31/23 18:22	TCH	n/a	n/a	V2W2986
Run #2							

Run #	Initial Volume
Run #1	100 ml
Run #2	

MADEP APH

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	MDL	Units
71-43-2	78.11	Benzene	ND	1.6	0.28	ppbv		ND	5.1	0.89	ug/m3
106-99-0	54.09	1,3-Butadiene ^a	ND	1.6	0.39	ppbv		ND	3.5	0.86	ug/m3
100-41-4	106.2	Ethylbenzene	ND	1.6	0.24	ppbv		ND	6.9	1.0	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	1.6	0.23	ppbv		ND	5.8	0.83	ug/m3
91-20-3	128.17	Naphthalene	ND	1.6	1.3	ppbv		ND	8.4	6.8	ug/m3
108-88-3	92.14	Toluene	0.71	1.6	0.24	ppbv	J	2.7	6.0	0.90	ug/m3
	106.2	m,p-Xylene	1.2	1.6	0.75	ppbv	J	5.2	6.9	3.3	ug/m3
95-47-6	106.2	o-Xylene	ND	1.6	0.26	ppbv		ND	6.9	1.1	ug/m3
	92.8	C5- C8 Aliphatics (Unadj.)	56.5	9.6	1.6	ppbv		214	36	6.1	ug/m3
	144.2	C9- C12 Aliphatics (Unadj.)	51.8	9.6	2.2	ppbv		306	57	13	ug/m3
	92.8	C5- C8 Aliphatics (APH)	54.0	9.6	0.31	ppbv		205	36	1.2	ug/m3
	144.2	C9- C12 Aliphatics (APH)	51.8	9.6	0.35	ppbv		306	57	2.1	ug/m3
	122.9	C9- C10 Aromatics (APH)	ND	8.0	1.3	ppbv		ND	40	6.5	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	107%		70-130%

(a) Associated CCV outside of control limits high, sample was ND. This compound in blank spike is outside in house QC limits bias high.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Page 1 of 1

Client Sample ID:	EAST/FS-101123-02		
Lab Sample ID:	JD74628-2R	Date Sampled:	10/11/23
Matrix:	AIR - Soil Vapor Comp.	Date Received:	10/12/23
Method:	MADEP APH	Percent Solids:	n/a
Project:	Air sampling, WA		
Summa ID:	A2405		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2W66507.D	1.48	10/31/23 18:57	TCH	n/a	n/a	V2W2986
Run #2							

Run #	Initial Volume
Run #1	148 ml
Run #2	

MADEP APH

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	MDL	Units
71-43-2	78.11	Benzene	ND	1.6	0.28	ppbv		ND	5.1	0.89	ug/m3
106-99-0	54.09	1,3-Butadiene ^a	ND	1.6	0.39	ppbv		ND	3.5	0.86	ug/m3
100-41-4	106.2	Ethylbenzene	0.31	1.6	0.24	ppbv	J	1.3	6.9	1.0	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	1.6	0.23	ppbv		ND	5.8	0.83	ug/m3
91-20-3	128.17	Naphthalene	ND	1.6	1.3	ppbv		ND	8.4	6.8	ug/m3
108-88-3	92.14	Toluene	0.87	1.6	0.24	ppbv	J	3.3	6.0	0.90	ug/m3
	106.2	m,p-Xylene	2.3	1.6	0.75	ppbv		10	6.9	3.3	ug/m3
95-47-6	106.2	o-Xylene	0.52	1.6	0.26	ppbv	J	2.3	6.9	1.1	ug/m3
	92.8	C5- C8 Aliphatics (Unadj.)	128	9.6	1.6	ppbv		486	36	6.1	ug/m3
	144.2	C9- C12 Aliphatics (Unadj.)	53.7	9.6	2.2	ppbv		317	57	13	ug/m3
	92.8	C5- C8 Aliphatics (APH)	124	9.6	0.31	ppbv		471	36	1.2	ug/m3
	144.2	C9- C12 Aliphatics (APH)	53.7	9.6	0.35	ppbv		317	57	2.1	ug/m3
	122.9	C9- C10 Aromatics (APH)	ND	8.0	1.3	ppbv		ND	40	6.5	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	106%		70-130%

(a) Associated CCV outside of control limits high, sample was ND. This compound in blank spike is outside in house QC limits bias high.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Page 1 of 1

Client Sample ID:	WEST/FS-101123-03		
Lab Sample ID:	JD74628-3R	Date Sampled:	10/11/23
Matrix:	AIR - Soil Vapor Comp.	Date Received:	10/12/23
Method:	MADEP APH	Percent Solids:	n/a
Project:	Air sampling, WA		
Summa ID:	A2398		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2W66509.D	1.48	10/31/23 20:08	TCH	n/a	n/a	V2W2986
Run #2							

Run #	Initial Volume
Run #1	148 ml
Run #2	

MADEP APH

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	MDL	Units
71-43-2	78.11	Benzene	ND	1.6	0.28	ppbv		ND	5.1	0.89	ug/m3
106-99-0	54.09	1,3-Butadiene ^a	ND	1.6	0.39	ppbv		ND	3.5	0.86	ug/m3
100-41-4	106.2	Ethylbenzene	0.33	1.6	0.24	ppbv	J	1.4	6.9	1.0	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	1.6	0.23	ppbv		ND	5.8	0.83	ug/m3
91-20-3	128.17	Naphthalene	ND	1.6	1.3	ppbv		ND	8.4	6.8	ug/m3
108-88-3	92.14	Toluene	1.0	1.6	0.24	ppbv	J	3.8	6.0	0.90	ug/m3
	106.2	m,p-Xylene	2.0	1.6	0.75	ppbv		8.7	6.9	3.3	ug/m3
95-47-6	106.2	o-Xylene	0.47	1.6	0.26	ppbv	J	2.0	6.9	1.1	ug/m3
	92.8	C5- C8 Aliphatics (Unadj.)	196	9.6	1.6	ppbv		744	36	6.1	ug/m3
	144.2	C9- C12 Aliphatics (Unadj.)	364	9.6	2.2	ppbv		2150	57	13	ug/m3
	92.8	C5- C8 Aliphatics (APH)	192	9.6	0.31	ppbv		729	36	1.2	ug/m3
	144.2	C9- C12 Aliphatics (APH)	364	9.6	0.35	ppbv		2150	57	2.1	ug/m3
	122.9	C9- C10 Aromatics (APH)	ND	8.0	1.3	ppbv		ND	40	6.5	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	109%		70-130%

(a) Associated CCV outside of control limits high, sample was ND. This compound in blank spike is outside in house QC limits bias high.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound



PAGE 1 OF 1

2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX 732-329-3499
www.sgs.com/ehsusa

SGS Job # 7100

Selected VOCs TO15 BTEXN → APH

Initial Assessment

Label Verification

Page 1 of 5



PROJECT:

JOB # JD74628

A1286

FC 877

NOTES:JD74628R: Chain of Custody
Page 2 of 5

SGS Sample Receipt Summary

Job Number: JD74628

Client: FULCRUM

Project: AIR SAMPLING, WA

Date / Time Received: 10/12/2023 10:20:00 AM

Delivery Method: FED EX

Airbill #'s: 77317 1323 1226

Cooler Temps (Raw Measured) °C:

Cooler Temps (Corrected) °C:

Cooler Security

Y or N

Y or N

- | | | | | | |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | ☒ | ☐ | 3. COC Present: | ☒ | ☐ |
| 2. Custody Seals Intact: | ☒ | ☐ | 4. Smpl Dates/Time OK | ☒ | ☐ |

Cooler Temperature

Y or N

- | | | |
|------------------------------|--------------------------|--------------------------|
| 1. Temp criteria achieved: | ☐ | ☐ |
| 2. Cooler temp verification: | N/A | |
| 3. Cooler media: | N/A | |
| 4. No. Coolers: | N/A | |

Quality Control Preservation

Y or N N/A

- | | | | |
|---------------------------------|-------------------------------------|--------------------------|-------------------------------------|
| 1. Trip Blank present / cooler: | ☐ | ☐ | ☒ |
| 2. Trip Blank listed on COC: | ☐ | ☐ | ☒ |
| 3. Samples preserved properly: | ☒ | ☐ | |
| 4. VOCs headspace free: | ☐ | ☐ | ☐ |

Sample Integrity - Documentation

Y or N

- | | | |
|--|-------------------------------------|--------------------------|
| 1. Sample labels present on bottles: | ☒ | ☐ |
| 2. Container labeling complete: | ☒ | ☐ |
| 3. Sample container label / COC agree: | ☒ | ☐ |

Sample Integrity - Condition

Y or N

- | | | |
|----------------------------------|-------------------------------------|--------------------------|
| 1. Sample recvd within HT: | ☒ | ☐ |
| 2. All containers accounted for: | ☒ | ☐ |
| 3. Condition of sample: | Intact | |

Sample Integrity - Instructions

Y or N N/A

- | | | | |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Analysis requested is clear: | ☒ | ☐ | |
| 2. Bottles received for unspecified tests | ☐ | ☒ | |
| 3. Sufficient volume recvd for analysis: | ☒ | ☐ | |
| 4. Compositing instructions clear: | ☐ | ☐ | ☒ |
| 5. Filtering instructions clear: | ☐ | ☐ | ☒ |

Test Strip Lot #s: pH 1-12: 231619 pH 12+: 203117A Other: (Specify)

- Comments
- 1 Serial number on canister, 16625, does not match COC, 16609. Please verify.
 - 2 Serial number on canister, 16467, does not match COC, 14380. Please verify.
 - 3 Serial number on canister, 16470, does not match COC, 14342. Please verify.

JD74628R: Chain of Custody

Page 3 of 5

Responded to by: Jadon Schiller

Response Date: 10/17/23

Use canister ID as received.

JD74628R: Chain of Custody
Page 4 of 5

Job Change Order: JD74628

Requested Date:	10/31/2023	Received Date:	10/12/2023
Account Name:	Fulcrum	Due Date:	10/31/2023
Project Description:	Air sampling, WA	Deliverable:	COMMBN
C/O Initiated By:	ANGELA_LA	PM:	AL
		TAT (Days):	14

=====

Sample #: JD74628-1-3 Dept:

Client ID: TAT: 14

Change: Please relog and add YMAAPH.

Above Changes Per: Client Date/Time: 10/31/2023

To Client: This Change Order is confirmation of the revisions, previously discussed with the Client Service Representative.

Page 1 of 1



Fremont
Analytical
An Alliance Technical Group Company

3600 Fremont Ave. N.

Seattle, WA 98103

T: (206) 352-3790

F: (206) 352-7178

info@fremontanalytical.com

Fulcrum Environmental

Scott Groat

207 W Boone Ave.

Spokane, WA 99201

RE: Four Star

Work Order Number: 2401400

January 29, 2024

Attention Scott Groat:

Fremont Analytical, Inc. received 3 sample(s) on 1/23/2024 for the analyses presented in the following report.

Petroleum Fractionation by EPA Method TO-15/MA APH

Volatile Organic Compounds by EPA Method TO-15

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

DoD-ELAP Accreditation #79636 by PJLA, ISO/IEC 17025:2017 and QSM 5.3 for Environmental Testing

ORELAP Certification: WA 100009 (NELAP Recognized) for Environmental Testing

Washington State Department of Ecology Accredited for Environmental Testing, Lab ID C910

Original

www.fremontanalytical.com

CLIENT: Fulcrum Environmental
Project: Four Star
Work Order: 2401400

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2401400-001	Interior-West	01/19/2024 9:22 AM	01/23/2024 10:58 AM
2401400-002	Exterior-North	01/19/2024 10:02 AM	01/23/2024 10:58 AM
2401400-003	Interior-East	01/19/2024 9:24 AM	01/23/2024 10:58 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: Fulcrum Environmental

Project: Four Star

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Air samples are reported in ppbv and ug/m3.

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

III. ANALYSES AND EXCEPTIONS:

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

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

Qualifiers:

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

Acronyms:

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



Client: Fulcrum Environmental

WorkOrder: 2401400

Project: Four Star

Client Sample ID: Interior-West

Date Sampled: 1/19/2024

Lab ID: 2401400-001A

Date Received: 1/23/2024

Sample Type: Summa Canister

Analyte	Concentration	Reporting Limit	Qual	Method	Date/Analyst
---------	---------------	-----------------	------	--------	--------------

Petroleum Fractionation by EPA Method TO-15/MA APH

	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
Aliphatic Hydrocarbon (EC5-8)	11.0	42.0	7.50	28.5	EPA-TO-15	01/24/2024	LB
Aliphatic Hydrocarbon (EC9-12)	12.8	75.3	5.00	29.4	EPA-TO-15	01/24/2024	LB
Aromatic Hydrocarbon (EC9-10)	1.47	7.37	1.25	6.29	EPA-TO-15	01/24/2024	LB
Surr: 4-Bromofluorobenzene	105 %Rec	--	70-130	--	EPA-TO-15	01/24/2024	LB

Volatile Organic Compounds by EPA Method TO-15

	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
Benzene	0.179	0.572	0.0100	0.0319	EPA-TO-15	01/24/2024	LB
Ethylbenzene	0.484	2.10	0.150	0.651	EPA-TO-15	01/24/2024	LB
m,p-Xylene	2.35	10.2	0.300	1.30	EPA-TO-15	01/24/2024	LB
Naphthalene	<0.0140	<0.0734	0.0140	0.0734	EPA-TO-15	01/24/2024	LB
o-Xylene	1.01	4.39	0.100	0.434	EPA-TO-15	01/24/2024	LB
Toluene	0.394	1.48	0.200	0.754	EPA-TO-15	01/24/2024	LB
Surr: 4-Bromofluorobenzene	104 %Rec	--	70-130	--	EPA-TO-15	01/24/2024	LB



Client: Fulcrum Environmental

WorkOrder: 2401400

Project: Four Star

Client Sample ID: Exterior-North

Date Sampled: 1/19/2024

Lab ID: 2401400-002A

Date Received: 1/23/2024

Sample Type: Summa Canister

Analyte	Concentration	Reporting Limit	Qual	Method	Date/Analyst
---------	---------------	-----------------	------	--------	--------------

Petroleum Fractionation by EPA Method TO-15/MA APH

	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
Aliphatic Hydrocarbon (EC5-8)	<7.50	<28.5	7.50	28.5	EPA-TO-15	01/24/2024	LB
Aliphatic Hydrocarbon (EC9-12)	<5.00	<29.4	5.00	29.4	EPA-TO-15	01/24/2024	LB
Aromatic Hydrocarbon (EC9-10)	<1.25	<6.29	1.25	6.29	EPA-TO-15	01/24/2024	LB
Surr: 4-Bromofluorobenzene	92.1 %Rec	--	70-130	--	EPA-TO-15	01/24/2024	LB

Volatile Organic Compounds by EPA Method TO-15

	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
Benzene	0.113	0.360	0.0100	0.0319	EPA-TO-15	01/24/2024	LB
Ethylbenzene	<0.150	<0.651	0.150	0.651	EPA-TO-15	01/24/2024	LB
m,p-Xylene	<0.300	<1.30	0.300	1.30	EPA-TO-15	01/24/2024	LB
Naphthalene	<0.0140	<0.0734	0.0140	0.0734	EPA-TO-15	01/24/2024	LB
o-Xylene	<0.100	<0.434	0.100	0.434	EPA-TO-15	01/24/2024	LB
Toluene	<0.200	<0.754	0.200	0.754	EPA-TO-15	01/24/2024	LB
Surr: 4-Bromofluorobenzene	92.6 %Rec	--	70-130	--	EPA-TO-15	01/24/2024	LB



Client: Fulcrum Environmental

WorkOrder: 2401400

Project: Four Star

Client Sample ID: Interior-East

Date Sampled: 1/19/2024

Lab ID: 2401400-003A

Date Received: 1/23/2024

Sample Type: Summa Canister

Analyte	Concentration	Reporting Limit	Qual	Method	Date/Analyst
---------	---------------	-----------------	------	--------	--------------

Petroleum Fractionation by EPA Method TO-15/MA APH

	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
Aliphatic Hydrocarbon (EC5-8)	12.4	47.2	7.50	28.5	EPA-TO-15	01/24/2024	LB
Aliphatic Hydrocarbon (EC9-12)	11.8	69.7	5.00	29.4	EPA-TO-15	01/24/2024	LB
Aromatic Hydrocarbon (EC9-10)	<1.25	<6.29	1.25	6.29	EPA-TO-15	01/24/2024	LB
Surr: 4-Bromofluorobenzene	102 %Rec	--	70-130	--	EPA-TO-15	01/24/2024	LB

Volatile Organic Compounds by EPA Method TO-15

	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
Benzene	0.217	0.693	0.0100	0.0319	EPA-TO-15	01/24/2024	LB
Ethylbenzene	0.553	2.40	0.150	0.651	EPA-TO-15	01/24/2024	LB
m,p-Xylene	2.42	10.5	0.300	1.30	EPA-TO-15	01/24/2024	LB
Naphthalene	0.0200	0.105	0.0140	0.0734	EPA-TO-15	01/24/2024	LB
o-Xylene	1.09	4.74	0.100	0.434	EPA-TO-15	01/24/2024	LB
Toluene	0.456	1.72	0.200	0.754	EPA-TO-15	01/24/2024	LB
Surr: 4-Bromofluorobenzene	102 %Rec	--	70-130	--	EPA-TO-15	01/24/2024	LB

Work Order: 2401400
CLIENT: Fulcrum Environmental
Project: Four Star

QC SUMMARY REPORT

Petroleum Fractionation by EPA Method TO-15/MA APH

Sample ID: LCS-R89224	SampType: LCS	Units: ppbv				Prep Date: 1/23/2024			RunNo: 89224		
Client ID: LCSS	Batch ID: R89224	Analysis Date: 1/23/2024						SeqNo: 1863609			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (EC5-8)	12.9	7.50	12.00	0	108	70	130				
Aliphatic Hydrocarbon (EC9-12)	13.0	5.00	12.00	0	108	70	130				
Aromatic Hydrocarbon (EC9-10)	9.82	1.25	10.00	0	98.2	70	130				
Surr: 4-Bromofluorobenzene	4.00		4.000		99.9	70	130				

Sample ID: LCSD-R89224	SampType: LCSD	Units: ppbv				Prep Date: 1/23/2024			RunNo: 89224		
Client ID: LCSS02	Batch ID: R89224					Analysis Date: 1/23/2024			SeqNo: 1863610		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (EC5-8)	13.1	7.50	12.00	0	109	70	130	12.93	0.957	25	
Aliphatic Hydrocarbon (EC9-12)	13.1	5.00	12.00	0	109	70	130	12.99	0.609	25	
Aromatic Hydrocarbon (EC9-10)	9.85	1.25	10.00	0	98.5	70	130	9.818	0.355	25	
Surr: 4-Bromofluorobenzene	4.01		4.000		100	70	130		0		

Sample ID: MB-R89224		SampType: MBLK			Units: ppbv		Prep Date: 1/24/2024			RunNo: 89224		
Client ID: MBLKS		Batch ID: R89224			Analysis Date: 1/24/2024			SeqNo: 1863611				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Aliphatic Hydrocarbon (EC5-8)	ND	7.50										
Aliphatic Hydrocarbon (EC9-12)	ND	5.00										
Aromatic Hydrocarbon (EC9-10)	ND	1.25										
Surr: 4-Bromofluorobenzene	3.56		4.000		89.1	70	130					

Work Order: 2401400
CLIENT: Fulcrum Environmental
Project: Four Star

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID: LCS-R89228		SampType: LCS		Units: ppbv		Prep Date: 1/23/2024			RunNo: 89228		
Client ID: LCSS		Batch ID: R89228					Analysis Date: 1/23/2024			SeqNo: 1863719	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1.91	0.0100	2.000	0	95.3	70	130				
Toluene	1.79	0.200	2.000	0	89.4	70	130				
Ethylbenzene	1.90	0.150	2.000	0	94.9	70	130				
m,p-Xylene	3.71	0.300	4.000	0	92.6	70	130				
o-Xylene	1.97	0.100	2.000	0	98.7	70	130				
Naphthalene	1.77	0.0140	2.000	0	88.3	70	130				
Surr: 4-Bromofluorobenzene	4.06		4.000		102	70	130				

Sample ID: LCSD-R89228		SampType: LCSD		Units: ppbv		Prep Date: 1/23/2024			RunNo: 89228		
Client ID: LCSS02		Batch ID: R89228		Analysis Date: 1/23/2024					SeqNo: 1863704		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1.90	0.0100	2.000	0	94.9	70	130	1.906	0.465	25	
Toluene	1.86	0.200	2.000	0	93.1	70	130	1.789	3.96	25	
Ethylbenzene	1.89	0.150	2.000	0	94.5	70	130	1.898	0.370	25	
m,p-Xylene	3.66	0.300	4.000	0	91.4	70	130	3.705	1.33	25	
o-Xylene	1.97	0.100	2.000	0	98.7	70	130	1.975	0.0324	25	
Naphthalene	1.77	0.0140	2.000	0	88.6	70	130	1.765	0.387	25	
Surr: 4-Bromofluorobenzene	4.00		4.000		100	70	130		0		

Sample ID: MB-R89228		SampType: MBLK		Units: ppbv		Prep Date: 1/23/2024			RunNo: 89228		
Client ID: MBLKS		Batch ID: R89228		Analysis Date: 1/23/2024					SeqNo: 1863705		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0100									
Toluene	ND	0.200									
Ethylbenzene	ND	0.150									
m,p-Xylene	ND	0.300									
o-Xylene	ND	0.100									
Naphthalene	ND	0.0140									
Surr: 4-Bromofluorobenzene	3.46		4.000		86.4	70	130				

Work Order: 2401400
CLIENT: Fulcrum Environmental
Project: Four Star

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method TO-15

Sample ID: MB-R89228	SampType: MBLK	Units: ppbv	Prep Date: 1/23/2024	RunNo: 89228							
Client ID: MBLKS	Batch ID: R89228		Analysis Date: 1/23/2024	SeqNo: 1863705							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample Log-In Check List

Client Name: FES

Work Order Number: 2401400

Logged by: Clare Griggs

Date Received: 1/23/2024 10:58:00 AM

Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
2. How was the sample delivered? UPS

Log In

3. Custody Seals present on shipping container/cooler?
(Refer to comments for Custody Seals not intact) Yes ☐ No ☐ Not Present ☒
4. Was an attempt made to cool the samples? Yes ☐ No ☐ NA ☒
5. Were all items received at a temperature of >2°C to 6°C * Yes ☐ No ☐ NA ☒
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. Is there headspace in the VOA vials? Yes ☐ No ☐ NA ☒
11. Did all samples containers arrive in good condition(unbroken)? Yes ☒ No ☐
12. Does paperwork match bottle labels? Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all hold times (except field parameters, pH e.g.) able to be met? Yes ☒ No ☐

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:		Date:	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

17. Additional remarks:

Item Information

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



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

Air Chain of Custody Record & Laboratory Services Agreement

Date: 01-19-2024 Page: 1 of 1

Laboratory Project No (Internal): 2401400

Client: FULCRUM

Address: 207 West Boone Avenue

City, State, Zip: Spokane, Washington 99201

Telephone: (509) 459-9220

Fax: Email (PM): Sgroat@eFulcrum.net

Project Name: Four Star

Project No: 223516.01

Location: Pullman, WA

Collected by: Nick Hays

Reports to (PM): Scott Groat

Disposal: Samples will be disposed of one week after report is submitted unless otherwise requested. ☐ Retain volume (specify above) ☐ Return to client

Sample Name	Canister / Flow Bag Serial #	Sample Type (Matrix) *	Container Type **	Expected Fill Time / Flow Rate	Sample Start Date & Time	Field Initial Sample Pressure (" Hg)	Sample End Date & Time	Field Final Sample Pressure (" Hg)	Analysis								Comments																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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1 Interior - West	17648	1A	6L	24HR	1/18/24	28.4Hg	1/19/24	4 Hg	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

* Matrix Codes: AA = Ambient Air OA = Outdoor Air IA = Indoor Air S = Subslab / Soil Gas SVE = SVE RNG = Biogas / Landfill / Digester

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

*** Select one ☒ BTEXN & APH ☐ PCE & Breakdown ☐ Other, specify in comments

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

Requisitioning (Signature) Nick Hays Date/Time 01-22-24/10:00 AM Received (Signature) [Signature] Date/Time 1/23/24 1058

Requisitioning (Signature) Nick Hays Date/Time 01-22-24/10:00 AM Received (Signature) [Signature] Date/Time 1/23/24 1058

Requisitioning (Signature) Nick Hays Date/Time 01-22-24/10:00 AM Received (Signature) [Signature] Date/Time 1/23/24 1058

Requisitioning (Signature) Nick Hays Date/Time 01-22-24/10:00 AM Received (Signature) [Signature] Date/Time 1/23/24 1058

Requisitioning (Signature) Nick Hays Date/Time 01-22-24/10:00 AM Received (Signature) [Signature] Date/Time 1/23/24 1058

Requisitioning (Signature) Nick Hays Date/Time 01-22-24/10:00 AM Received (Signature) [Signature] Date/Time 1/23/24 1058



Fremont
Analytical
An Alliance Technical Group Company

3600 Fremont Ave. N.

Seattle, WA 98103

T: (206) 352-3790

F: (206) 352-7178

info@fremontanalytical.com

Fulcrum Environmental

Ethan Ducken
207 W Boone Ave.
Spokane, WA 99201

RE: Four Star

Work Order Number: 2401562

February 07, 2024

Attention Ethan Ducken:

Fremont Analytical, Inc. received 1 sample(s) on 1/31/2024 for the analyses presented in the following report.

Petroleum Fractionation by EPA Method TO-15/MA APH

Volatile Organic Compounds by EPA Method TO-15

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

DoD-ELAP Accreditation #79636 by PJLA, ISO/IEC 17025:2017 and QSM 5.3 for Environmental Testing
ORELAP Certification: WA 100009 (NELAP Recognized) for Environmental Testing
Washington State Department of Ecology Accredited for Environmental Testing, Lab ID C910

Original

www.fremontanalytical.com

CLIENT: Fulcrum Environmental
Project: Four Star
Work Order: 2401562

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2401562-001	FS-013024-01	01/30/2024 9:59 AM	01/31/2024 10:00 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: Fulcrum Environmental**Project:** Four Star

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Air samples are reported in ppbv and ug/m3.

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

III. ANALYSES AND EXCEPTIONS:

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

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

Qualifiers:

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

Acronyms:

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



Client: Fulcrum Environmental

WorkOrder: 2401562

Project: Four Star

Client Sample ID: FS-013024-01

Date Sampled: 1/30/2024

Lab ID: 2401562-001A

Date Received: 1/31/2024

Sample Type: Summa Canister

Analyte	Concentration	Reporting Limit	Qual	Method	Date/Analyst
---------	---------------	-----------------	------	--------	--------------

Petroleum Fractionation by EPA Method TO-15/MA APH

	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
Aliphatic Hydrocarbon (EC5-8)	241	918	30.0	114	EPA-TO-15	02/02/2024	LB
Aliphatic Hydrocarbon (EC9-12)	79.1	466	20.0	118	EPA-TO-15	02/02/2024	LB
Aromatic Hydrocarbon (EC9-10)	13.0	65.4	5.00	25.2	EPA-TO-15	02/02/2024	LB
Surr: 4-Bromofluorobenzene	111 %Rec	--	70-130	--	EPA-TO-15	02/02/2024	LB

Volatile Organic Compounds by EPA Method TO-15

	(ppbv)	(ug/m ³)	(ppbv)	(ug/m ³)			
Benzene	1.31	4.17	0.0400	0.128	EPA-TO-15	02/03/2024	SH
Ethylbenzene	0.980	4.26	0.600	2.61	EPA-TO-15	02/03/2024	SH
m,p-Xylene	3.31	14.4	1.20	5.21	EPA-TO-15	02/03/2024	SH
Naphthalene	0.306	1.60	0.0560	0.294	EPA-TO-15	02/03/2024	SH
o-Xylene	1.21	5.24	0.400	1.74	EPA-TO-15	02/03/2024	SH
Toluene	11.5	43.3	0.800	3.01	EPA-TO-15	02/03/2024	SH
Surr: 4-Bromofluorobenzene	95.3 %Rec	--	70-130	--	EPA-TO-15	02/03/2024	SH

Work Order: 2401562
CLIENT: Fulcrum Environmental
Project: Four Star

QC SUMMARY REPORT

Petroleum Fractionation by EPA Method TO-15/MA APH

Sample ID: LCS-R89379		SampType: LCS			Units: ppbv		Prep Date: 2/1/2024			RunNo: 89379		
Client ID: LCSW		Batch ID: R89379			Analysis Date: 2/1/2024			SeqNo: 1866295				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Aliphatic Hydrocarbon (EC5-8)	14.0	7.50	12.00	0	117	70	130				
Aliphatic Hydrocarbon (EC9-12)	15.0	5.00	12.00	0	125	70	130				
Aromatic Hydrocarbon (EC9-10)	11.4	1.25	10.00	0	114	70	130				
Surr: 4-Bromofluorobenzene	4.11		4.000		103	70	130				

Sample ID: MB-R89379		SampType: MBLK			Units: ppbv		Prep Date: 2/1/2024			RunNo: 89379		
Client ID: MBLKW		Batch ID: R89379			Analysis Date: 2/1/2024					SeqNo: 1866296		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Aliphatic Hydrocarbon (EC5-8)	ND	7.50									
Aliphatic Hydrocarbon (EC9-12)	ND	5.00									
Aromatic Hydrocarbon (EC9-10)	ND	1.25									
Surr: 4-Bromofluorobenzene	3.63		4.000		90.8	70	130				

Sample ID: 2401562-001AREP		SampType: REP			Units: ppbv		Prep Date: 2/2/2024			RunNo: 89379		
Client ID: FS-013024-01		Batch ID: R89379			Analysis Date: 2/2/2024			SeqNo: 1866298				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Aliphatic Hydrocarbon (EC5-8)	241	30.0						241.2	0.206	25	
Aliphatic Hydrocarbon (EC9-12)	75.1	20.0						79.06	5.17	25	
Aromatic Hydrocarbon (EC9-10)	11.9	5.00						13.00	8.61	25	
Surr: 4-Bromofluorobenzene	17.4		16.00		109	70	130		0		

Work Order: 2401562
CLIENT: Fulcrum Environmental
Project: Four Star

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID: LCS-R89436		SampType: LCS			Units: ppbv		Prep Date: 2/3/2024			RunNo: 89436		
Client ID: LCSW		Batch ID: R89436			Analysis Date: 2/3/2024			SeqNo: 1867289				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Benzene	1.98	0.0100	2.000	0	99.0	70	130				
Toluene	1.92	0.200	2.000	0	95.9	70	130				
Ethylbenzene	1.84	0.150	2.000	0	92.0	70	130				
m,p-Xylene	3.87	0.300	4.000	0	96.7	70	130				
o-Xylene	1.87	0.100	2.000	0	93.7	70	130				
Naphthalene	2.37	0.0140	2.000	0	119	70	130				
Surr: 4-Bromofluorobenzene	4.06		4.000		102	70	130				

Sample ID: MB-R89436		SampType: MBLK			Units: ppbv		Prep Date: 2/3/2024			RunNo: 89436		
Client ID: MBLKW		Batch ID: R89436						Analysis Date: 2/3/2024			SeqNo: 1867290	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Benzene	ND	0.0100									
Toluene	ND	0.200									
Ethylbenzene	ND	0.150									
m,p-Xylene	ND	0.300									
o-Xylene	ND	0.100									
Naphthalene	ND	0.0140									
Surr: 4-Bromofluorobenzene	3.65		4.000		91.3	70	130				

Sample ID: 2401553-001AREP		SampType: REP		Units: ppbv		Prep Date: 2/3/2024			RunNo: 89436		
Client ID: BATCH		Batch ID: R89436					Analysis Date: 2/3/2024			SeqNo: 1867293	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	0.212	0.100						0	200	25	H
Toluene	8.35	2.00						6.046	32.0	25	H
Ethylbenzene	ND	1.50						0		25	H
m,p-Xylene	ND	3.00						4.611	93.4	25	H
o-Xylene	ND	1.00						0		25	H
Naphthalene	0.381	0.140						0	200	25	H

Sample Log-In Check List

Client Name: FES

Work Order Number: 2401562

Logged by: Clare Griggs

Date Received: 1/31/2024 10:00:00 AM

Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
2. How was the sample delivered? FedEx

Log In

3. Custody Seals present on shipping container/cooler?
(Refer to comments for Custody Seals not intact) Yes ☐ No ☐ Not Present ☒
4. Was an attempt made to cool the samples? Yes ☐ No ☐ NA ☒
5. Were all items received at a temperature of >2°C to 6°C * Yes ☐ No ☐ NA ☒
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. Is there headspace in the VOA vials? Yes ☐ No ☐ NA ☒
11. Did all samples containers arrive in good condition(unbroken)? Yes ☒ No ☐
12. Does paperwork match bottle labels? Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all hold times (except field parameters, pH e.g.) able to be met? Yes ☒ No ☐

Special Handling (if applicable)

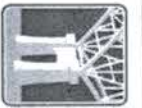
16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:		Date:	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

17. Additional remarks:

Item Information

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



Fremont
ANALYTICAL
An Airborne Technical Group Company

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

Air Chain of Custody Record & Laboratory Services Agreement

Date: 1/30/24

Page: 1 of 1

Project Name: Fair Sts

Project No: 223516.01

Location: Pullman WA

Collected by: Ethan Ducker

Reports to (PM):

Email (PM): ethan.ducker@efci.com.net

← email results to

Special Remarks: Laboratory Project No (Internal): 2401562

Client: FULCRUM

Address: 207 W Bone Ave

City, State, Zip: Spokane WA 99201

Telephone: 509-459-9220

Fax:

Sample Name	Canister / Flow Reg Serial #	Sample Type (Matrix) *	Container Type **	Expected Fill Time / Flow Rate	Sample Start Date & Time	Field Initial Sample Pressure (" Hg)	Sample End Date & Time	Field Final Sample Pressure (" Hg)	Analysis									Comments	
									Full list VOCs TO15	Select VOCs TO15 ***	APH TO15	Siloxanes TO15	Sulfur TO15	Major Gases 3C	Helium 3C Mod	VOCs 8260	GX/BTEX 8260		
1	17648 FR8-34		6L	24HR															
2	13970 FR8-39		6L	24HR															
3	37554 FR8-39		6L	24HR															
4	11411 FC-11	S	1.4L	150 cc/min	1/30/24 0959	-29	1/30/24 1009	-8		X									
5	FS-015024 - 01																		

* Matrix Codes: AA = Ambient Air OA = Outdoor Air IA = Indoor Air S = Subslab / Soil Gas SVE = SVE RNG = Biogas / Landfill / Digester

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

*** Select one: ☒ BTEXN & APH ☐ PCE & Breakdown ☐ Other, specify in comments

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

Relinquished (Signature)

Print Name

Date/Time

Received (Signature)

Print Name

Date/Time

Relinquished (Signature)

Print Name

Date/Time

Received (Signature)

Print Name

Date/Time



APPENDIX C

Site Photographs



Photograph #1: 07/18/2023:

View of the Pullman Marketing building located adjacent to the Four Star Fuel Supply January 2022 fuel spill site.



Photograph #2: 07/18/2023:

View of initial ambient air sample collected from the east corner of the Pullman Marketing building.



Photograph #3: 07/18/2023:

View of initial ambient air sample collected from the north central area of the Pullman Marketing building.



Photograph #4: 10/11/2023:

View of initial sub-slab soil vapor sample collected from the northwest area of the Pullman Marketing building.



Photograph #5: 10/11/2023:

View of initial sub-slab soil vapor sample collected from the central area of the Pullman Marketing building.



Photograph #6: 10/11/2023:

View of sealed sample port following initial sub-slab soil vapor sampling from the east area of the Pullman Marketing building.



Photograph #7: 01/18/2024:

View of interior passive ambient air sample collected from the south central portion of the Pullman Marketing building.



Photograph #8: 01/18/2024:

View of interior passive ambient air sample collected from the east portion of the Pullman Marketing building.



Photograph #9: 01/18/2024:

View of exterior passive air sample collected from the north exterior of the Pullman Marketing building.



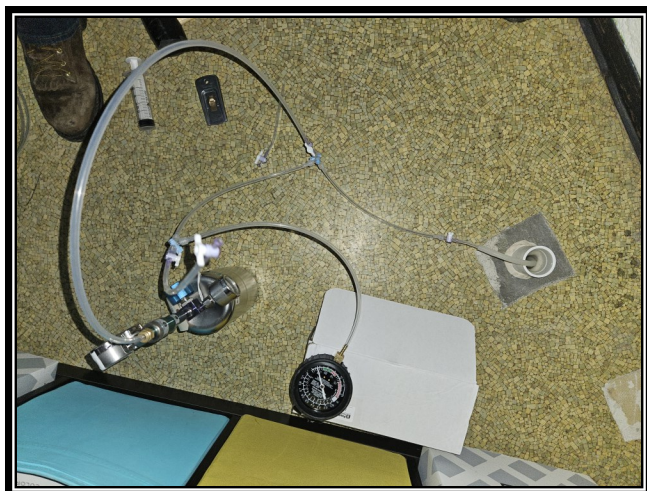
Photograph #10: 01/30/2024:

View of the sample port for the follow-up indoor sub-slab soil gas sample located in the east portion of the Pullman Marketing building.



Photograph #11: 01/30/2024:

View of the water dam seal test being conducted prior to sub-slab soil gas sampling.



Photograph #12: 01/30/2024:

View of the follow-up sub-slab soil gas sample collected from the east area of the Pullman Marketing building.