FULCRUM
environmental consulting

Whitten Oil
Groundwater Monitoring
September 2024
Sampling Report

Whitty's Chevron
370 West 5th Avenue
Colville, Washington 99114

Project Number: 244122.00

Date: October 23, 2024

Prepared for:

Whitten Oil
Attn: Jeff Whitten
1118 27th Avenue
Seattle, Washington 98122

Prepared by:

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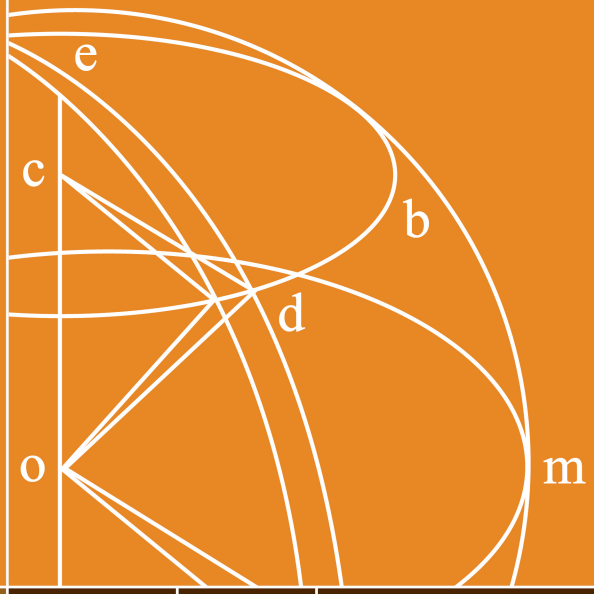

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The professionals who completed site services and prepared and reviewed this report include, but are not limited to:

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Scott Groat, LG
Regional Manager

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

On September 23, 2024, Fulcrum Environmental Consulting, Inc. (Fulcrum) conducted semi-annual groundwater monitoring for seven monitoring wells located at the Whitty's Chevron in Colville, Washington. The purpose of the monitoring was to evaluate petroleum hydrocarbon impacts to site groundwater associated with a historical gasoline release identified in September 1989.

Whitty's Chevron
370 West 5th Avenue, Colville, Washington

Site services were completed by Ethan Ducken, a Washington State recognized Geologist-In-Training (GIT), and Abby Whitmore, a Senior Environmental Technician, both with Fulcrum. Work was completed under the direction of Travis Trent, a Washington State Licensed Hydrogeologist, with Fulcrum. Relevant professional certifications are presented in Appendix A.

1.1 Scope of Services

Fulcrum has been retained by Whitten Oil (Whitten) since 2017 to complete semi-annual groundwater sampling services for onsite groundwater monitoring wells at Whitty's Chevron located at 370 West 5th Avenue in Colville, Washington. Each semi-annual sampling event consists of measurement of water depths in seven onsite groundwater monitoring wells followed by collection of water samples from each well. Samples are collected in accordance with industry standard of care and submitted under chain of custody to a Washington State accredited laboratory to be analyzed for benzene, toluene, ethylbenzene, xylene (BTEX), gasoline-range organics, diesel-range organics, and heavy oil-range organics. Results of the investigation and testing from September 23, 2024 are presented in this summary report.

1.2 Site Description

The site is located on the northeast corner of West Fifth Avenue (U.S. Highway 395) and North Lincoln Street in Colville, Washington. The subject facility functions as an active gasoline service station and car wash.

One refueling area containing one dispenser island was observed to be located south of the convenience store, while another gasoline/diesel refueling area with two dispenser islands was observed to be located north of the convenience store. A more recently constructed dispensing island is located southeast of the convenience store. Four operational underground storage tanks (USTs) were reported to be located west of the convenience store within the southern portion of the property: two 10,000-gallon diesel tanks, one 6,000-gallon premium gasoline tank, and one 10,000-gallon unleaded gasoline tank. A six-bay carwash station is located northwest of the convenience store.

The entire surface of the property was observed to be covered by building footprints, concrete, or asphalt. Historical reports and observations from Fulcrum's September 2020 groundwater monitoring well installation event identified that beneath the paved surface are three to eight feet (ft) of sandy fill material underlain by fine-grained alluvium down to 14.5 feet below ground surface (ft bgs).

1.3 Site Hydrogeology

The site sits approximately 1,586 ft above mean sea level (MSL). The inferred groundwater flow direction is to the northwest, generally following surface topography of the area, with a hydraulic gradient of 0.02. During Fulcrum's investigation, recorded site groundwater levels have ranged from 4.66 to 6.90 feet bgs.

1.4 Background

The following information is summarized in part from prior project reporting provided by the owner. Fulcrum has made no independent investigation to verify accuracy of provided historical site information. A copy of the site's historical documentation is provided in Appendix B.

The subject facility has been in operation as a service station or bulk plant since the 1950s. Whitten Oil began operation around 1973, and the carwash was constructed around 1988. In September 1989, Petroleum Equipment Sales, Inc. (PES) was reportedly retained to decommission and replace onsite USTs during the construction of a new tank basin. Sunrise Environmental Services (SES) was retained by PES to observe the removal of the USTs and provide recommendations for corrective action. PES reportedly removed a total of six USTs from the site with one UST abandoned in place due to its location beneath the onsite office building. Three of the USTs were reported to have been suspect for leakage. Approximately 1,200 cubic yards of petroleum-contaminated soil was removed along with the USTs.

Following removal of the USTs and associated contaminated soils, additional site investigation was conducted to evaluate the potential for residual soil and/or groundwater impact. In January 1990, Delta Environmental Consultants (Delta) supervised drilling activities performed by Budinger & Associates. Six soil borings were drilled in suspected areas of petroleum hydrocarbon contamination to investigate for potential petroleum hydrocarbon impact to site soils/groundwater. The depth of soil borings ranged from 10 to 14.5 ft bgs. Soil samples were collected at 5-foot intervals during the advancement of soil borings. Soil samples that exhibited a petroleum hydrocarbon odor were submitted to the Technology Laboratory, Inc. of Fort Collins, Colorado for benzene, toluene, ethylbenzene, xylenes (BTEX) and total hydrocarbon analyses. Laboratory analysis identified petroleum hydrocarbons in only one of the collected samples (SB-5). Concentrations were reportedly below Washington State Department of Ecology's specified guidelines at the time.

All soil borings, with the exception of SB-5, were completed as groundwater monitoring wells, and groundwater samples were collected and submitted to the Technology Laboratory, Inc. of Fort Collins, Colorado, for BTEX and total hydrocarbon analyses. Laboratory analyses for BTEX and total hydrocarbons indicated that the groundwater had been impacted at the subject site. The highest hydrocarbon concentrations were detected in groundwater samples from monitoring wells MW-2 and MW-4, which were located in close proximity to the former UST basin. Detectable hydrocarbon concentrations were also found in downgradient monitoring well MW-6. It was Delta's professional opinion that site conditions posed little threat to humans or the environment due to tight soil conditions, thus preventing the contamination from migrating offsite. Therefore, no significant remedial action was recommended. Locations of the historical soil borings, monitoring wells, and approximate areas of excavation are presented as Figure 2. Historical soil boring and groundwater monitoring data is presented as Appendix B.

In December 2005, additional soil sampling was conducted by Northwest Environmental Solutions, Inc. to facilitate the change in ownership for the subject site. The investigation consisted of five soil borings drilled in areas proximal to regions of historical soil work or current UST presence. The depth of the soil borings ranged from 5 to 15 ft bgs. One soil sample was collected at the bottom of each soil boring. All five soil samples were submitted to Spectra Laboratories of Tacoma, Washington, for lead, methyl tert-butyl ether (MTBE), BTEX, and for concentrations of diesel-range hydrocarbons by Northwest Total Petroleum Hydrocarbons as diesel (NWTPH-Dx), as oil (NWTPH-Oil), and as gasoline (NWTPH-Gx). Laboratory analytical identified detectable concentrations of gasoline range petroleum hydrocarbons, ethyl benzene, toluene, xylene, and lead in soil boring 2-A and toluene and xylene were detected in soil borings 2-C and 2-D; all analytes were identified below MTCA Method A cleanup levels for soil. The 2005 historical soil boring results and locations are presented as Appendix C.

In 2017 Fulcrum was retained to conduct semi-annual groundwater sampling at the site. Monitoring wells MW-04 and MW-06 were identified to be in poor condition (poor surface seals and slow recharge). They were decommissioned and replaced by new wells under Fulcrum's oversight on September 30, 2020. Concurrent with the well replacement, Fulcrum directed the installation of two new monitoring wells to better characterize site conditions.

Monitoring well MW-02 was installed upgradient north of the gas station building where the former Leaking Underground Storage Tanks (LUSTs) were removed and monitoring well MW-07 was installed at the northwest corner of the property to act as a downgradient sentinel well. Fulcrum continues to conduct groundwater monitoring on a semi-annual basis.

In May of 2022, Ecology, observing the trend of increasing concentrations, requested additional investigation to be included in the September 2022 groundwater monitoring report. Fulcrum consulted with the project laboratory who indicated that current increasing concentrations were inconsistent with a 1980 era fuel loss and likely associated with a new release. Fulcrum spoke with the property owner about the increasing concentrations and laboratory findings. The property owner indicated that they were unaware of any spill, leak, or overfill events that would contribute to the change in conditions and proposed waiting until results of March 2023 sampling to determine a course of action.

The March 2023 sampling event showed a modest reduction in concentration and areal extent relative to the September 2022 testing event. Fulcrum discussed the results with the property owner who again confirmed that they had no indications of a leak or knowledge of any spill, overfill, or loss and recommended waiting for the results of the September 2023 event to determine a course of action. Results from the September 2023 event identified elevated petroleum concentrations, which were especially high within monitoring well MW-07.

During Fulcrum's March and September 2024 sampling events, the sentinel well MW-07 was identified to be unsecured and inundated with sediment making the well incapable of being sampled.

2.0 DISCUSSION OF PERTINENT REGULATIONS AND GUIDANCE

2.1 MTCA Regulations

In Washington State, MTCA Cleanup Regulations became effective in March of 1989, with amended MTCA Cleanup Regulations effective in February of 2001. The MTCA Cleanup Regulations set standards to ensure quality of cleanup and protection of human health and the environment. A major portion of the MTCA regulations are the development of numerical cleanup standards and requirements for cleanup actions. MTCA establishes three options for site-specific cleanup levels: Method A, B, and C. Method A defines cleanup levels for 25-30 of the most common hazardous substances found in soil and groundwater. Method B cleanup levels are established using applicable state and federal laws, risk assessment equations, and other requirements specified for each medium. Method C is similar to Method B, but cleanup levels are based on less stringent exposure assumptions, and the lifetime cancer risk is set at 1 in 100,000 rather than 1 in 1,000,000.

2.2 MTCA Cleanup Standards

Contaminants of concern at the subject site are gasoline-range hydrocarbons, diesel-range hydrocarbons, and BTEX, for which regulatory cleanup limits are provided under MTCA Method A. Based on the contaminants released at the subject site, the Method A cleanup levels are the most appropriate and conservative for determining site cleanup.

3.0 FIELD ACTIVITIES

3.1 Groundwater Sampling

On September 23, 2024, Fulcrum collected groundwater samples from six of the seven onsite monitoring wells. One field duplicate sample (WOS-092324-MW08) was collected for a total of seven groundwater samples. Prior to sample collection, Fulcrum measured the depth to groundwater (DTW) and depth to bottom (DTB) utilizing an electronic water level indicator accurate to ± 0.01 foot. Elevation corrections were made using wellhead elevation data from the subject site.

While onsite during the March 2024 groundwater sampling event, Fulcrum identified MW-07 to be compromised. The well was discovered to be unsecured with the pressure cap removed and the well was filled with sediment that was not able to be cleared for sampling.

The groundwater flow direction, as determined by this sampling and monitoring event, is northwest with a hydraulic gradient of 0.02 (1.60-ft change in groundwater elevation over 80 feet), which is consistent with site geomorphology. A groundwater elevation map is presented as Figure 4. Sampling activities were completed using a peristaltic pump, submersible pump, and field water quality instruments. In each location the monitoring well was purged for a minimum of three well volumes following the stabilization of field parameters. Field parameters were measured prior to, during, and following completion of the monitoring well pumping to ensure that they stabilized, indicating a representative sample of groundwater.

Samples were placed in a pre-cooled ice chest and shipped under standard chain-of-custody for analysis to Alliance Technical Group, a Washington State certified laboratory located in Seattle, Washington. A site diagram map is presented as Figure 3.

4.0 RESULTS

4.1 Laboratory Analytical Results

All groundwater samples were analyzed for concentrations of gasoline-range hydrocarbons by Northwest Total Petroleum Hydrocarbons as Gasoline (NWTPH-Gx), diesel-range and heavy oil-range hydrocarbons by Northwest Total Petroleum Hydrocarbons as diesel (NWTPH-Dx), and benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8260c.

Table 1 summarizes sample identification, locations, and analyte concentrations, which are reported in micrograms per liter (µg/L). Copies of current groundwater sampling laboratory analytical results are presented in Appendix D.

Table 1: Whitty's Chevron Groundwater Analytical Results for September 23, 2024

Location	Sample Number	Ground-water Elevation	Results (µg/L)						
			Diesel	Oil	Gasoline	Benzene	Toluene	Ethylbenzene	Xylene
CW-01	WOS-092324-CW01	93.75	143	ND	ND	1.17	ND	ND	ND
CW-02	WOS-092324-CW02	93.51	**1,920**	**4,430**	68.70	2.65	0.74	ND	ND
	WOS-092324-MW-08	93.51	**1,560**	**3,650**	78.0	2.56	0.79	ND	ND
MW-02	WOS-092324-MW02	93.75	**791**	ND	182.0	0.26	ND	ND	ND
MW-03	WOS-092324-MW03	92.98	349	ND	160.0	**9.51**	ND	ND	ND

Location	Sample Number	Ground-water Elevation	Results (µg/L)						
			Diesel	Oil	Gasoline	Benzene	Toluene	Ethylbenzene	Xylene
MW-04	WOS-092324-MW04	93.61	**1,350**	ND	**967.0**	**95.5**	ND	9.35	ND
MW-06	WOS-092324-MW06	91.01	341	ND	126.0	ND	ND	ND	ND
MW-07	-	-	-	-	-	-	-	-	-
Applicable Cleanup Levels (µg/L)			500		800	5	1,000	700	1,000

Bold – MTCA Method A exceedance ND – Non-detect µg/L – Micrograms per liter (µg/L), equivalent to parts per billion (ppb)

Analytical results document concentrations of select analytes in excess of regulatory thresholds in all monitoring wells with the exception of CW-01 and MW-06. Combined diesel-range and heavy oil-range hydrocarbons were identified at concentrations above regulatory thresholds in four of the six sampled wells. Gasoline-range hydrocarbons were identified at concentrations above the regulatory thresholds in MW-04, and benzene was identified at concentrations above the regulatory thresholds in MW-03 and MW-04. MW-07 was inundated with sediment and not able to be sampled.

Samples were shown as received by the laboratory at an acceptable temperature. Based on laboratory analytical reports, it is Fulcrum's opinion that field and laboratory data quality results confirm acceptable accuracy of analytical data for all samples.

5.0 DISCUSSION

Fulcrum's September 2024 semi-annual groundwater monitoring event for seven onsite groundwater monitoring wells documented presence of petroleum hydrocarbon concentrations in excess of regulatory thresholds in four of the six sampled monitoring wells. MW-07 was not sampled due to well conditions.

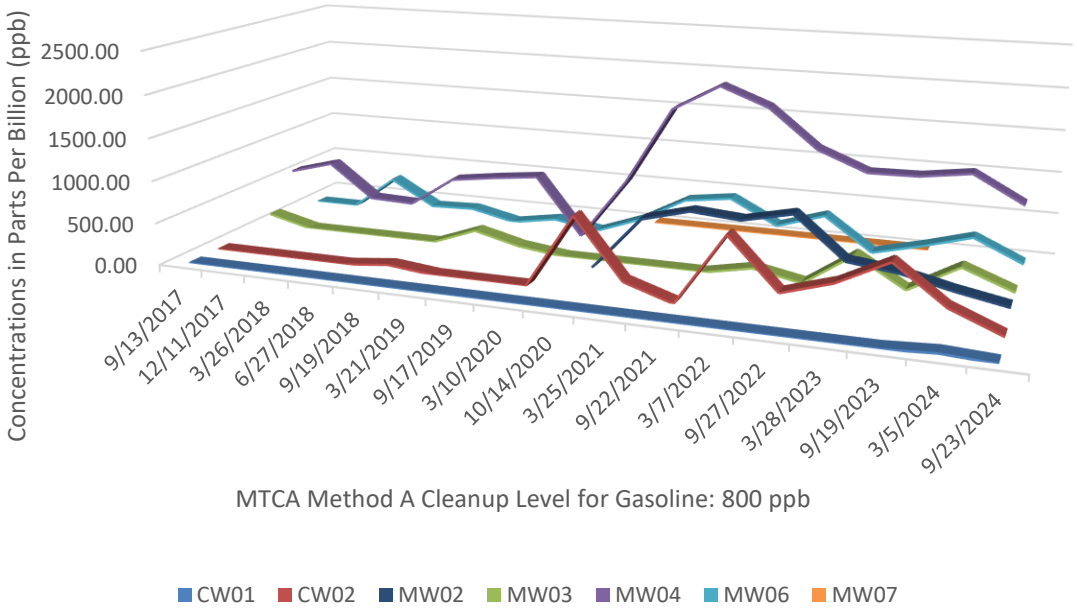
6.0 TRENDING EVALUATION

Review of monitoring data shows a trend of increased contaminant concentrations and areal extent that is inconsistent with ongoing degradation of a 1989 spill. Review of data generated during Fulcrum's monitoring from December of 2017 to current shows an increasing trend in both concentration and areal extent. Results of this monitoring event and trending data indicate that that a new release(s) of petroleum product has or is occurring.

6.1 Concentration Trending

Fulcrum reviewed concentration trending data for gasoline-range hydrocarbons, benzene, and diesel-range hydrocarbons. Fulcrum notes a variety of site conditions with potential to result in short term influence on contaminant concentrations including periodically dry wells, replacement of select monitoring wells, and placement of new monitoring wells. It is Fulcrum's opinion that review of contaminant concentrations over a longer period provides a strong understanding of site conditions.

Graph 1: September 2017-September 2024 Gasoline (NWTPH-Gx) Concentrations

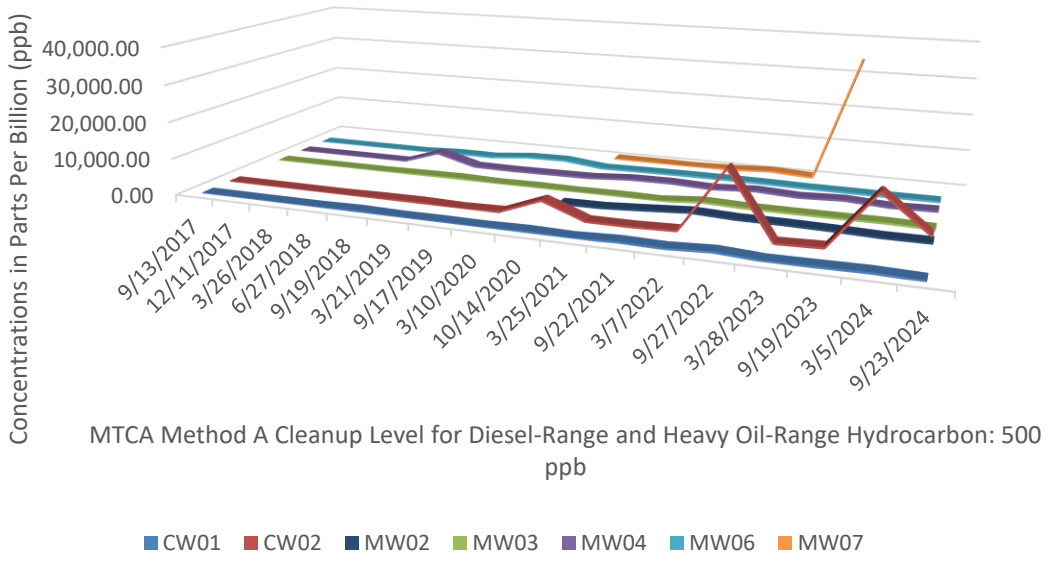


Graph 1 presents gasoline-range hydrocarbons concentrations in seven site monitoring wells over 17 consecutive monitoring events, noting that groundwater quality data could not be obtained from MW-07 due to the well becoming inundated with sediment in March 2024. Results show a relatively stable range of concentrations in MW-04 until the October 2020 sampling event where concentrations increased significantly. During the same sampling event elevated concentrations were also identified in CW-02, a location that was largely non-detect for gasoline. A second increase in concentrations is noted in MW-02 and MW-04 in September 2021, and a third notable increase in concentrations is observed in CW-02 in March of 2022. In March 2023 gasoline concentrations in CW-02 and MW-03 are shown to increase. In September 2023 gasoline concentrations in MW-06 are shown to increase, while all other wells are shown to decrease or remain unchanged in concentration. In March 2024, gasoline concentrations in CW-01 are detected where previously the monitoring well had been non-detect. MW-03, MW-04, and MW-06 are shown to increase while CW-02 is shown to decrease and MW-07 was not sampled due to damaged well conditions.

In September 2024, all monitoring wells display a decrease in gasoline concentrations compared to historical data. MW-07 was not sampled during the September 2024 sampling event due to damaged well conditions.

Graph 2 below presents combined diesel-range and heavy oil-range hydrocarbon concentrations in the seven monitored wells. All wells were reported as non-detect for combined diesel-range and heavy oil-range hydrocarbon concentrations until September 2018 where a notable increase is observed in MW-04. A second notable increase in concentrations is observed in CW-02 in March 2020 and again in September 2022. In September 2023 concentrations are shown to drastically increase in MW-07 from non-detect concentrations to 34,100 ppb while all other wells are shown to decrease. In March 2024 CW-02 was observed to have a notable increase in concentrations. CW-01 and MW-03 have slight increases in concentrations, while MW-02, MW-04, and MW-06 have lower concentrations compared to the September 2023 sampling event. MW-07 was not sampled during the March 2024 sampling event due to damaged well conditions. In September 2024, concentrations of diesel and oil-range concentrations increased in MW-02, MW-04, and MW-06. MW-07 was not sampled during the September 2024 sampling event due to damaged well conditions.

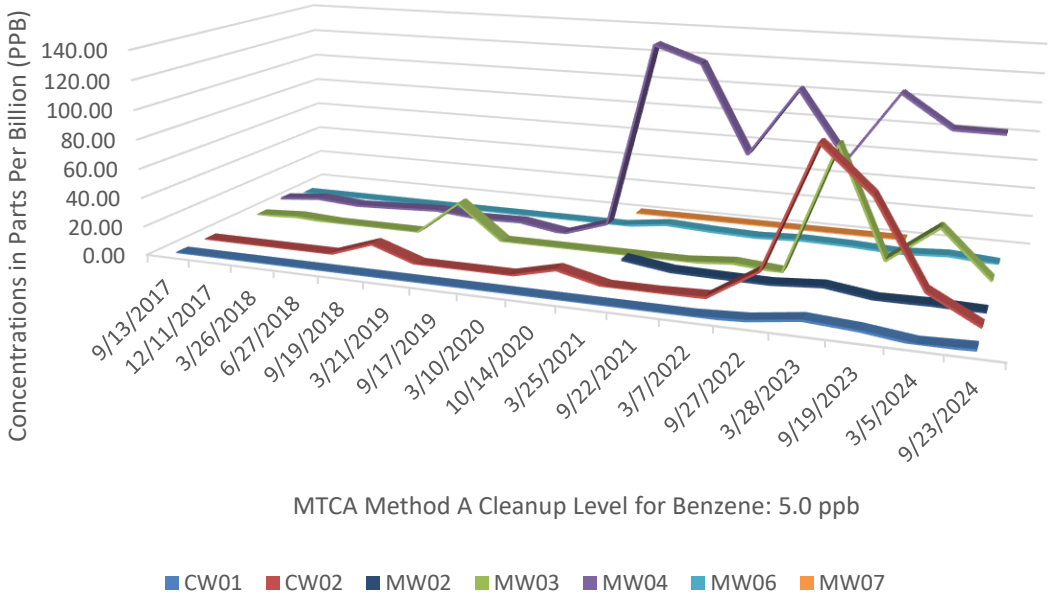
Graph 2: September 2017-September 2024 Combined Diesel and Oil-Range Concentrations



Graph 3 below presents identified benzene concentrations in the seven monitored wells. All wells were reported as non-detect or below cleanup for benzene concentrations with the exception of MW-04 through September 2018. Notable concentration increases occur in CW-02 in September 2018, October 2020, and again in September 2022. A notable increase in concentrations is noted in MW-03 in March 2019.

Notable increases in concentrations in MW-04 are observed in March 2021, September 2022, and September 2023. Notable increases in CW-02 and CW-03 are observed in March 2023. In March 2024 notable increases in concentrations are observed in MW-03, with slight increases in concentrations in MW-02 and MW-06 and decrease in concentrations or non-detect values in CW-01, CW-02, and MW-04. MW-07 was not sampled during the March 2024 sampling event due to damaged well conditions. In September 2024, MW-03, CW-02, and MW-06 displayed a decrease in benzene concentrations. CW-01, MW-02, and MW-06 showed no notable difference in benzene concentrations from past sampling events. MW-07 was not sampled during the September 2024 sampling event due to damaged well conditions.

Graph 3: September 2017- September 2024 Benzene Concentrations



6.2 Areal Extent Trending

Review of historical monitoring data shows an initial zone of contaminant concentration in the 1990 sampling data noting that the results are likely a generalization and that well placement was likely insufficient to fully characterize the exact extent of contaminant presence. In September of 2020, Fulcrum replaced two historical monitoring wells and added two additional monitoring wells to assist in better characterizing the groundwater contaminant plume at the site. Monitoring results from 2017 to 2024 show a trend of expanding contaminant presence for gasoline-range hydrocarbons, diesel-range hydrocarbons, and benzene. See Figures 5, 6, and 7 for a presentation of contaminant plume changes over time.

6.3 Laboratory Evaluation

Following the September 2022 sampling event, Fulcrum contacted Fremont Analytical of Seattle, Washington to request review of the data. Fremont Analytical is a Washington State accredited laboratory (79636). Fremont has been providing analytical services for the project since the initial monitoring event in December 2017. Fremont provided a general review of chromatographic data noting that results would only be generalized in nature and not a substitute for site specific forensic chemistry. Review of chromatographic data was limited to historical data collected from monitoring well CW-02.

Following review of the historical chromatographic data, Fremont's laboratory director reported that from 2018-2019 CW-02 reported low to non-detect concentrations of gasoline. From 2020-2021 an apparent increase in gasoline-range materials with a chemical footprint indicative of old, weathered gasoline was reported.

In September of 2022, an apparent new material with a unique chemical footprint likely related to diesel was identified. Fremont reported that the weathered nature of the new material indicates that a new release likely occurred after the March 2022 sampling event.

6.4 Trending Findings

Trending data shows decreases in concentrations during the September 2024 sampling event. Areal extent of contamination has remained unchanged and contaminant presence associated with MW-07 remains unknown due to the well becoming damaged in March 2024. The September 2023 sampling event observed significant increases for combined diesel and oil-range hydrocarbons in well MW-07. The September 2024 monitoring event found MW-07 inundated with sediment that prevented sampling. The September 2024 sampling event also observed a notable decrease in combined diesel and oil-range hydrocarbons within well CW-02, with the majority of the wells showing a stagnation or decrease of concentrations.

Results indicate that a new source(s) of contaminant has likely been introduced at the site some time prior to and after the September 2022 sampling event. Potential sources include but are not limited to spill/overfill events associated with the current USTs, leaks from the USTs or associated piping or dispensers, spills associated with normal fuel station operations, and/or run off from carwash activities.

7.0 FINDINGS AND RECOMMENDATIONS

Review of trending data indicates the likely introduction of a new source(s) of contaminant presence. Fulcrum recommends additional investigation to identify the source(s) of increasing contaminant presence. MW-07 was discovered to be inundated with sediment during the March 2024 sampling event and sampling of this wells has not been performed since September 2023. Fulcrum recommends replacement of the MW-07 well and placement of additional monitoring wells as necessary to characterize contaminant plume boundaries.

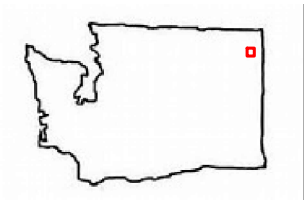
Following identification and correction of the source/cause of increasing trends, Fulcrum recommends re-evaluation of the site monitoring plan to ensure that it is positioned and designed to effectively characterize environmental conditions of site groundwater. Remedial action may be required to protect off-site resources.

Figure 1: General Site Location Map

Second Semi-annual Groundwater Sampling Event September 2024
Whitty's Chevron
370 West 5th Avenue
Colville, Washington

LEGEND

Map Location



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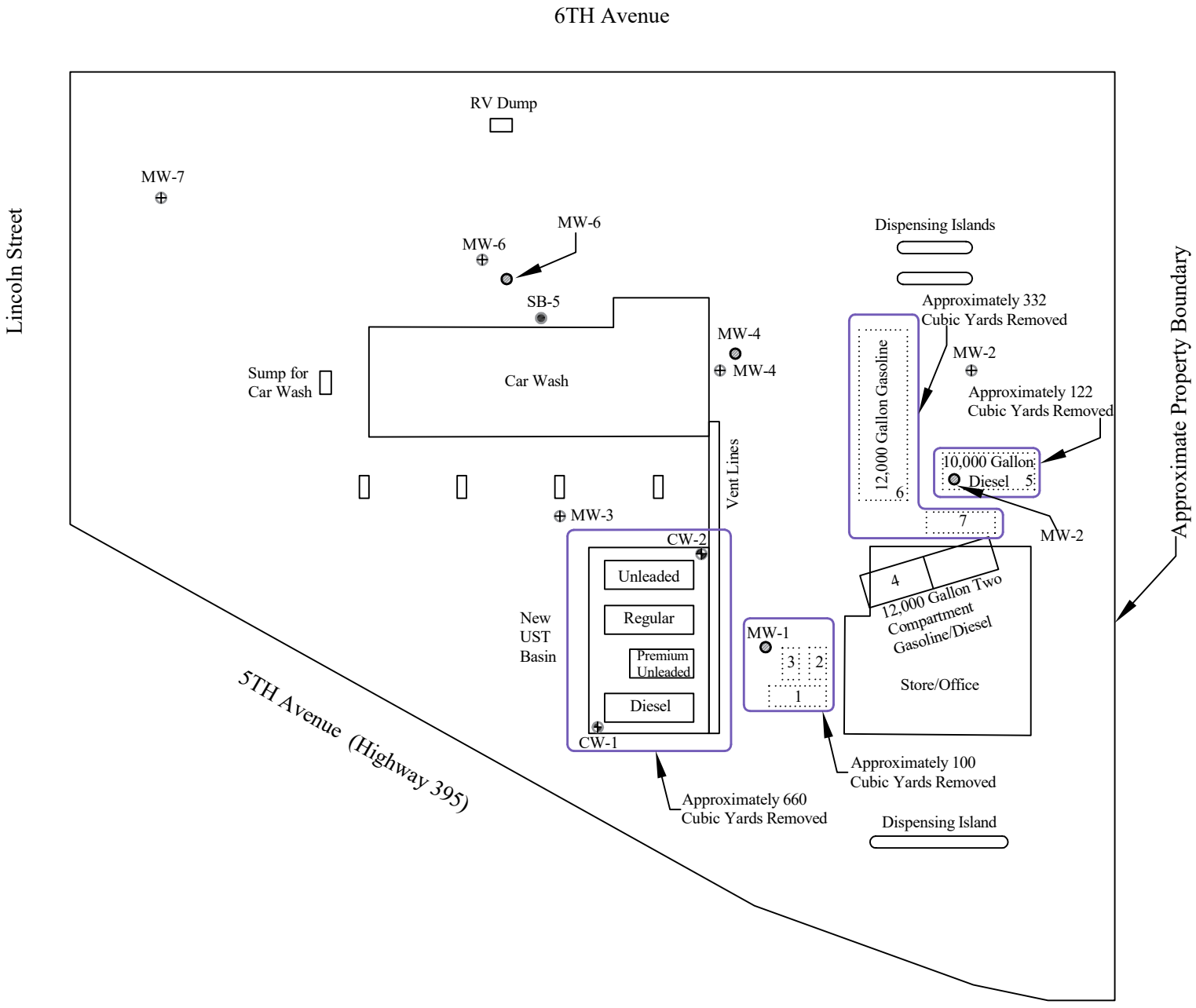
DATE: October 4, 2024	REVIEWED BY: S. Groat



LEGEND

- Approximate extent of soil excavation
- Existing onsite UST
- Historical UST removed from site
- Historic Soil Boring
- Historical Monitoring Well
- Existing onsite Monitoring Well
- Existing onsite Compliance Well

N

0 30

Approximate Scale In Feet

Figure 2: Historical USTs, Soil Borings, and Monitoring Wells Site Diagram Map

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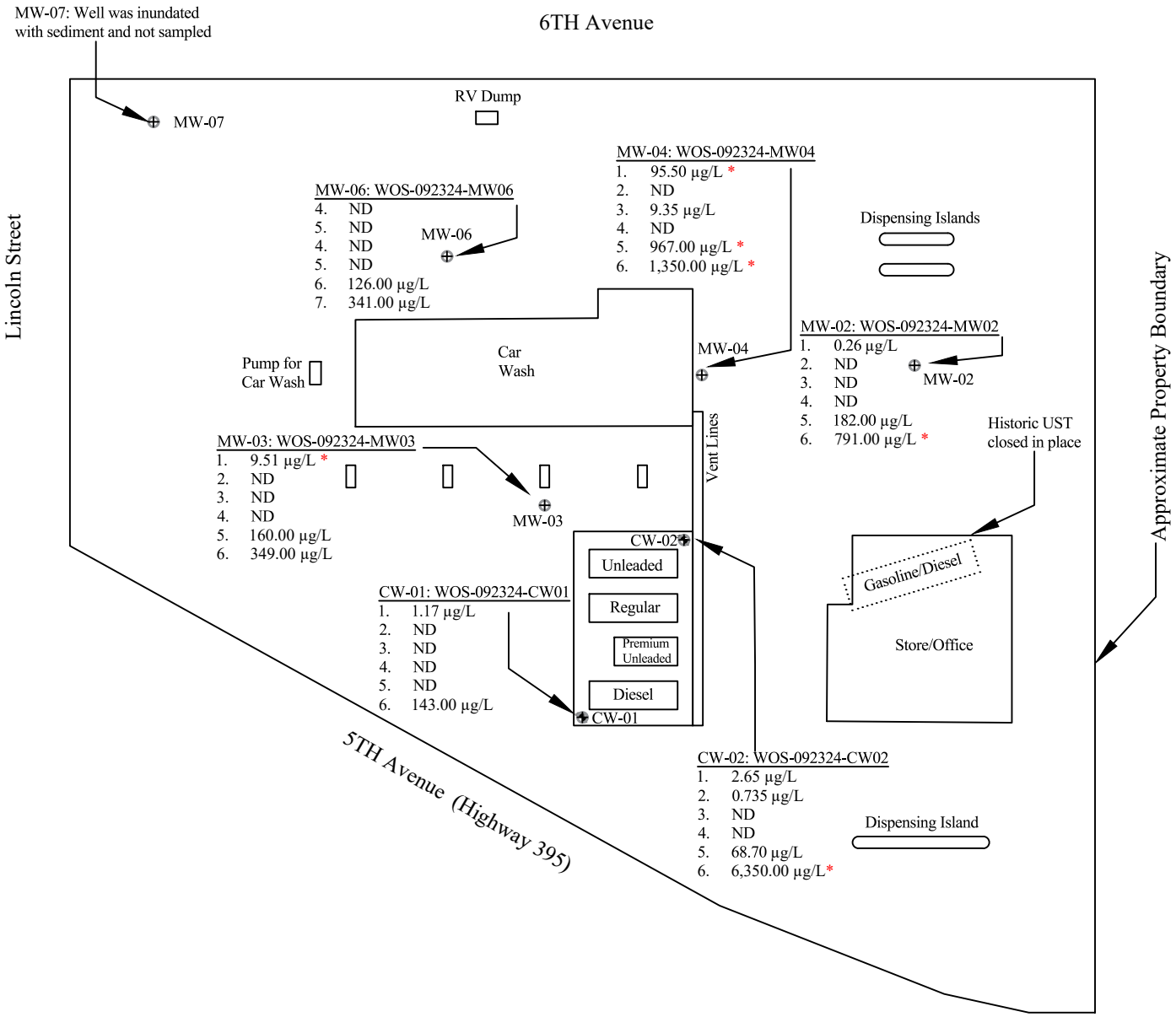

LEGEND

Parameters (µg/L)
1. Benzene
2. Toluene
3. Ethyl-benzene
4. Xylenes
5. NWTPH-GX
6. Combined Diesel-range and Heavy Oil-range Hydrocarbons

⊕ Monitoring Well

✣ Compliance Well

* Analyte Concentration Exceeds MTCA Method A Cleanup Level

N

0 30

Approximate Scale In Feet

Figure 3: Site Diagram Map

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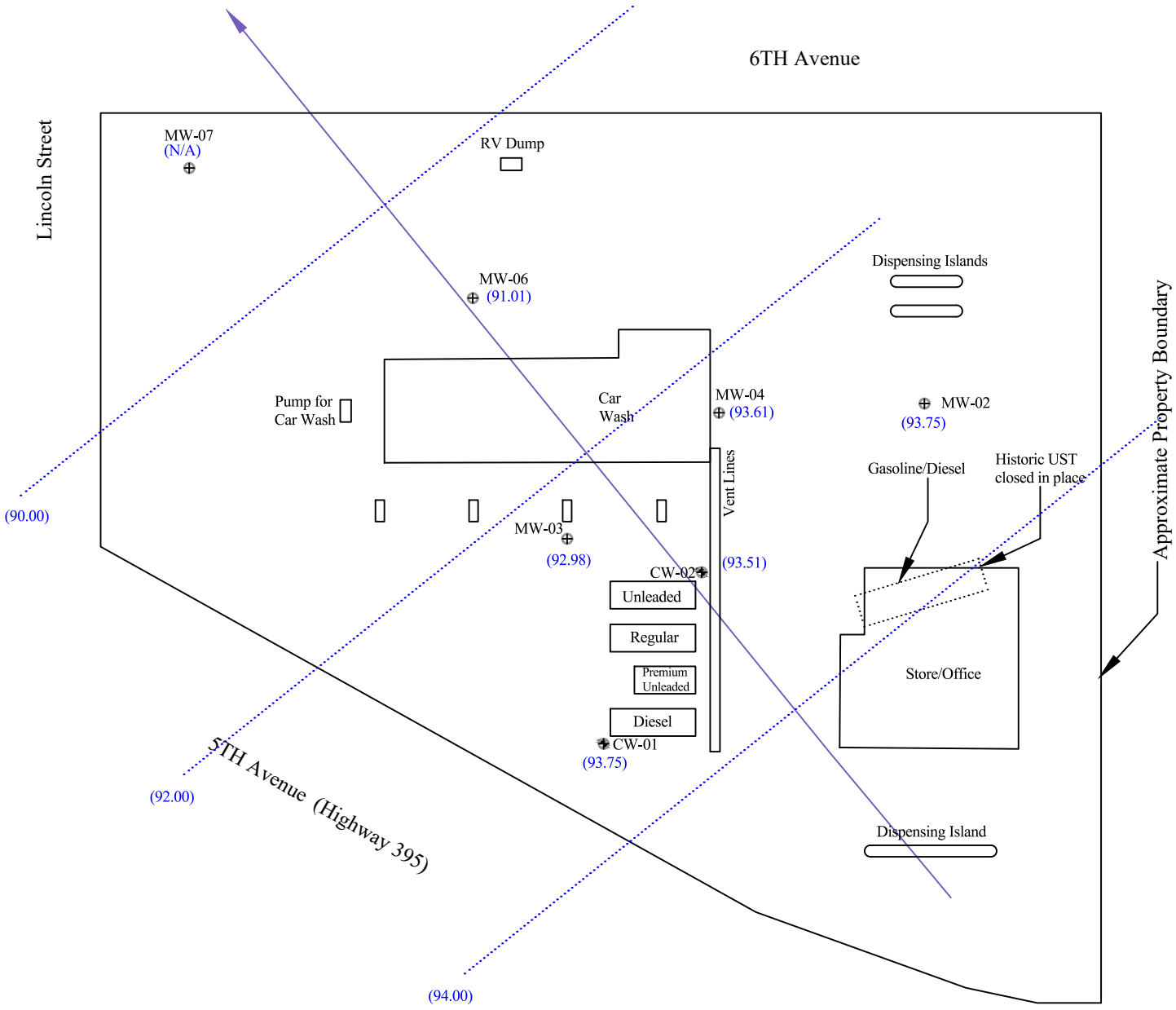

LEGEND

Approximate Groundwater Flow Direction & Gradient

93.00 — Groundwater Elevation Contour (In Feet)

(93.00) — Monitoring Well Groundwater Elevation (In Feet)

Monitoring Well

Compliance Well

N

0 30

Approximate Scale In Feet

Figure 4: Groundwater Elevation Map

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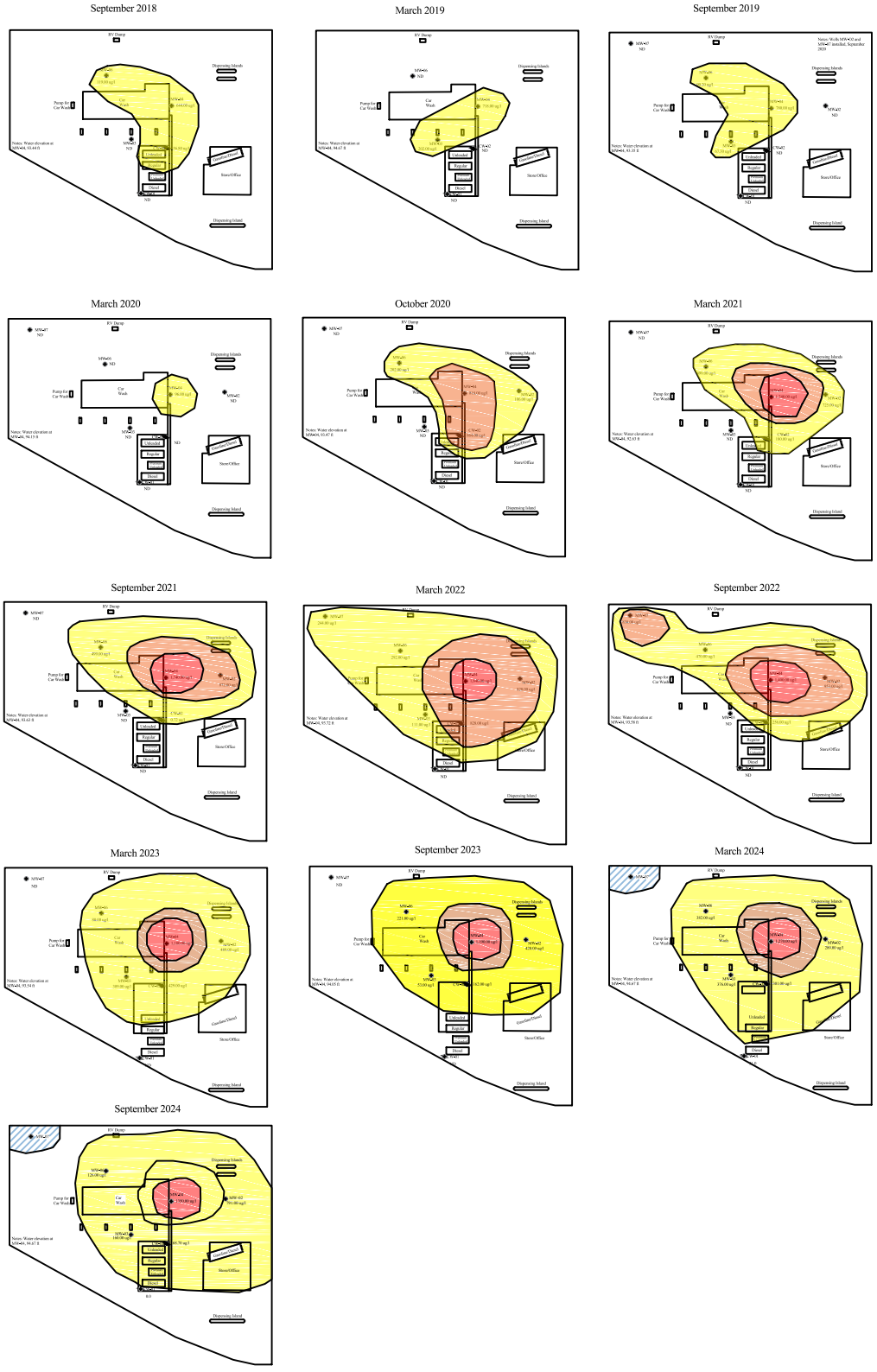

LEGEND

- Concentrations above 1,000.00 ppb
- Concentrations 800.00 - 1,000.00 ppb
- Detectable concentrations below the regulatory threshold of 800 ppb
- Missing Data

N

Figure 5: Gasoline Concentrations - Areal Extent Over Time

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MAP BY: Dominic Casolari	PROJECT NUMBER: 244122.00
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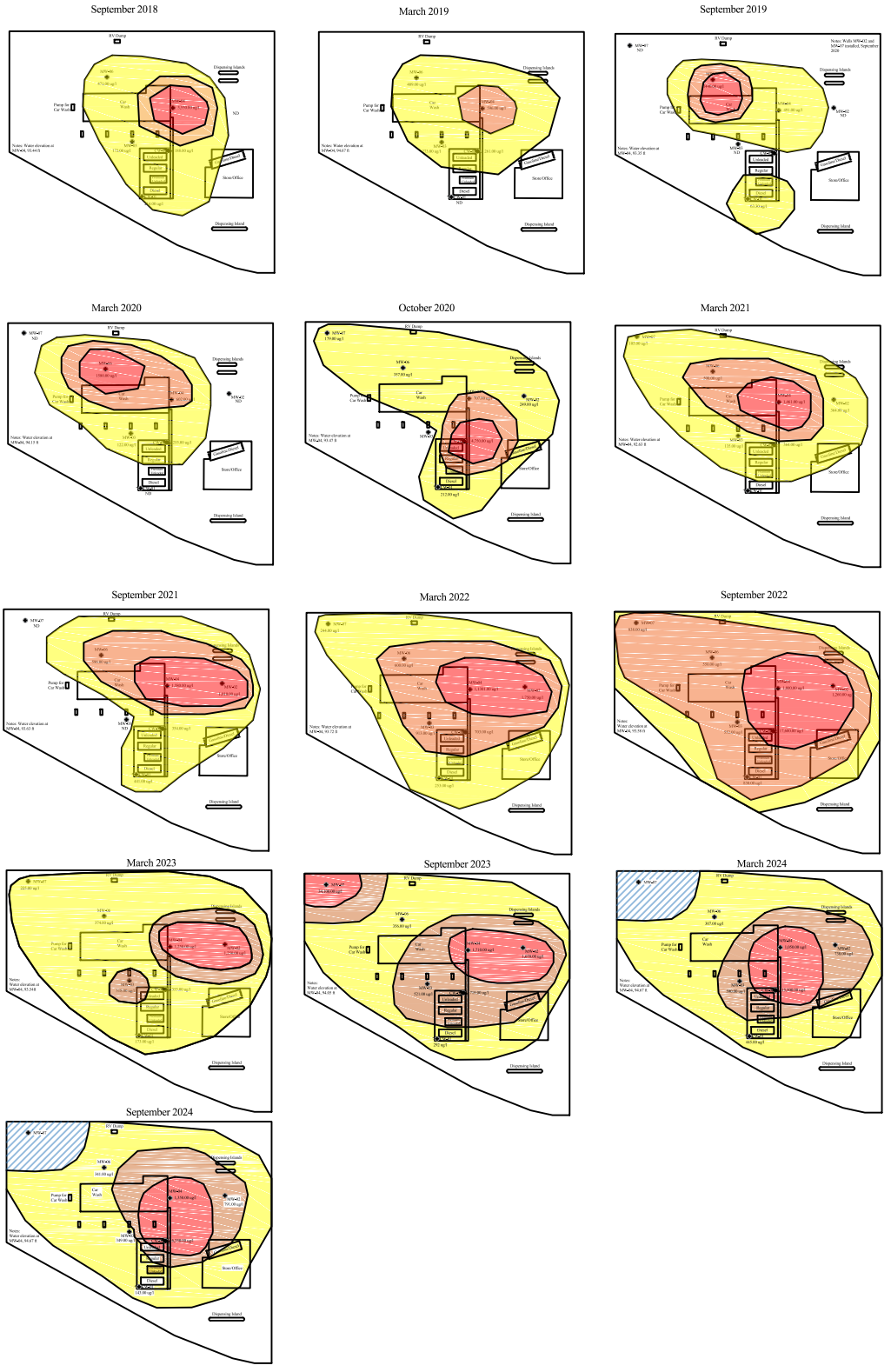


LEGEND

- Concentrations above 1,000.00 ppb
- Concentrations 500.00 - 1,000.00 ppb
- Detectable concentrations below the regulatory threshold of 500 ppb
- Missing Data

N

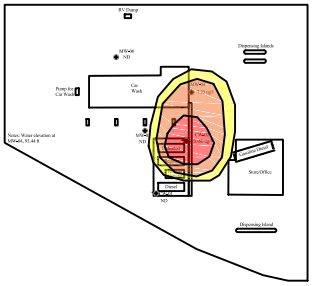
Figure 6: Combined Diesel-Range and Heavy Oil-Range Hydrocarbons - Areal Extent Over Time

Whitty's Chevron
370 West 5th Avenue
Colville, Washington

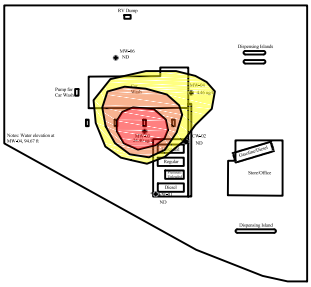
FULCRUM ENVIRONMENTAL CONSULTING, INC.
207 W. BOONE AVENUE
SPOKANE, WASHINGTON 99201
(509) 459-9220 www.efulcrum.net

MAP BY: Dominic Casolari	PROJECT NUMBER: 244122.00
DATE: October 4, 2024	REVIEWED BY: S. Groat

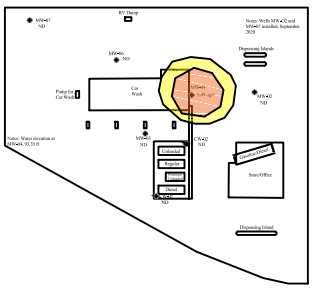
September 2018



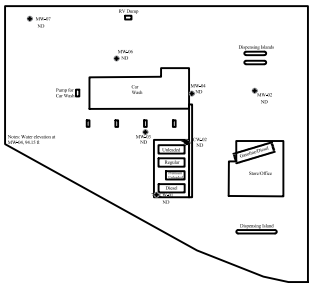
March 2019



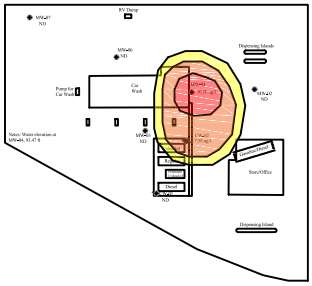
September 2019



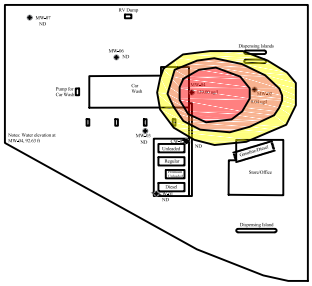
March 2020



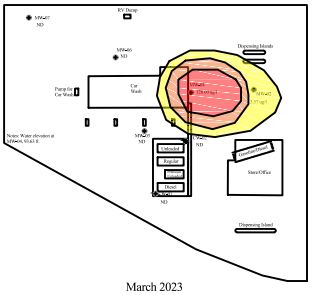
October 2020



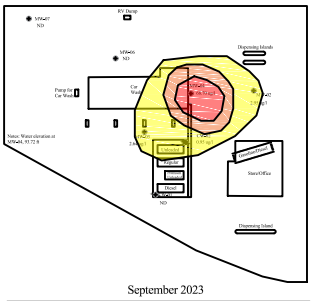
March 2021



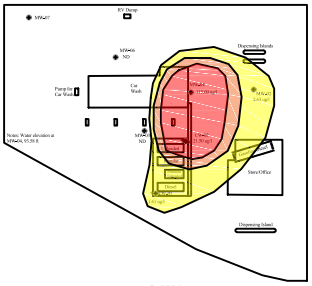
September 2021



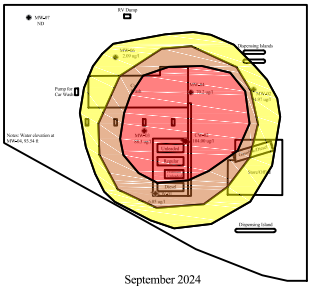
March 2022



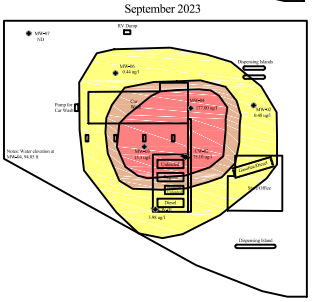
September 2022



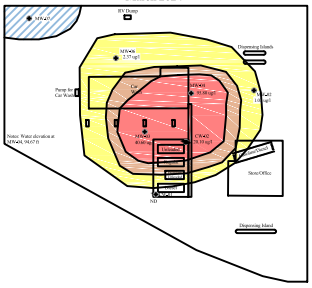
March 2023



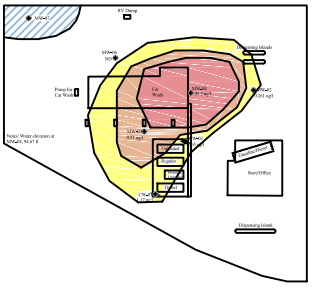
September 2023



March 2024



September 2024



LEGEND

- Concentrations above 10.00 ppb
- Concentrations 5.00 - 10.00 ppb
- Detectable concentrations below the regulatory threshold of 5.0 ppb
- Missing Data

N

Figure 7: Benzene Concentrations - Areal Extent Over Time

Whitty's Chevron
370 West 5th Avenue
Colville, Washington

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

MAP BY: Dominic Casolari	PROJECT NUMBER: 244122.00
DATE: October 4, 2024	REVIEWED BY: S. Groat

APPENDIX A

Professional Certifications

STATE OF WASHINGTON

DEPARTMENT OF LICENSING – BUSINESS AND PROFESSIONS DIVISION

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

WASHINGTON STATE DEPARTMENT OF LICENSING

GEOLOGIST IN TRAINING

ETHAN JEFFREY DUCKEN
510 E 33rd Ave
Spokane WA 99203-2611

22010959	05/04/2022	//
License Number	Issue Date	Expiration Date

Teresa Berntsen

Teresa Berntsen, Director

STATE OF WASHINGTON

DEPARTMENT OF LICENSING - BUSINESS AND PROFESSIONS DIVISION

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

WASHINGTON STATE DEPARTMENT OF LICENSING

GEOLOGIST

SCOTT MICHAEL GROAT

22034387	11/17/2022	12/03/2024
License Number	Issue Date	Expiration Date

Marcus J Glasper, Director

APPENDIX B

Summary of Historical Data

HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL DATA
Whitty's Chervon

370 West Fifth Avenue
Colville, Washington

Boring ID	Sampling Date	ERP (feet)	DS (feet)	TD (feet)	TPH (µg/L)	Diesel-range hydrocarbons (µg/L)	Heavy oil-range hydrocarbons (µg/L)	Combined Diesel-range and Heavy oil-range (µg/L)	NWTPH-Gx (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)
SB-1	1/8/1990	*100.20*	---	*15.00*	---	---	---	---	---	---	---	---	---
SB-2	1/8/1990	*99.39*	*10.00*	*15.00*	ND	---	---	---	ND	ND	ND	ND	ND
SB-3	1/9/1990	*99.30*	---	*15.00*	---	---	---	---	---	---	---	---	---
SB-4	1/9/1990	*98.96*	*5.00*	*15.00*	ND	---	---	---	ND	ND	ND	ND	ND
SB-5	1/9/1990	*99.29*	*5.00*	*15.00*	*1,220*	---	---	---	---	*0.476*	*1.38*	*5.62*	*50.2*
SB-6	1/9/1990	*97.87*	---	*15.00*	---	---	---	---	---	---	---	---	---

Well ID	Sampling Date	ERP (feet)	DTW (feet)	GWE (feet)	TPH (µg/L)	Diesel-range hydrocarbons (µg/L)	Heavy oil-range hydrocarbons (µg/L)	Combined Diesel-range and Heavy oil-range (µg/L)	NWTPH-Gx (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)
CW-01	1/10/1990	*99.50*	*5.82*	*93.68*	---	---	---	---	---	---	---	---	---
	9/13/2017	*99.50*	5.91	*93.59*	---	---	---	---	ND	ND	ND	ND	ND
	12/11/2017	*99.50*	4.96	*94.54*	---	---	---	---	ND	ND	ND	ND	ND
	3/26/2018	*99.50*	4.71	*94.79*	---	---	---	---	ND	ND	ND	ND	ND
	3/26/2018	*99.50*	4.71	*94.79*	---	---	---	---	ND	ND	ND	ND	ND
	6/27/2018	*99.50*	5.53	*93.97*	---	---	---	---	ND	ND	ND	ND	ND
	9/19/2018	*99.50*	5.86	*93.64*	---	214.00	ND	214.00	ND	ND	ND	ND	ND
	3/21/2019	*99.50*	4.84	*94.66*	---	ND	ND	ND	ND	ND	ND	ND	ND
	9/17/2019	*99.50*	5.85	*93.65*	---	63.30	ND	63.30	ND	ND	ND	ND	ND
	3/10/2020	*99.50*	4.89	*94.61*	---	ND	ND	ND	ND	ND	ND	ND	ND
	10/14/2020	*99.50*	5.81	*93.69*	---	212.00	ND	212.00	ND	ND	ND	ND	ND
	3/25/2021	*99.50*	5.81	*93.69*	---	ND	ND	ND	ND	ND	ND	ND	ND
	9/22/2021	*99.50*	6.03	*93.47*	---	441.00	ND	441.00	ND	ND	ND	ND	ND
	3/7/2022	*99.50*	4.65	*94.85*	---	253.00	ND	253.00	ND	ND	ND	ND	ND
	9/27/2022	*99.50*	5.97	*93.53*	---	**830.00**	ND	**830.00**	ND	1.61	ND	ND	ND
	3/28/2023	*99.50*	4.85	*94.65*	---	173.00	ND	173.00	ND	6.05	ND	ND	ND
	9/19/2023	*99.50*	5.39	*94.11*	---	292.00	ND	292.00	ND	3.98	ND	ND	ND
	3/5/2024	*99.50*	4.71	*94.79*	---	445.00	ND	445.00	31.00	ND	ND	ND	ND
	9/23/2024	*99.50*	5.75	*93.75*	---	143.00	ND	143.00	ND	1.17	ND	ND	ND
CW-02	1/10/1990	*99.01*	*5.33*	*93.68*	---	---	---	---	---	---	---	---	---
	9/13/2017	*99.01*	5.64	*93.36*	---	---	---	---	ND	ND	ND	ND	ND
	12/11/2017	*99.01*	4.65	*94.36*	---	---	---	---	ND	ND	ND	ND	ND
	3/26/2018	*99.01*	4.39	*94.62*	---	---	---	---	ND	ND	ND	ND	ND
	6/27/2018	*99.01*	5.24	*93.77*	---	---	---	---	ND	ND	ND	ND	ND
	9/19/2018	*99.01*	5.56	*93.45*	---	ND	ND	ND	50.60	**10.60**	16.60	ND	ND
	9/19/2018	*99.01*	5.56	*93.45*	---	ND	188.00	188.00	56.80	**9.94**	15.90	ND	ND
	3/21/2019	*99.01*	4.53	*94.48*	---	ND	261.00	261.00	ND	ND	ND	ND	ND
	9/17/2019	*99.01*	5.54	*93.46*	---	ND	ND	ND	ND	ND	ND	ND	ND
	3/10/2020	*99.01*	5.20	*93.81*	---	ND	255.00	255.00	ND	ND	ND	ND	ND
	10/14/2020	*99.01*	5.54	*93.47*	---	ND	**777.00**	**777.00**	**864.00**	**7.58**	1.89	8.41	43.10
	10/14/2020	*99.01*	5.54	*93.47*	---	**4,570.00**	ND	**4,570.00**	**818.00**	**7.45**	1.89	8.26	42.20
	3/25/2021	*99.01*	5.41	*93.60*	---	364.00	ND	364.00	180.00	**ND**	ND	0.49	0.94
	9/22/2021	*99.01*	5.72	*93.29*	---	354.00	ND	354.00	0.72	ND	ND	ND	ND
	3/7/2022	*99.01*	4.91	*94.10*	---	**703.00**	ND	**703.00**	**828.00**	0.95	ND	ND	ND
	9/27/2022	*99.01*	5.68	*93.33*	---	**17,600.00**	ND	**17,600**	256.00	**21.50**	5.81	ND	ND
	3/28/2023	*99.01*	4.53	*94.48*	---	355.00	ND	355.00	429.00	**104.00**	20.50	0.46	10.32
	9/19/2023	*99.01*	5.08	*93.94*	---	**719.00**	ND	**719.00**	162.00	**75.10**	5.58	0.49	0.91
	3/5/2024	*99.01*	3.50	*95.51*	---	**7,570.00**	**7940.00**	**15,500.00**	301.00	**20.10**	0.57	0.57	1.16
	9/23/2024	*99.01*	5.50	*93.51*	---	**1,920.00**	**4430.00**	**6,350.00**	68.70	2.65	0.74	ND	ND
2001 MTCA Method A Cleanup Levels for Groundwater					**NE**	**500**			**800**	**5**	**1000**	**700**	**1000**

Well ID	Sampling Date	ERP (feet)	DTW (feet)	GWE (feet)	TPH (µg/L)	Diesel-range hydrocarbons (µg/L)	Heavy oil-range hydrocarbons (µg/L)	Combined Diesel-range and Heavy oil-range (µg/L)	NWTPH-Gx (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)
MW-1	1/10/1990	*100.00*	*5.59*	*94.41*	*ND*	---	---	---	---	ND	ND	ND	ND
	Decommissioned												
MW-2	1/10/1990	*98.92*	*4.51*	*94.41*	*2,460*		---	---	---	***1,643.0***	*409.00*	*ND*	***2955.00***
	Decommissioned												
New Well Installed	10/14/2020	*98.92*	5.83	93.09	---	249.00	ND	249.00	106.00	ND	ND	ND	ND
MW-02	3/25/2021	*98.92*				**534.00**	**3,300.00**	**3,834.00**	725.00	**8.04**	ND	27.70	1.74
	9/22/2021	*98.92*				**1,010.00**	ND	**1,010.00**	**872.00**	3.57	ND	4.73	ND
	3/25/2022	*98.92*				**1,750.00**	ND	**1,750.00**	**828.00**	2.95	ND	4.10	ND
	9/27/2022	*98.92*				**1,260.00**	ND	**1,260.00**	**953.00**	2.63	ND	1.49	ND
	3/28/2023	*98.92*	4.59	94.33	---	**1,250.00**	ND	**1,250.00**	489.00	4.97	ND	1.58	ND
	9/19/2023	*98.92*	5.36	93.56	---	**1,070.00**	ND	**1,070.00**	420.00	0.48	ND	ND	ND
	3/5/2024	*98.92*	4.6	94.32	---	**738.00**	ND	**738.00**	289.00	1.03	ND	0.26	ND
	9/23/2024	*98.92*	5.17	93.75	---	**791.00**	ND	**791.00**	182.00	0.26	ND	ND	ND
MW-03	1/10/1990	*98.56*	*5.77*	*92.79*	*ND*	---	---	---	---	*ND*	*ND*	*ND*	*ND*
	9/13/2017	*98.56*	5.55	93.02	---	---	---	---	131.00	ND	ND	ND	ND
	12/11/2017	*98.56*	5.05	93.51	---	---	---	---	ND	1.65	ND	ND	ND
	12/11/2017	*98.56*	5.05	93.51	---	---	---	---	ND	1.60	ND	ND	ND
	3/26/2018	*98.56*	4.44	94.12	---	---	---	---	ND	ND	ND	ND	ND
	6/27/2018	*98.56*	5.26	93.30	---	---	---	---	ND	ND	ND	ND	ND
	9/19/2018	*98.56*	5.56	93.01	---	ND	172.00	172.00	ND	ND	ND	ND	ND
	3/21/2019	*98.56*	4.80	93.76	---	273	ND	273	202.00	**24.40**	32.00	1.10	16.54
	9/17/2019	*98.56*	5.55	93.01	---	ND	ND	ND	67.30	ND	ND	ND	ND
	3/10/2020	*98.56*	5.57	92.99	---	ND	122.00	122.00	ND	ND	ND	ND	ND
	10/14/2020	*98.56*	5.86	92.70	---	ND	ND	ND	ND	ND	ND	ND	ND
	3/25/2021	*98.56*	6.11	92.45	---	ND	135.00	135.00	ND	ND	ND	ND	ND
	9/22/2021	*98.56*	5.58	92.28	---	159.00	ND	ND	ND	ND	ND	ND	ND
	3/7/2022	*98.56*	4.41	94.15	---	**913.00**	ND	913.00	111.00	2.64	ND	0.94	ND
	9/27/2022	*98.56*	5.56	92.91	---	**552.00**	ND	**552.00**	ND	ND	ND	ND	ND
	3/28/2023	*98.56*	5.32	93.24	---	**518.00**	ND	**518.00**	389.00	**88.30**	20.30	0.54	3.00
	9/19/2023	*98.56*	5.23	93.33	---	**521.00**	ND	**521.00**	53.00	**15.30**	0.52	ND	ND
	3/5/2024	*98.56*	4.29	94.27	---	**590.00**	ND	**590.00**	376.00	**40.60**	1.57	3.39	2.79
	9/23/2024	*98.56*	5.58	92.98	---	349.00	ND	349.00	160.00	**9.51**	ND	ND	ND
MW-04	1/10/1990	*98.27*	*4.06*	*94.21*	---	---	---	---	---	***118***	*23.00*	*ND*	*284.00*
	9/13/2017	*98.27*	5.32	92.96	---	---	---	---	558.00	4.03	ND	1.51	1.46
	9/13/2017	*98.27*	5.32	92.96	---	---	---	---	547.00	ND	ND	ND	ND
	12/11/2017	*98.27*	4.13	94.17	---	---	---	---	702.00	**6.81**	1.07	9.07	ND
	3/26/2018	*98.27*	3.75	94.52	---	---	---	---	302.00	4.63	1.34	15.70	ND
	6/27/2018	*98.27*	4.80	93.47	---	---	---	---	284.00	**5.84**	1.32	16.60	ND
	9/19/2018	*98.27*	4.83	93.44	---	**1,450.00**	**2,080.00**	**3,530.00**	644.00	**7.25**	2.61	25.80	2.72
	3/21/2019	*98.27*	3.60	94.67	---	220.00	376.00	**596.00**	718.00	4.46	1.78	18.10	2.70
	9/17/2019	*98.27*	4.92	93.35	---	181.00	310.00	491.00	780.00	**5.09**	ND	3.08	1.16
	3/10/2020	*98.27*	4.12	94.15	---	ND	**552.00**	**552.00**	96.00	ND	ND	2.60	ND
Lab Filtered	3/10/2020	*98.27*	4.12	94.15	---	ND	**602.00**	**602.00**	80.10	ND	ND	2.61	ND
New Well Installed	10/14/2020	*98.27*	4.80	93.47	---	**707.00**	ND	**707.00**	**818.00**	**10.50**	1.19	9.92	1.91
	3/25/2021	*98.27*	5.64	92.63	---	497.00	**964.00**	**1,461.00**	**1,740.00**	**139.00**	3.84	56.20	12.02
	9/22/2021	*98.27*	4.64	93.63	---	**1,580.00**	ND	**1,580.00**	**2,050.00**	**128.00**	3.10	36.50	6.07
	3/7/2022	*98.27*	4.55	93.72	---	**1,130.00**	ND	**1,130.00**	**1,840.00**	**68.70**	2.48	33.00	5.93
	9/27/2022	*98.27*	4.69	93.58	---	**1,800.00**	ND	**1,800.00**	**1,400.00**	**115.00**	2.47	35.60	4.30
	3/28/2023	*98.27*	4.73	93.54	---	**1,250.00**	ND	**1,250.00**	**1,180.00**	**70.20**	ND	15.50	3.94
	9/19/2023	*98.27*	4.22	94.05	---	**1,710.00**	ND	**1,710.00**	**1,190.00**	**117.00**	2.50	15.00	ND
	3/5/2024	*98.27*	3.60	94.67	---	**1,050.00**	ND	**1,050.00**	**1,270.00**	**95.80**	2.78	25.80	5.92
	9/23/2024	*98.27*	4.66	93.61	---	**1,350.00**	ND	**1,350.00**	**967.00**	**95.50**	ND	9.35	ND
MW-06	1/10/1990	*97.27*	*9.01*	*88.26*	*ND*	---	---	---	---	***9.00***	*5.00*	*15.00*	*80.00*
	9/13/2017	*97.27*	---	---	---	---	---	---	ND	ND	ND	ND	ND
	12/11/2017	*97.27*	---	---	---	---	---	---	---	---	---	---	---
	3/26/2018	*97.27*	5.24	*92.03*	---	---	---	---	404.00	ND	ND	ND	ND
	6/27/2018	*97.27*	5.31	*91.96*	---	---	---	---	101.00	ND	ND	ND	ND
	9/19/2018	*97.27*	6.36	*90.92*	---	102.00	369.00	471.00	119.00	ND	ND	ND	ND
	3/21/2019	*97.27*	5.08	*92.19*	---	ND	409.00	409.00	ND	ND	ND	ND	ND
	9/17/2019	*97.27*	4.95	*92.32*	---	ND	**1,440.00**	**1,440.00**	90.20	ND	ND	ND	ND
2001 MTCA Method A Cleanup Levels for Groundwater					**NE**		**500**		**800**	**5**	**1,000**	**700**	**1,000**

Well ID	Sampling Date	ERP (feet)	DTW (feet)	GWE (feet)	TPH (µg/L)	Diesel-range hydrocarbons (µg/L)	Heavy oil-range hydrocarbons (µg/L)	Combined Diesel-range and Heavy oil-range (µg/L)	NWTPH-Gx (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)
MW-06	3/10/2020	*97.27*	4.51	*92.76*	---	ND	**1,580.00**	**1,580.00**	ND	ND	ND	ND	ND
Lab Filtered	3/10/2020	*97.27*	4.51	*92.76*	---	ND	**1,350.00**	**1,350.00**	ND	ND	ND	ND	ND
New well installed	10/14/2020	*97.27*	*9.65*	*87.62*	---	357.00	ND	357.00	202.00	ND	ND	ND	ND
	3/25/2021	*97.27*	*5.91*	*91.36*	---	128.00	372.00	**500.00**	499.00	4.01	ND	1.70	1.33
	9/22/2021	*97.27*	*6.10*	*91.17*	---	**597.00**	ND	**597.00**	575.00	2.32	ND	0.75	ND
	3/7/2022	*97.27*	*5.48*	*91.79*	---	**600.00**	ND	**600.00**	292.00	1.34	ND	ND	ND
	9/27/2022	*97.27*	*6.12*	*91.15*	---	**550.00**	ND	**550.00**	470.00	2.69	ND	ND	ND
	3/28/2023	*97.27*	*5.65*	*91.62*	---	374.00	ND	374.00	80.00	2.09	ND	ND	ND
	9/19/2023	*97.27*	*6.02*	*91.25*	---	356.00	ND	356.00	221.00	0.44	ND	0.21	ND
	3/5/2024	*97.27*	*5.55*	*91.72*	---	307.00	ND	307.00	382.00	2.37	ND	0.91	ND
	9/23/2024	*97.27*	*6.26*	*91.01*	---	341.00	ND	341.00	126.00	ND	ND	ND	ND
MW-07 *New well*	10/14/2020	*95.27*	*8.72*	*86.55*	---	179.00	ND	179.00	ND	ND	ND	ND	ND
	3/25/2021	*95.27*	*5.95*	*89.32*	---	ND	105.00	105.00	ND	ND	ND	ND	ND
	9/22/2021	*95.27*	*5.47*	*89.80*	---	ND	112.00	ND	ND	ND	ND	ND	ND
	3/7/2022	*95.27*	*4.45*	*93.86*	---	244.00	ND	244.00	ND	ND	ND	ND	ND
	9/27/2022	*95.27*	*5.81*	*89.46*	---	**838.00**	ND	**838.00**	ND	ND	ND	ND	ND
	3/28/2023	*95.27*	*5.34*	*89.93*	---	**225.00**	ND	225.00	ND	ND	ND	ND	ND
	9/19/2023	*95.27*	4.44	*90.83*	---	**34,100.00**	ND	**34,100.00**	ND	ND	ND	ND	ND
Well observed inundated	3/5/2024	---	---	---	---	---	---	---	---	---	---	---	---
Well observed inundated	9/23/2024	---	---	---	---	---	---	---	---	---	---	---	---
2001 MTCA Method A Cleanup Levels for Groundwater					**NE**	**500**			**800**	**5**	**1000**	**700**	**1000**

Notes :

MTCA Method A exceedences shown in bold

Historic Data not collected by Fulcrum shown in italics

NE	Not Established. Indvidual analyte thresholds for Total Petroleum Hydrocarbons (TPH) have not been established and are referenced as the appropriate regulatory values above
TPH	Total Petroleum Hydrocarbons
TD	Total Boring Depth

Notes :

DS	Depth Sampled
ERP	Elevation of riser pipe based on an arbitrary datum of 100.00 feet
DTW	Depth to water
GWE	Groundwater elevation based on an arbitrary datum of 100.00 feet
NWTPHGx	Northwest total petroleum hydrocarbons as gasoline;
BTEX	Benzene, toluene, ethylbenzene and total xylenes
µg/L	micrograms per liter or parts per billion
ND	Not detected in concentrations exceeding laboratory method detection limit
---	Not available, not tested, not measured

APPENDIX C

2005 Soil Sampling Results

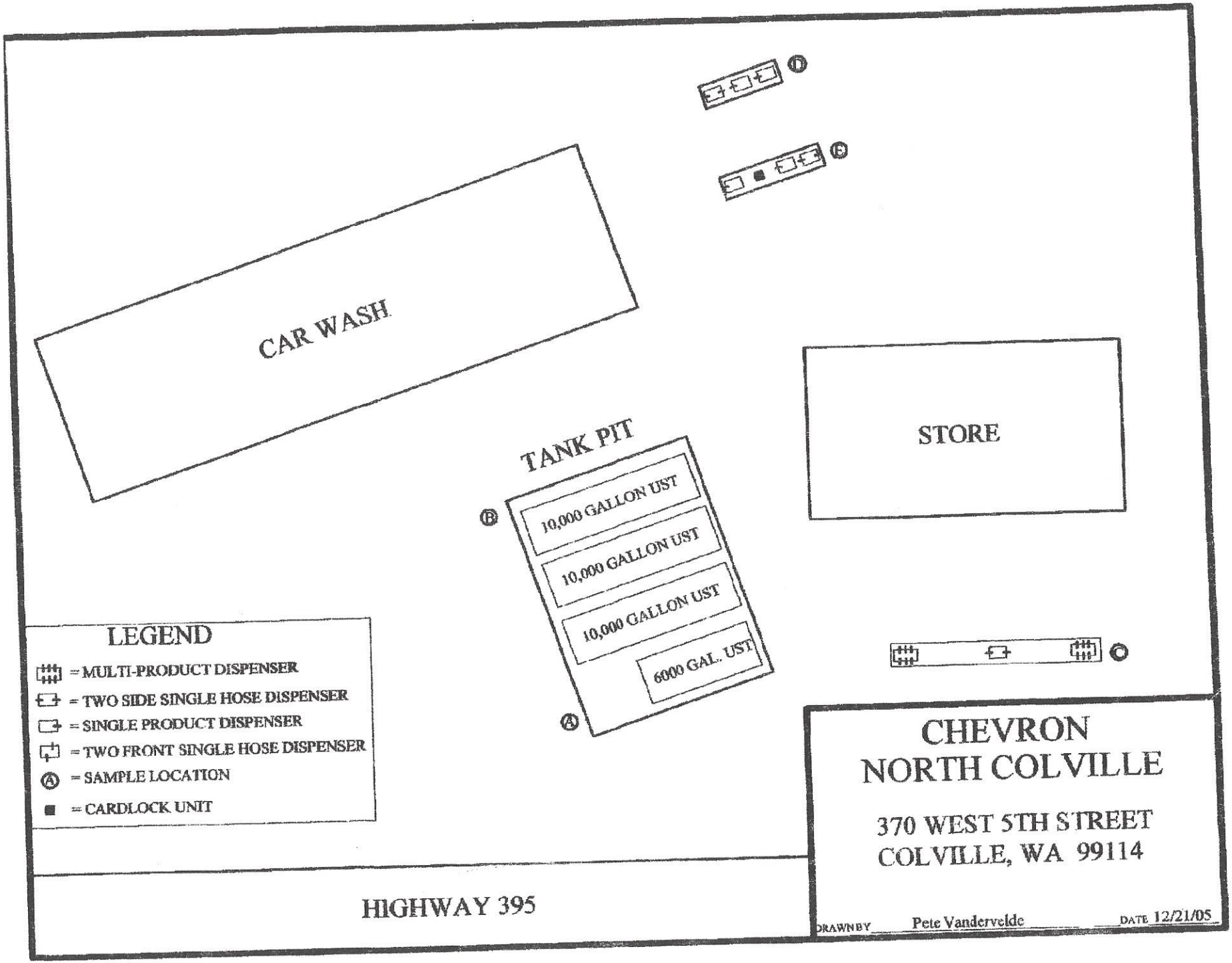


TABLE 1
SOIL SAMPLE RESULTS
CHEVRON
NORTH COLVILLE

DEPTH OF SAMPLE	15'	14	5'	5'	5'	*CLEANUP STANDARD*
ANALYSES	2-A	2-B	2-C	2-D	2-E	
NWTPH-OIL	<100	<100	<100	<100	<100	*2000 mg/Kg*
NWTPH-DIESEL	<10	<10	<10	<10	<10	*2000 mg/Kg*
NWTPH-GAS	8	<5.0	<5.0	<5.0	<5.0	*100 mg/Kg OR 30mg/Kg*
BENZENE	<0.025	<0.025	<0.025	<0.025	<0.025	*0.03 mg/Kg*
ETHYLBENZENE	0.12	<0.025	<0.025	<0.025	<0.025	*6.0 mg/Kg*
MTBE	<0.025	<0.025	<0.025	<0.025	<0.025	*0.1 mg/Kg*
TOLUENE	0.229	<0.05	0.111	0.066	<0.05	*7.0 mg/Kg*
XYLENE	0.69	<0.05	0.099	0.081	<0.05	*9.0 mg/Kg*
TOTAL LEAD	13	N/A	N/A	N/A	N/A	*250 mg/Kg*

N/A = NOT ANALYZED (verifys analyte is below cleanup standards for highest NWTPH-G concentration reported)

BOLDED RESULTS = ABOVE CLEANUP STANDARDS

ITALICIZED RESULTS = ESTIMATED CONCENTRATION. RESULT IS ABOVE NORMAL CALIBRATION RANGE. FINAL RESULT IS MOST LIKELY HIGHER

<1.25 ? = SAMPLE METHOD DETECTION LIMIT WAS DILUTED ABOVE CLEANUP STANDARD DUE TO HIGH CONCENTRATION OF OTHER ANALYTE DETECTED

SPECTRA Laboratories
2221 Ross Way • Tacoma, WA 98421 • (253) 272-4850 • Fax (253) 572-9838 • www.spectra-lab.com

12/16/2005

Northwest Environmental Solutions, Inc
PO Box 1583
Sumner, WA 98390
Attn: Pete Vanderveide

P.O.#: Pd Ck #7160319036
Project: Whitton Oil
Client ID: 2-A
Sample Matrix: Soil
Date Sampled: 12/08/2005
Date Received: 12/12/2005
Spectra Project: 2005120166
Spectra Number: 1
Rush

Analyte	Result	Units	Method
Diesel	<10	mg/Kg	NWTPH-D
Oil	<100	mg/Kg	NWTPH-D
Gasoline	8	mg/Kg	NWTPH-G
Benzene	<0.025	mg/Kg	SW846 8260B
Ethylbenzene	0.12	mg/Kg	SW846 8260B
Methyl-tert-Butyl Ether	<0.025	mg/Kg	SW846 8260B
Toluene	0.229	mg/Kg	SW846 8260B
Total Xylenes	0.69	mg/Kg	SW846 8260B

Surrogate	Recovery	Method
Toluene-d8	111	NWTPH-G
4-Bromofluorobenzene	118	NWTPH-G
p-Terphenyl	98	NWTPH-D

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Page 1 of 3

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12/16/2005

Northwest Environmental Solutions, Inc
PO Box 1583
Sumner, WA 98390
Attn: Pete Vandervelde

P.O.#: Pd Ck #7160319036
Project: Whitton Oil
Client ID: 2-B
Sample Matrix: Soil
Date Sampled: 12/08/2005
Date Received: 12/12/2005
Spectra Project: 2005120166
Spectra Number: 2
Rush

Analyte	Result	Units	Method
Diesel	<10	mg/Kg	NWTPH-D
Oil	<100	mg/Kg	NWTPH-D
Gasoline	<5	mg/Kg	NWTPH-G
Benzene	<0.025	mg/Kg	SW846 8260B
Ethylbenzene	<0.025	mg/Kg	SW846 8260B
Methyl-tert-Butyl Ether	<0.025	mg/Kg	SW846 8260B
Toluene	<0.05	mg/Kg	SW846 8260B
Total Xylenes	<0.05	mg/Kg	SW846 8260B

Surrogate	Recovery	Method
Toluene-d8	118	NWTPH-G
4-Bromofluorobenzene	111	NWTPH-G
p-Terphenyl	60	NWTPH-D

SPECTRA LABORATORIES

Steve Hibbs, Laboratory Manager
sh/ish

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12/16/2005

Northwest Environmental Solutions, Inc
PO Box 1583
Sumner, WA 98390
Attn: Pete Vandervelde

P.O.#: Pd Ck #7160319036
Project: Whitton Oil
Client ID: 2-C
Sample Matrix: Soil
Date Sampled: 12/08/2005
Date Received: 12/12/2005
Spectra Project: 2005120166
Spectra Number: 3
Rush

Analyte	Result	Units	Method
Diesel	<10	mg/Kg	NWTPH-D
Oil	<100	mg/Kg	NWTPH-D
Gasoline	<5	mg/Kg	NWTPH-G
Benzene	<0.025	mg/Kg	SW846 8260B
Ethylbenzene	<0.025	mg/Kg	SW846 8260B
Methyl-tert-Butyl Ether	<0.025	mg/Kg	SW846 8260B
Toluene	0.111	mg/Kg	SW846 8260B
Total Xylenes	0.099	mg/Kg	SW846 8260B

Surrogate	Recovery	Method
Toluene-d8	111	NWTPH-G
4-Bromofluorobenzene	119	NWTPH-G
p-Terphenyl	62	NWTPH-D

SPECTRA LABORATORIES

Steve Hibbs, Laboratory Manager
nd/jjh

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12/16/2005

Northwest Environmental Solutions, Inc
PO Box 1583
Sumner, WA 98390
Attn: Pete Vandervelde

P.O.#: Pd Ck #7160319036
Project: Whitton Oil
Client ID: 2-D
Sample Matrix: Soil
Date Sampled: 12/08/2005
Date Received: 12/12/2005
Spectra Project: 2005120166
Spectra Number: 4
Rush

Analyte	Result	Units	Method
Diesel	<10	mg/Kg	NWTPH-D
Oil	<100	mg/Kg	NWTPH-D
Gasoline	<5	mg/Kg	NWTPH-G
Benzene	<0.025	mg/Kg	SW846 8260B
Ethylbenzene	<0.025	mg/Kg	SW846 8260B
Methyl-tert-Butyl Ether	<0.025	mg/Kg	SW846 8260B
Toluene	0.066	mg/Kg	SW846 8260B
Total Xylenes	0.081	mg/Kg	SW846 8260B

Surrogate	Recovery	Method
Toluene-d8	116	NWTPH-G
4-Bromofluorobenzene	112	NWTPH-G
p-Terphenyl	76	NWTPH-D

SPECTRA LABORATORIES

Steve Hibbs, Laboratory Manager
sG/jb

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12/16/2005

Northwest Environmental Solutions, Inc
PO Box 1583
Sumner, WA 98390
Attn: Pete Vandervelde

P.O.#: Pd Ck #7160319036
Project: Whitton Oil
Client ID: 2-E
Sample Matrix: Soil
Date Sampled: 12/08/2005
Date Received: 12/12/2005
Spectra Project: 2005120166
Spectra Number: 5
Rush

Analyte	Result	Units	Method
Diesel	<10	mg/Kg	NWTPH-D
Oil	<100	mg/Kg	NWTPH-D
Gasoline	<5	mg/Kg	NWTPH-G
Benzene	<0.025	mg/Kg	SW846 8260B
Ethylbenzene	<0.025	mg/Kg	SW846 8260B
Methyl-tert-Butyl Ether	<0.025	mg/Kg	SW846 8260B
Toluene	<0.05	mg/Kg	SW846 8260B
Total Xylenes	<0.05	mg/Kg	SW846 8260B

Surrogate	Recovery	Method
Toluene-d8	112	NWTPH-G
4-Bromofluorobenzene	113	NWTPH-G
p-Terphenyl	62	NWTPH-D

SPECTRA LABORATORIES

Steve Hibbs, Laboratory Manager

FROM

APPENDIX D

Laboratory Analytical Results

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: Whitten Oil, 244122.00
Work Order Number: 2409443

October 02, 2024

Attention Ethan Ducken:

Fremont Analytical, Inc, an Alliance Technical Group company, received 7 sample(s) on 9/24/2024 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx
Gasoline by NWTPH-Gx
Volatile Organic Compounds by EPA 8260D

All analyses were performed according to our accredited Quality Assurance program. Please contact the laboratory if you should have any questions about the results.

Please note, while the appearance of our logo and branding will update, our commitment to accuracy, speed, and customer service remain values celebrated and shared by Alliance Technical Group. Thank you for the opportunity to serve you.

Sincerely,

Brianna Barnes
Project Manager

CC:
Abby Whitmore

DoD-ELAP Accreditation #79636 by PJLA, ISO/IEC 17025:2017 and QSM 5.4 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

Date: *10/02/2024*

CLIENT: Fulcrum Environmental
Project: Whitten Oil
Work Order: 2409443

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2409443-001	W05-092324-CW01	09/23/2024 9:39 AM	09/24/2024 9:54 AM
2409443-002	W05-092324-CW02	09/23/2024 10:40 AM	09/24/2024 9:54 AM
2409443-003	W05-092324-MW02	09/23/2024 11:54 AM	09/24/2024 9:54 AM
2409443-004	W05-092324-MW03	09/23/2024 12:40 PM	09/24/2024 9:54 AM
2409443-005	W05-092324-MW04	09/23/2024 10:38 AM	09/24/2024 9:54 AM
2409443-006	W05-092324-MW06	09/23/2024 9:32 AM	09/24/2024 9:54 AM
2409443-007	W05-092324-MW08	09/23/2024 10:40 AM	09/24/2024 9:54 AM

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

Case Narrative

WO#: **2409443**

Date: **10/2/2024**

CLIENT: Fulcrum Environmental
Project: Whitten Oil

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

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. 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 and the MS/MSD 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.

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

Analytical Report

Work Order: **2409443**
Date Reported: **10/2/2024**

CLIENT: Fulcrum Environmental
Project: Whitten Oil

Lab ID: 2409443-001 **Collection Date:** 9/23/2024 9:39:00 AM
Client Sample ID: **W05-092324-CW01** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx				Batch ID: 45305		Analyst: AP
Diesel Range Organics	143	93.1		µg/L	1	9/25/2024 8:28:27 PM
Heavy Oil	ND	140		µg/L	1	9/25/2024 8:28:27 PM
Total Petroleum Hydrocarbons	ND	233		µg/L	1	9/25/2024 8:28:27 PM
Surr: 2-Fluorobiphenyl	83.1	50 - 150		%Rec	1	9/25/2024 8:28:27 PM
Surr: o-Terphenyl	85.2	50 - 150		%Rec	1	9/25/2024 8:28:27 PM

NOTES:
Chromatographic pattern indicates an unresolved complex mixture, which may be weathered and/or organic material

Gasoline by NWTPH-Gx				Batch ID: 45354		Analyst: KJ
Gasoline Range Organics	ND	50.0		µg/L	1	9/28/2024 8:40:00 AM
Surr: Toluene-d8	93.9	65 - 135		%Rec	1	9/28/2024 8:40:00 AM
Surr: 4-Bromofluorobenzene	100	65 - 135		%Rec	1	9/28/2024 8:40:00 AM
Volatile Organic Compounds by EPA 8260D				Batch ID: 45369		Analyst: KJ
Benzene	1.17	0.200	Q	µg/L	1	9/30/2024 2:48:02 PM
Toluene	ND	0.500		µg/L	1	9/30/2024 2:48:02 PM
Ethylbenzene	ND	0.500		µg/L	1	9/30/2024 2:48:02 PM
m,p-Xylene	ND	1.00		µg/L	1	9/30/2024 2:48:02 PM
o-Xylene	ND	0.500		µg/L	1	9/30/2024 2:48:02 PM
Surr: Dibromofluoromethane	99.7	81.7 - 121.7		%Rec	1	9/30/2024 2:48:02 PM
Surr: Toluene-d8	109	82.2 - 122.2		%Rec	1	9/30/2024 2:48:02 PM
Surr: 1-Bromo-4-fluorobenzene	97.2	80.9 - 120.9		%Rec	1	9/30/2024 2:48:02 PM

NOTES:
Q - Associated calibration verification is above acceptance criteria. Result may be high-biased.

Analytical Report

Work Order: **2409443**
Date Reported: **10/2/2024**

CLIENT: Fulcrum Environmental
Project: Whitten Oil

Lab ID: 2409443-002 **Collection Date:** 9/23/2024 10:40:00 AM
Client Sample ID: **W05-092324-CW02** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx				Batch ID: 45305		Analyst: AP
Diesel Range Organics	1,920	93.7		µg/L	1	9/25/2024 10:39:25 PM
Heavy Oil	4,430	141		µg/L	1	9/25/2024 10:39:25 PM
Total Petroleum Hydrocarbons	6,350	234		µg/L	1	9/25/2024 10:39:25 PM
Surr: 2-Fluorobiphenyl	80.5	50 - 150		%Rec	1	9/25/2024 10:39:25 PM
Surr: o-Terphenyl	85.0	50 - 150		%Rec	1	9/25/2024 10:39:25 PM

NOTES:
Chromatographic pattern indicates the presence of two overlapping products, divided into diesel and oil ranges

Gasoline by NWTPH-Gx				Batch ID: 45354		Analyst: KJ
Gasoline Range Organics	68.7	50.0		µg/L	1	9/28/2024 2:10:56 PM
Surr: Toluene-d8	99.8	65 - 135		%Rec	1	9/28/2024 2:10:56 PM
Surr: 4-Bromofluorobenzene	96.7	65 - 135		%Rec	1	9/28/2024 2:10:56 PM

NOTES:
Chromatographic pattern indicates a material consistent with weathered gasoline

Volatile Organic Compounds by EPA 8260D				Batch ID: 45369		Analyst: KJ
Benzene	2.65	0.200	Q	µg/L	1	9/30/2024 3:16:41 PM
Toluene	0.735	0.500	Q	µg/L	1	9/30/2024 3:16:41 PM
Ethylbenzene	ND	0.500		µg/L	1	9/30/2024 3:16:41 PM
m,p-Xylene	ND	1.00		µg/L	1	9/30/2024 3:16:41 PM
o-Xylene	ND	0.500		µg/L	1	9/30/2024 3:16:41 PM
Surr: Dibromofluoromethane	98.1	81.7 - 121.7		%Rec	1	9/30/2024 3:16:41 PM
Surr: Toluene-d8	107	82.2 - 122.2		%Rec	1	9/30/2024 3:16:41 PM
Surr: 1-Bromo-4-fluorobenzene	102	80.9 - 120.9		%Rec	1	9/30/2024 3:16:41 PM

NOTES:
Q - Associated calibration verification is above acceptance criteria. Result may be high-biased.

Analytical Report

Work Order: **2409443**
Date Reported: **10/2/2024**

CLIENT: Fulcrum Environmental
Project: Whitten Oil

Lab ID: 2409443-003 **Collection Date:** 9/23/2024 11:54:00 AM
Client Sample ID: **W05-092324-MW02** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx				Batch ID: 45305		Analyst: AP
Diesel Range Organics	791	93.3		µg/L	1	9/25/2024 8:40:36 PM
Heavy Oil	ND	140		µg/L	1	9/25/2024 8:40:36 PM
Total Petroleum Hydrocarbons	791	233		µg/L	1	9/25/2024 8:40:36 PM
Surr: 2-Fluorobiphenyl	85.3	50 - 150		%Rec	1	9/25/2024 8:40:36 PM
Surr: o-Terphenyl	89.0	50 - 150		%Rec	1	9/25/2024 8:40:36 PM

NOTES:
Chromatographic pattern indicates an unresolved complex mixture, which may be weathered and/or organic material

Gasoline by NWTPH-Gx				Batch ID: 45354		Analyst: KJ
Gasoline Range Organics	182	50.0		µg/L	1	9/28/2024 10:19:15 AM
Surr: Toluene-d8	94.1	65 - 135		%Rec	1	9/28/2024 10:19:15 AM
Surr: 4-Bromofluorobenzene	95.3	65 - 135		%Rec	1	9/28/2024 10:19:15 AM

NOTES:
Chromatographic pattern indicates a material consistent with weathered gasoline

Volatile Organic Compounds by EPA 8260D				Batch ID: 45369		Analyst: KJ
Benzene	0.261	0.200	Q	µg/L	1	9/30/2024 3:45:19 PM
Toluene	ND	0.500		µg/L	1	9/30/2024 3:45:19 PM
Ethylbenzene	ND	0.500		µg/L	1	9/30/2024 3:45:19 PM
m,p-Xylene	ND	1.00		µg/L	1	9/30/2024 3:45:19 PM
o-Xylene	ND	0.500		µg/L	1	9/30/2024 3:45:19 PM
Surr: Dibromofluoromethane	102	81.7 - 121.7		%Rec	1	9/30/2024 3:45:19 PM
Surr: Toluene-d8	111	82.2 - 122.2		%Rec	1	9/30/2024 3:45:19 PM
Surr: 1-Bromo-4-fluorobenzene	102	80.9 - 120.9		%Rec	1	9/30/2024 3:45:19 PM

NOTES:
Q - Associated calibration verification is above acceptance criteria. Result may be high-biased.

Analytical Report

Work Order: **2409443**
Date Reported: **10/2/2024**

CLIENT: Fulcrum Environmental
Project: Whitten Oil

Lab ID: 2409443-004 **Collection Date:** 9/23/2024 12:40:00 PM
Client Sample ID: **W05-092324-MW03** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx				Batch ID: 45305		Analyst: AP
Diesel Range Organics	349	93.2		µg/L	1	9/25/2024 8:52:34 PM
Heavy Oil	ND	140		µg/L	1	9/25/2024 8:52:34 PM
Total Petroleum Hydrocarbons	349	233		µg/L	1	9/25/2024 8:52:34 PM
Surr: 2-Fluorobiphenyl	80.0	50 - 150		%Rec	1	9/25/2024 8:52:34 PM
Surr: o-Terphenyl	86.8	50 - 150		%Rec	1	9/25/2024 8:52:34 PM

NOTES:
Chromatographic pattern indicates an unresolved complex mixture, which may be weathered and/or organic material

Gasoline by NWTPH-Gx				Batch ID: 45354		Analyst: KJ
Gasoline Range Organics	160	50.0		µg/L	1	9/28/2024 2:43:57 PM
Surr: Toluene-d8	97.4	65 - 135		%Rec	1	9/28/2024 2:43:57 PM
Surr: 4-Bromofluorobenzene	97.2	65 - 135		%Rec	1	9/28/2024 2:43:57 PM
Volatile Organic Compounds by EPA 8260D				Batch ID: 45369		Analyst: KJ
Benzene	9.51	0.200	Q	µg/L	1	9/30/2024 4:13:55 PM
Toluene	ND	0.500		µg/L	1	9/30/2024 4:13:55 PM
Ethylbenzene	ND	0.500		µg/L	1	9/30/2024 4:13:55 PM
m,p-Xylene	ND	1.00		µg/L	1	9/30/2024 4:13:55 PM
o-Xylene	ND	0.500		µg/L	1	9/30/2024 4:13:55 PM
Surr: Dibromofluoromethane	96.1	81.7 - 121.7		%Rec	1	9/30/2024 4:13:55 PM
Surr: Toluene-d8	105	82.2 - 122.2		%Rec	1	9/30/2024 4:13:55 PM
Surr: 1-Bromo-4-fluorobenzene	101	80.9 - 120.9		%Rec	1	9/30/2024 4:13:55 PM

NOTES:
Q - Associated calibration verification is above acceptance criteria. Result may be high-biased.

Analytical Report

Work Order: **2409443**
Date Reported: **10/2/2024**

CLIENT: Fulcrum Environmental
Project: Whitten Oil

Lab ID: 2409443-005 **Collection Date:** 9/23/2024 10:38:00 AM
Client Sample ID: **W05-092324-MW04** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx				Batch ID: 45305		Analyst: AP
Diesel Range Organics	1,350	94.0		µg/L	1	9/25/2024 9:04:25 PM
Heavy Oil	ND	141		µg/L	1	9/25/2024 9:04:25 PM
Total Petroleum Hydrocarbons	1,350	235		µg/L	1	9/25/2024 9:04:25 PM
Surr: 2-Fluorobiphenyl	84.7	50 - 150		%Rec	1	9/25/2024 9:04:25 PM
Surr: o-Terphenyl	90.2	50 - 150		%Rec	1	9/25/2024 9:04:25 PM

NOTES:
Chromatographic pattern indicates an unresolved complex mixture, which may be weathered and/or organic material
Detection is biased high by overlap with gasoline-range material

Gasoline by NWTPH-Gx				Batch ID: 45354		Analyst: KJ
Gasoline Range Organics	967	50.0		µg/L	1	9/28/2024 3:17:05 PM
Surr: Toluene-d8	117	65 - 135		%Rec	1	9/28/2024 3:17:05 PM
Surr: 4-Bromofluorobenzene	96.6	65 - 135		%Rec	1	9/28/2024 3:17:05 PM
Volatile Organic Compounds by EPA 8260D				Batch ID: 45369		Analyst: KJ
Benzene	95.5	2.00	DQ	µg/L	10	9/30/2024 4:42:36 PM
Toluene	ND	5.00	D	µg/L	10	9/30/2024 4:42:36 PM
Ethylbenzene	9.35	5.00	D	µg/L	10	9/30/2024 4:42:36 PM
m,p-Xylene	ND	10.0	D	µg/L	10	9/30/2024 4:42:36 PM
o-Xylene	ND	5.00	D	µg/L	10	9/30/2024 4:42:36 PM
Surr: Dibromofluoromethane	98.9	81.7 - 121.7	D	%Rec	10	9/30/2024 4:42:36 PM
Surr: Toluene-d8	108	82.2 - 122.2	D	%Rec	10	9/30/2024 4:42:36 PM
Surr: 1-Bromo-4-fluorobenzene	99.7	80.9 - 120.9	D	%Rec	10	9/30/2024 4:42:36 PM

NOTES:
Q - Associated calibration verification is above acceptance criteria. Result may be high-biased.

CLIENT: Fulcrum Environmental
Project: Whitten Oil

Lab ID: 2409443-006 **Collection Date:** 9/23/2024 9:32:00 AM
Client Sample ID: **W05-092324-MW06** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx				Batch ID: 45305		Analyst: AP
Diesel Range Organics	341	94.5		µg/L	1	9/25/2024 9:16:14 PM
Heavy Oil	ND	142		µg/L	1	9/25/2024 9:16:14 PM
Total Petroleum Hydrocarbons	341	236		µg/L	1	9/25/2024 9:16:14 PM
Surr: 2-Fluorobiphenyl	90.1	50 - 150		%Rec	1	9/25/2024 9:16:14 PM
Surr: o-Terphenyl	94.7	50 - 150		%Rec	1	9/25/2024 9:16:14 PM
NOTES: Chromatographic pattern indicates an unresolved complex mixture, which may be weathered and/or organic material						
Gasoline by NWTPH-Gx				Batch ID: 45354		Analyst: KJ
Gasoline Range Organics	126	50.0		µg/L	1	9/28/2024 11:58:33 AM
Surr: Toluene-d8	95.5	65 - 135		%Rec	1	9/28/2024 11:58:33 AM
Surr: 4-Bromofluorobenzene	94.1	65 - 135		%Rec	1	9/28/2024 11:58:33 AM
Volatile Organic Compounds by EPA 8260D				Batch ID: 45354		Analyst: KJ
Benzene	ND	0.200		µg/L	1	9/28/2024 11:58:33 AM
Toluene	ND	0.500		µg/L	1	9/28/2024 11:58:33 AM
Ethylbenzene	ND	0.500		µg/L	1	9/28/2024 11:58:33 AM
m,p-Xylene	ND	1.00		µg/L	1	9/28/2024 11:58:33 AM
o-Xylene	ND	0.500		µg/L	1	9/28/2024 11:58:33 AM
Surr: Dibromofluoromethane	104	81.7 - 121.7		%Rec	1	9/28/2024 11:58:33 AM
Surr: Toluene-d8	110	82.2 - 122.2		%Rec	1	9/28/2024 11:58:33 AM
Surr: 1-Bromo-4-fluorobenzene	103	80.9 - 120.9		%Rec	1	9/28/2024 11:58:33 AM

Analytical Report

Work Order: **2409443**
Date Reported: **10/2/2024**

CLIENT: Fulcrum Environmental
Project: Whitten Oil

Lab ID: 2409443-007 **Collection Date:** 9/23/2024 10:40:00 AM
Client Sample ID: **W05-092324-MW08** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx				Batch ID: 45305		Analyst: AP
Diesel Range Organics	1,560	94.2		µg/L	1	9/25/2024 9:51:54 PM
Heavy Oil	3,650	141		µg/L	1	9/25/2024 9:51:54 PM
Total Petroleum Hydrocarbons	5,210	235		µg/L	1	9/25/2024 9:51:54 PM
Surr: 2-Fluorobiphenyl	90.9	50 - 150		%Rec	1	9/25/2024 9:51:54 PM
Surr: o-Terphenyl	96.6	50 - 150		%Rec	1	9/25/2024 9:51:54 PM

NOTES:
Chromatographic pattern indicates the presence of two overlapping products, divided into diesel and oil ranges

Gasoline by NWTPH-Gx				Batch ID: 45354		Analyst: KJ
Gasoline Range Organics	78.0	50.0		µg/L	1	9/28/2024 12:31:38 PM
Surr: Toluene-d8	93.9	65 - 135		%Rec	1	9/28/2024 12:31:38 PM
Surr: 4-Bromofluorobenzene	98.7	65 - 135		%Rec	1	9/28/2024 12:31:38 PM

NOTES:
Chromatographic pattern indicates a material consistent with weathered gasoline

Volatile Organic Compounds by EPA 8260D				Batch ID: 45369		Analyst: KJ
Benzene	2.56	0.200	Q	µg/L	1	9/30/2024 5:11:14 PM
Toluene	0.790	0.500	Q	µg/L	1	9/30/2024 5:11:14 PM
Ethylbenzene	ND	0.500		µg/L	1	9/30/2024 5:11:14 PM
m,p-Xylene	ND	1.00		µg/L	1	9/30/2024 5:11:14 PM
o-Xylene	ND	0.500		µg/L	1	9/30/2024 5:11:14 PM
Surr: Dibromofluoromethane	103	81.7 - 121.7		%Rec	1	9/30/2024 5:11:14 PM
Surr: Toluene-d8	110	82.2 - 122.2		%Rec	1	9/30/2024 5:11:14 PM
Surr: 1-Bromo-4-fluorobenzene	102	80.9 - 120.9		%Rec	1	9/30/2024 5:11:14 PM

NOTES:
Q - Associated calibration verification is above acceptance criteria. Result may be high-biased.

Work Order: 2409443
CLIENT: Fulcrum Environmental
Project: Whitten Oil

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx

Sample ID: **MB-45305**	SampType: **MBLK**	Units: **µg/L**	Prep Date: **9/24/2024**	RunNo: **94554**
Client ID: **MBLKW**	Batch ID: **45305**		Analysis Date: **9/25/2024**	SeqNo: **1974552**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics	ND	100									
Heavy Oil	ND	150									
Total Petroleum Hydrocarbons	ND	250									
Surr: 2-Fluorobiphenyl	21.7		25.00		86.7	50	150				
Surr: o-Terphenyl	21.3		25.00		85.1	50	150				

Sample ID: **LCS-45305**	SampType: **LCS**	Units: **µg/L**	Prep Date: **9/24/2024**	RunNo: **94554**
Client ID: **LCSW**	Batch ID: **45305**		Analysis Date: **9/25/2024**	SeqNo: **1974553**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Petroleum Hydrocarbons	1,080	250	1,250	0	86.4	42.5	123				
Surr: 2-Fluorobiphenyl	19.9		25.00		79.6	50	150				
Surr: o-Terphenyl	24.8		25.00		99.0	50	150				

Sample ID: **2409447-001BDUP**	SampType: **DUP**	Units: **µg/L**	Prep Date: **9/24/2024**	RunNo: **94554**
Client ID: **BATCH**	Batch ID: **45305**		Analysis Date: **9/25/2024**	SeqNo: **1974555**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics	2,280	94.1						2,541	10.7	30	
Heavy Oil	ND	141						0		30	
Total Petroleum Hydrocarbons	2,280	235						2,541	10.7	30	
Surr: 2-Fluorobiphenyl	19.4		23.53		82.4	50	150		0		
Surr: o-Terphenyl	13.1		23.53		55.8	50	150		0		

NOTES:
Chromatographic pattern indicates an unresolved complex mixture, which may be weathered and/or organic material
Detection is biased high due to non-petroleum compounds

Work Order: 2409443
CLIENT: Fulcrum Environmental
Project: Whitten Oil

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **LCS-45354**	SampType: **LCS**	Units: **µg/L**	Prep Date: **9/27/2024**	RunNo: **94675**
Client ID: **LCSW**	Batch ID: **45354**		Analysis Date: **9/28/2024**	SeqNo: **1976928**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics	546	50.0	500.0	0	109	65	135				
Surr: Toluene-d8	23.9		25.00		95.5	65	135				
Surr: 4-Bromofluorobenzene	26.3		25.00		105	65	135				

Sample ID: **MB-45354**	SampType: **MBLK**	Units: **µg/L**	Prep Date: **9/27/2024**	RunNo: **94675**
Client ID: **MBLKW**	Batch ID: **45354**		Analysis Date: **9/28/2024**	SeqNo: **1976916**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics	ND	50.0									
Surr: Toluene-d8	23.8		25.00		95.1	65	135				
Surr: 4-Bromofluorobenzene	24.1		25.00		96.5	65	135				

Sample ID: **2409443-001ADUP**	SampType: **DUP**	Units: **µg/L**	Prep Date: **9/27/2024**	RunNo: **94675**
Client ID: **W05-092324-CW01**	Batch ID: **45354**		Analysis Date: **9/28/2024**	SeqNo: **1976918**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics	ND	50.0						0		30	
Surr: Toluene-d8	23.4		25.00		93.8	65	135		0		
Surr: 4-Bromofluorobenzene	25.4		25.00		101	65	135		0		

Work Order: 2409443
CLIENT: Fulcrum Environmental
Project: Whitten Oil

QC SUMMARY REPORT

Volatile Organic Compounds by EPA 8260D

Sample ID: **LCS-45354** SampType: **LCS** Units: **µg/L** Prep Date: **9/27/2024** RunNo: **94691**
Client ID: **LCSW** Batch ID: **45354** Analysis Date: **9/28/2024** SeqNo: **1977336**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	25.7	0.200	20.00	0	129	80	120				S
Toluene	25.5	0.500	20.00	0	127	80	120				S
Ethylbenzene	20.5	0.500	20.00	0	102	80	120				
m,p-Xylene	42.4	1.00	40.00	0	106	80	120				
o-Xylene	21.2	0.500	20.00	0	106	80	120				
Surr: Dibromofluoromethane	27.2		25.00		109	81.7	121.7				
Surr: Toluene-d8	29.4		25.00		118	82.2	122.2				
Surr: 1-Bromo-4-fluorobenzene	27.2		25.00		109	80.9	120.9				

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect; result meets QC requirements.

Sample ID: **MB-45354** SampType: **MBLK** Units: **µg/L** Prep Date: **9/27/2024** RunNo: **94691**
Client ID: **MBLKW** Batch ID: **45354** Analysis Date: **9/28/2024** SeqNo: **1977322**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.200									
Toluene	ND	0.500									
Ethylbenzene	ND	0.500									
m,p-Xylene	ND	1.00									
o-Xylene	ND	0.500									
Surr: Dibromofluoromethane	28.0		25.00		112	80	120				
Surr: Toluene-d8	27.1		25.00		108	80	120				
Surr: 1-Bromo-4-fluorobenzene	25.9		25.00		104	80	120				

Sample ID: **2409443-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **9/27/2024** RunNo: **94691**
Client ID: **W05-092324-CW01** Batch ID: **45354** Analysis Date: **9/28/2024** SeqNo: **1977325**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1.30	0.200						1.304	0.413	30	
Toluene	ND	0.500						0		30	
Ethylbenzene	ND	0.500						0		30	
m,p-Xylene	ND	1.00						0		30	

Work Order: 2409443
CLIENT: Fulcrum Environmental
Project: Whitten Oil

QC SUMMARY REPORT

Volatile Organic Compounds by EPA 8260D

Sample ID: **2409443-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **9/27/2024** RunNo: **94691**
Client ID: **W05-092324-CW01** Batch ID: **45354** Analysis Date: **9/28/2024** SeqNo: **1977325**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	ND	0.500						0		30	
Surr: Dibromofluoromethane	27.9		25.00		112	81.7	121.7		0		
Surr: Toluene-d8	27.9		25.00		112	82.2	122.2		0		
Surr: 1-Bromo-4-fluorobenzene	27.3		25.00		109	80.9	120.9		0		

Sample ID: **LCS-45369** SampType: **LCS** Units: **µg/L** Prep Date: **9/30/2024** RunNo: **94678**
Client ID: **LCSW** Batch ID: **45369** Analysis Date: **9/30/2024** SeqNo: **1977215**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	24.6	0.200	20.00	0	123	80	120				S
Toluene	25.1	0.500	20.00	0	125	80	120				S
Ethylbenzene	21.4	0.500	20.00	0	107	80	120				
m,p-Xylene	43.0	1.00	40.00	0	107	80	120				
o-Xylene	21.5	0.500	20.00	0	107	80	120				
Surr: Dibromofluoromethane	30.1		25.00		121	81.7	121.7				
Surr: Toluene-d8	27.3		25.00		109	82.2	122.2				
Surr: 1-Bromo-4-fluorobenzene	24.1		25.00		96.3	80.9	120.9				

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

Sample ID: **MB-45369** SampType: **MBLK** Units: **µg/L** Prep Date: **9/30/2024** RunNo: **94678**
Client ID: **MBLKW** Batch ID: **45369** Analysis Date: **9/30/2024** SeqNo: **1977207**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.200									
Toluene	ND	0.500									
Ethylbenzene	ND	0.500									
m,p-Xylene	ND	1.00									
o-Xylene	ND	0.500									
Surr: Dibromofluoromethane	23.4		25.00		93.4	80	120				
Surr: Toluene-d8	27.0		25.00		108	80	120				
Surr: 1-Bromo-4-fluorobenzene	25.0		25.00		100	80	120				

Work Order: 2409443
CLIENT: Fulcrum Environmental
Project: Whitten Oil

QC SUMMARY REPORT

Volatile Organic Compounds by EPA 8260D

Sample ID: **MB-45369**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **9/30/2024**		RunNo: **94678**			
Client ID: **MBLKW**	Batch ID: **45369**					Analysis Date: **9/30/2024**		SeqNo: **1977207**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: **2409443-007ADUP**	SampType: **DUP**			Units: **µg/L**		Prep Date: **9/30/2024**		RunNo: **94678**			
Client ID: **W05-092324-MW08**	Batch ID: **45369**					Analysis Date: **9/30/2024**		SeqNo: **1977214**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	2.86	0.200						2.564	11.1	30	Q
Toluene	0.714	0.500						0.7901	10.1	30	Q
Ethylbenzene	ND	0.500						0		30	
m,p-Xylene	ND	1.00						0		30	
o-Xylene	ND	0.500						0		30	
Surr: Dibromofluoromethane	26.1		25.00		104	81.7	121.7		0		
Surr: Toluene-d8	27.7		25.00		111	82.2	122.2		0		
Surr: 1-Bromo-4-fluorobenzene	25.7		25.00		103	80.9	120.9		0		

NOTES:
Q - Associated calibration verification is above acceptance criteria. Result may be high-biased.

Sample Log-In Check List

Client Name:	FES	Work Order Number:	2409443
Logged by:	Clare Griggs	Date Received:	9/24/2024 9:54:00 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

Item #	Temp ºC
Sample	2.1

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

Fremont Analytical
An Alliance Technical Group Company
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790

Chain of Custody Record & Laboratory Services Agreement

Date: 9/23/24 Page: 1 of: 1

Laboratory Project No (internal): 2409443

Project Name: Whitten Oil

Special Remarks:

Client: Fulcrum Environmental

Project No: 244122.00

Address: 207 W Boone Ave

Collected by: Ethan Dukes

City, State, Zip: Spokane WA 99201

Location: Colville, WA

Telephone: 509-459-9220

Report To (PM): ethan.dukes@fulcrum.net

Disposal: Samples will be disposed in 30 days unless otherwise requested.
☐ Retain volume (specify above) ☐ Return to client

Email(s): ethan.dukes@fulcrum.net & abby.whitmore@fulcrum.net

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	# of Cont.	VOCs (EPA 8260 / 624)	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T) I Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	WOS-092324-GW01	9/23/24	9:39			X	X		X								
2	-GW02		1040														
3	-MW02		~~1038~~ 1154														
4	-MW03		1240														
5	-MW04		1038														
6	-MW06		9:32														
7	-MW08		1040														extra volume QA/QC
8																	
9																	
10																	

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Turn-around Time:
☐ Standard ☐ Next Day
☐ 3 Day ☐ Same Day
☐ 2 Day _____ (specify)

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
x [signature]	Abby Whitmore	9/23/24 1600	x [signature]	Nathan Kotter	9/24/24 954
Relinquished (Signature)	Print Name	Date/Time	Received (Signature)	Print Name	Date/Time
x			x		