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Santa Ana, CA 92705  
t 714.919.6500

May 23, 2024

Mrs. Nancy Sawka  
Oregon Department of Environmental Quality  
Western Region Eugene Office  
165 East Seventh Avenue, Suite 1000  
Eugene, Oregon 97401

DEQ Tanks File No.: 20-20-0844

**First Quarter 2024 Groundwater Monitoring Report**

**United Pacific #5468**  
5720 Main Street  
Springfield, Oregon

Dear Mrs. Sawka:

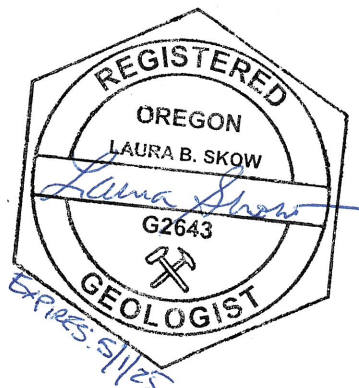
On behalf of United Pacific (UP), Montrose Environmental Services, Inc. (Montrose) is pleased to provide the *First Quarter 2024 Groundwater Monitoring Report* (Report) for the above referenced Site (**Figure 1**). This Report presents a summary of the liquid-phase hydrocarbon (LPH) removal activities conducted during the first quarter of 2024 and a summary of the results for groundwater monitoring conducted on March 27 and 28, 2024.

Groundwater monitoring results indicate that LPH is present in several onsite wells and concentrations of dissolved-phase petroleum hydrocarbons exceed the Oregon Department of Environmental Quality's (DEQ's) Risk Based Concentrations (RBCs) for the Ingestion and Inhalation from Tapwater for the occupational receptor scenario are present in groundwater beneath the Site. Monthly LPH removal and quarterly groundwater monitoring are recommended while remedial actions are implemented for the Site. Should you have questions regarding this report, the LPH removal activities, or the groundwater monitoring results, please contact the undersigned at (714) 919-6500.

Sincerely,

**Montrose Environmental**

Laura Skow, RG  
Project Manager



c: Mr. Tom Robins, United Pacific

# First Quarter 2024 Groundwater Monitoring Report

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# First Quarter 2024 Groundwater Monitoring Report

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Springfield, Oregon

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## SITE INFORMATION

Monitoring and Sampling Date: March 27 and 28, 2024

Site Location: United Pacific #5468  
5720 Main Street  
Springfield, Oregon 97478

United Pacific Contact: Mr. Tom Robins

Montrose Contact: Mrs. Laura Skow

Regulatory Agency: Oregon Department of Environmental Quality  
Western Region Eugene Office  
DEQ Tanks File No.: 20-20-0844

## WORK PERFORMED

During the first quarter 2024, Montrose finalized remedial designs for a Two Phase Extraction (TPE) remediation system to be pilot tested at the site. The Lane Regional Air Protection Agency (LRAPA) issued the *Approval to Construct* for the installation of a Soil Vapor Extraction (SVE) system at the property. Additionally, the City of Springfield Development and Public Works Department (City) issued a temporary discharge authorization to discharge treated contaminated groundwater to its wastewater collection system during pilot testing and scheduled a site inspection for the second quarter 2024.

Based on correspondence with the DEQ, an additional monitoring well along the utility corridor (north of MW-5) and vapor probes on the western adjacent property have been requested by the DEQ to further investigate the extent of impacts northwest of the site. Montrose requested as-built information for the City sewer lines and the building on western adjacent property to aid in selection of proposed boring locations. The proposed boring locations are shown on **Figure 2**. Installation of additional borings will require access authorization from the adjacent property owner.

On January 30 and February 27 and 28, 2024, Montrose performed LPH removal from select site wells using passive skimmers and manual bailing methods. A total of approximately 0.05 gallons of LPH and 13.25 gallons of groundwater were removed. LPH removal and well gauging field data sheets for the first quarter of 2024 are included as **Appendix A**.

On March 27 and 28, 2024, Montrose performed well gauging, LPH removal, and groundwater sampling activities. A total of approximately 0.07 gallons of LPH and 5.90 gallons of groundwater were removed during the LPH removal portion of the work. LPH removal data for the reporting period are summarized in **Table 1**. Site wells not containing measurable amounts of LPH were sampled using DEQ approved low-flow purge sampling techniques.



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Groundwater samples were transported to a State approved environmental laboratory and analyzed for the presence of total petroleum hydrocarbons quantified as gasoline (TPH-Gx) by Method NWTPH-Gx and benzene, toluene, ethylbenzene, total xylenes (BTEX collectively), methyl tert-butyl ether (MTBE), naphthalene, 1-methyl naphthalene, 2-methyl naphthalene, 1,2-dibromoethane (EDB), and 1,2-dichloroethane (EDC) by Environmental Protection Agency (EPA) Method 8260D. Note that the analysis plan was temporarily reduced from full scan volatile organic carbons (VOCs) to short list VOCs since the wells are known to be impacted and remediation is planned for the site. Full scan VOC analysis may be reinstated for future monitoring if directed by the DEQ, for compliance monitoring once remediation is initiated, or for initial screening of new wells installed at the site.

Water quality parameters were measured in the field during sampling and are included in **Table 2**. Field-measured water quality parameters included dissolved oxygen (DO), oxidation reduction potential (ORP), temperature, potential hydrogen level (pH), electrical conductivity, and turbidity. Current and historical groundwater analytical results are presented in **Table 2** and **Table 3**, respectively. An area plan showing the Site and surrounding areas is presented as **Figure 2** and a site plan showing the detailed site configuration and monitoring well locations is presented as **Figure 3**. Site background information is included as **Appendix B**.

## SUMMARY DATA

### Monitoring Details

Monitoring Wells:	Onsite: 8	Offsite: 3
	Wells gauged: 11	Wells sampled: 9
Extraction Wells:	Onsite: 3	Offsite: 0
	Wells gauged: 3	Wells sampled: 2
Observation Wells:	Onsite: 4	Offsite: 0
	Wells gauged: 4	Wells sampled: 0
Purging Method:	Low-flow with peristaltic pump & dedicated tubing	
Sampling Method:	Grab	
Purge Water Disposal:	Onsite drum, pending disposal (14.0 gallons)	
Wells with LPH:	3	
LPH Thickness:	Sheen to 0.01 feet	
Current Remediation Method:	Passive skimming and manual bailing	

### Hydrological Parameters

Depth to Groundwater (below TOC):	Range: 9.00 to 12.07 feet
Groundwater Elevation	Range: 499.17 to 500.63 feet amsl
Groundwater Flow Direction:	North-northwest
Groundwater Gradient:	0.008 ft/ft
Average Groundwater Level Change:	0.40 feet decrease



## First Quarter 2024 Groundwater Monitoring Report

### Select Analytical Results (Table 2)

Wells with TPH-Gx: 7	Maximum: 69,000 µg/L (EW-2R)
Wells with Benzene: 6	Maximum: 1,800 µg/L (EW-4)

### FIRST QUARTER 2024 GROUNDWATER MONITORING RESULTS

Groundwater analytical results and field measurements for the first quarter 2024 sampling event are presented in **Tables 2, 3, and 4**. **Figure 4** shows the monitoring well locations with the corresponding analytical results for TPH-Gx, benzene, and MTBE. Note that groundwater analytical results are compared to the DEQ RBCs for the Ingestion and Inhalation from Tapwater for the occupational worker scenario. Groundwater monitoring results are summarized below:

- The static groundwater level decreased an average of 0.40 feet since the previous monitoring event on December 12 and 13, 2023.
- As shown in **Table 2**, groundwater elevations ranged from 499.17 to 500.63 feet above mean sea level (amsl). The groundwater flow direction and gradient were calculated for the Site using data from Wells MW-1 MW-8, and MW-9. The flow direction is toward the north-northwest at an approximate gradient of 0.008 feet per foot (ft/ft), which is generally consistent with the prior groundwater monitoring event. The groundwater gradient, flow direction, and groundwater elevation contours are shown on **Figure 5**. A summary of historical groundwater flow direction and gradient data is presented in **Table 5** and a rose diagram showing all measured groundwater flow directions and gradients measured to date is presented as **Figure 6**.
- LPH was measured in Well MW-6 and Well EW-1R at a thickness of 0.01 feet (**Figure 4**); LPH sheen was observed in Well MW-5.
- Dissolved-phase TPH-Gx was detected in seven of the eleven wells sampled at concentrations ranging from 240 micrograms per Liter (µg/L, MW-1) to 69,000 µg/L (EW-2R). Well MW-1 did not exceed the applicable DEQ RBC, but all other wells with detected TPH-Gx concentrations exceed the applicable DEQ RBC of 450 µg/L. TPH-Gx was not detected in the remaining wells sampled at concentrations greater than the laboratory reporting limit (RL).
- Benzene was detected in six of the eleven wells sampled at concentrations ranging from 70 µg/L (MW-2) to 1,800 µg/L (EW-4), which exceed the applicable DEQ RBC of 2.1 µg/L. Benzene was not detected in the remaining wells sampled at concentrations greater than the laboratory RL (<1.0 µg/L).
- Toluene was detected in five wells at concentrations ranging from 4.7 µg/L (MW-4) to 10,000 µg/L (EW-4). Concentrations detected at two of the wells exceed the DEQ RBC concentration of 6,300 µg/L for toluene with detected concentrations of 9,000 µg/L (EW-2R) and 10,000 µg/L (EW-4).



## First Quarter 2024 Groundwater Monitoring Report

- Ethylbenzene was detected in five wells at concentrations ranging from 50 µg/L (MW-3) to 1,300 µg/L (EW-4). The concentrations at Wells MW-2, MW-3, MW-7, EW-2R and EW-4 exceed the applicable DEQ RBC of 6.4 µg/L for ethylbenzene.
- Total xylenes were detected in five wells at concentrations ranging from 220 µg/L (MW-4) to 13,000 µg/L (EW-2R). The concentrations of total xylenes in three of the five wells exceed the applicable DEQ RBC of 830 µg/L. Total xylenes were not detected in the remaining wells sampled at concentrations greater than laboratory RL (<2.0 µg/L).
- MTBE was not detected in any of the wells sampled at concentrations greater than the laboratory RL. Note that the laboratory RL for MTBE is 5.0 µg/L.
- Naphthalene was detected in five wells at concentrations ranging from 5.0 µg/L (MW-3) to 130 µg/L (EW-4), all of which exceed the DEQ RBC of 0.72 µg/L. 1-methyl naphthalene and 2-methyl naphthalene were detected in several wells at concentrations ranging from 5.7 µg/L to 36 µg/L and 51 µg/L to 92 µg/L, respectively; DEQ RBCs are not specified for 1-methyl naphthalene and 2-methyl naphthalene. EDB was not detected in any of the wells sampled at concentrations greater than the laboratory RL (<0.010 µg/L). EDC was not detected in any of the wells sampled at concentrations greater than the laboratory RL (<1.0 µg/L).
- Lead was not detected in in any of the wells sampled at concentrations greater than the laboratory RL (<5.0 µg/L).
- COCs were not detected in either equipment blank (EB-1 and EB-2) or in the trip blank sample (TB-1).

Field measurements of DO levels ranged from 0.68 milligrams per liter (mg/L) at Well MW-7 to 40.36 mg/L at Well MW-1. However, several DO measurements collected during this event are anomalously high and attributed to instrumentation issues which could not be resolved with troubleshooting in the field. ORP levels ranged from -235.2 millivolts (mV) measured at Well MW-3 to -6.0 mV at Well MW-9.

A copy of the laboratory analytical report is provided as **Appendix C**. Groundwater monitoring field forms are provided as **Appendix D**. Montrose's Monitoring Well Sampling Protocols are included as **Appendix E**. One 55-gallon drum containing a mixture of LPH and groundwater associated with prior LPH removal activities was removed from the site by Advanced Chemical Transport, Inc. and transported to an appropriate disposal/recycling facility. A copy of the bill of lading is included as **Appendix F**. Purge water generated during the groundwater monitoring event was placed into a 55-gallon drum, previously staged on site. When the drum is full arrangements will be made to have it transported to an appropriate disposal/recycling facility under manifest.



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## LPH REMOVAL

LPH removal activities were conducted on January 30, February 27 and 28, and March 27 and 28, 2024. During each LPH removal event, skimmers were removed from the wells, emptied, and volumes of LPH and groundwater recorded (**Appendix A** and **Appendix D**). The wells were then gauged and depths to LPH and groundwater recorded. For remaining wells containing measurable LPH, manual LPH removal was conducted using disposable polyethylene bailers.

The well gauging and LPH removal activities will continue on a periodic basis as long as measurable amounts of LPH are detected in wells at the Site. To date, approximately 360.20 gallons of LPH and 3,740 gallons of impacted groundwater have been removed from site wells during the LPH removal activities (**Table 1**).

## HYDROCARBON TREND AND DISTRIBUTION ANALYSIS

A summary of current and historical groundwater sample analytical results is provided in **Tables 2** and **3**, respectively. Groundwater elevation and LPH thickness trends are shown on **Chart 1** and TPH-Gx and benzene concentration trends are shown in **Charts 2** and **3**, respectively.

The average groundwater elevation beneath the Site has decreased approximately 0.40 feet since December 13, 2023 (previous monitoring event). **Chart 1** shows a groundwater elevation decrease occurring around March 2022; with a similar drop in groundwater elevations occurring around the same time in 2021. The annual fluctuation in groundwater elevation is well documented since late 2020, the beginning of the current data set.

Measurable LPH was present in two wells at a thickness of 0.01 feet (MW-6 and EW-1R) on March 28, 2024; a hydrocarbon sheen was present in Well MW-5. The distribution of LPH is currently centered near the USTs (confirmed source, historically) and LPH thicknesses exhibit a fluctuating but generally decreasing trend over the period of record (**Chart 1**). For example, the LPH thickness in Well MW-6 has decreased from a maximum thickness of 1.65 feet in March 2021 to 0.01 feet in March 2024. Similarly, the LPH thickness in Well MW-5 has decreased from a maximum thickness of 0.23 feet in August 2021 to a sheen in March 2024 (**Table 1**). Further changes in the distribution and thickness of LPH beneath the Site is expected over time and LPH recovery efforts will continue as long as LPH is detectable in site wells.

TPH-Gx concentrations in the Site wells sampled exhibit fluctuating trends but have generally decreased since the previous monitoring event. For example, the TPH-Gx concentration in Well MW-4 decreased from a maximum concentration of 190,000 µg/L on March 30, 2021 to 4,000 µg/L on June 29, 2023, then rebounded to 19,000 µg/L on September 19, 2023, and 7,800 µg/L on December 13, 2023, and has since decreased to 1,600 µg/L on March 27, 2024 (**Table 3**). The TPH-Gx concentration in Well MW-7 decreased from a maximum concentration of 24,000 µg/L on October 12, 2022 to 7,100 µg/L (September 19, 2023) and 3,900 µg/L (December 12, 2023), before rebounding to 6,100 µg/L (March 27, 2024). The fluctuations in COC



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concentrations appear to be following a trend of seasonal fluctuations where lows are typically seen during the winter months and highs are typically seen during the summer months. This trend is expected to continue with overall slight decreases until active remediation is implemented at the Site, at which time significant and permanent decreases in COC concentrations are expected.

Current LPH thicknesses and TPH-Gx, BTEX and MTBE concentrations are shown in **Figure 4** to illustrate the distribution of dissolved-phase hydrocarbons. As shown in **Figure 4**, LPH is present in Wells MW-6 and EW-1R, and a hydrocarbon sheen was present in Well MW-5, located downgradient of the vicinity of the UST cavity; the highest COC concentrations are present in Wells EW-2R and EW-4, located south of the USTs. COC concentrations have remained at non-detectable levels in perimeter Wells MW-8, MW-9, MW-10 and MW-11 and serve to delineate the plume to the west, northwest, north and southeast.

### CONCLUSION AND RECOMMENDATIONS

Based on the first quarter 2024 groundwater monitoring event results, LPH is present in onsite Well MW-6 and Well EW-1R and hydrocarbon sheen is present in Well MW-5. Dissolved-phase hydrocarbon concentrations in groundwater samples collected from Wells MW-2, MW-3, MW-4, MW-7, EW-2R, and EW-4 exceed applicable DEQ RBCs for the Ingestion and Inhalation from Tapwater for the occupational worker scenario. Results from perimeter Wells MW-8 through MW-11 define the groundwater plume to the west, northwest, north and southeast. Continued monitoring of these wells is recommended to monitor possible plume migration offsite.

As requested by the DEQ, one additional offsite monitoring well and two soil vapor probes are proposed to further investigate impacts at the site (**Figure 2**) and one monitoring well, located east of MW-1, that was pre-cleared during prior assessment activities remains to be installed to define the plume to the east. Offsite boring locations will require assess authorization from the western adjacent property owner prior to installation.

Montrose has sourced remediation equipment and utility providers necessary to implement the TPE pilot test as proposed in the Workplan for Remedial Pilot Testing (December 5, 2022). Approval to construct and operate the SVE system was received from LRAPA and temporary discharge authorization was received from the City to support the pilot testing. Plans for construction and utility installations are in review with UP. Montrose will update the DEQ on the procurement progress and will provide a schedule and advance notification prior to commencing field activities. Montrose recommends continuing monthly LPH gauging and removal activities to recover LPH from Site wells and quarterly groundwater monitoring to evaluate groundwater quality beneath the Site. The next groundwater monitoring event is planned for the second quarter of 2024 (June 2024).



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Springfield, Oregon

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May 23, 2024

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Montrose is pleased to be of service to UP and the DEQ. If there are questions regarding this report or if additional site information is required, please do not hesitate to contact Montrose at (714) 919-6500.



## First Quarter 2024 Groundwater Monitoring Report

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Springfield, Oregon

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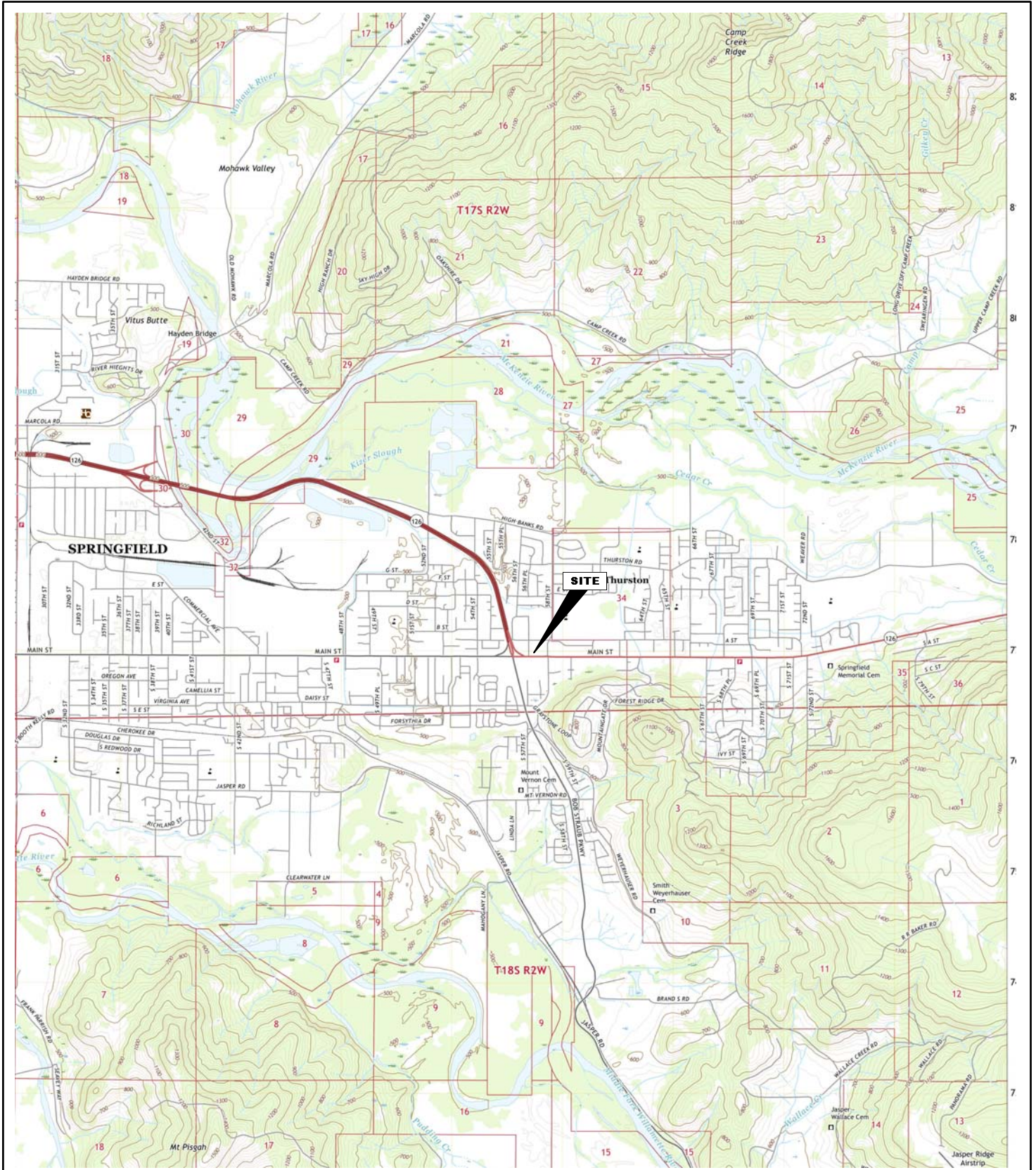
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### ACRONYMS:

amsl:	above mean sea level
bgs:	below ground surface
BTEX:	benzene, toluene, ethylbenzene, and total xylenes
btoc:	below top of casing
°C:	degrees Celsius
DEQ:	Oregon Department of Environmental Quality
DO:	dissolved oxygen
DTW:	depth to water
EW:	extraction well
GW Δ:	change (difference) in water elevation since last measurement
Fe <sup>2+</sup> :	ferrous iron
ft:	feet
ft/ft:	feet per foot
GW:	groundwater
µg/L:	micrograms per Liter
µs/cm:	microsiemens per centimeter
LPH:	liquid phase hydrocarbons
mg/L:	milligrams per Liter
MTBE:	methyl tert-butyl ether
mV:	millivolts
MW:	monitoring well
na:	not applicable/not analyzed
nm:	not measured
ns:	not sampled
NTU:	Nephelometric Turbidity Unit
ORP:	oxidation reduction potential
pH:	potential hydrogen
ppm:	parts per million
PQL:	practical quantitation limit
RBC:	Risk based concentration
RL:	reporting limit
TPH-Dx:	total diesel-range petroleum hydrocarbons
TPH-Gx:	total gasoline-range petroleum hydrocarbons
TPH-Ox:	total lube oil-range petroleum hydrocarbons
UST:	underground storage tank
VOCs:	volatile organic compounds



## FIGURES



Map Information:  
 U.S. GEOLOGICAL SURVEY  
 SPRINGFIELD QUADRANGLE  
 44°02'46.0"N 122°55'43.0"W

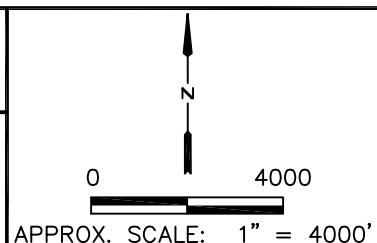


FIGURE 1  
 SITE LOCATION MAP

United Pacific #5468  
 5720 Main Street,  
 Springfield, OR 97478

DATE DRAWN  
 11/10/2022

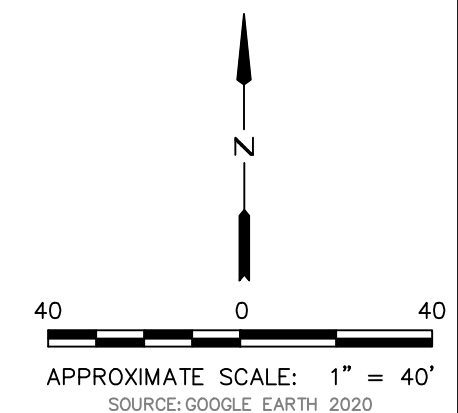
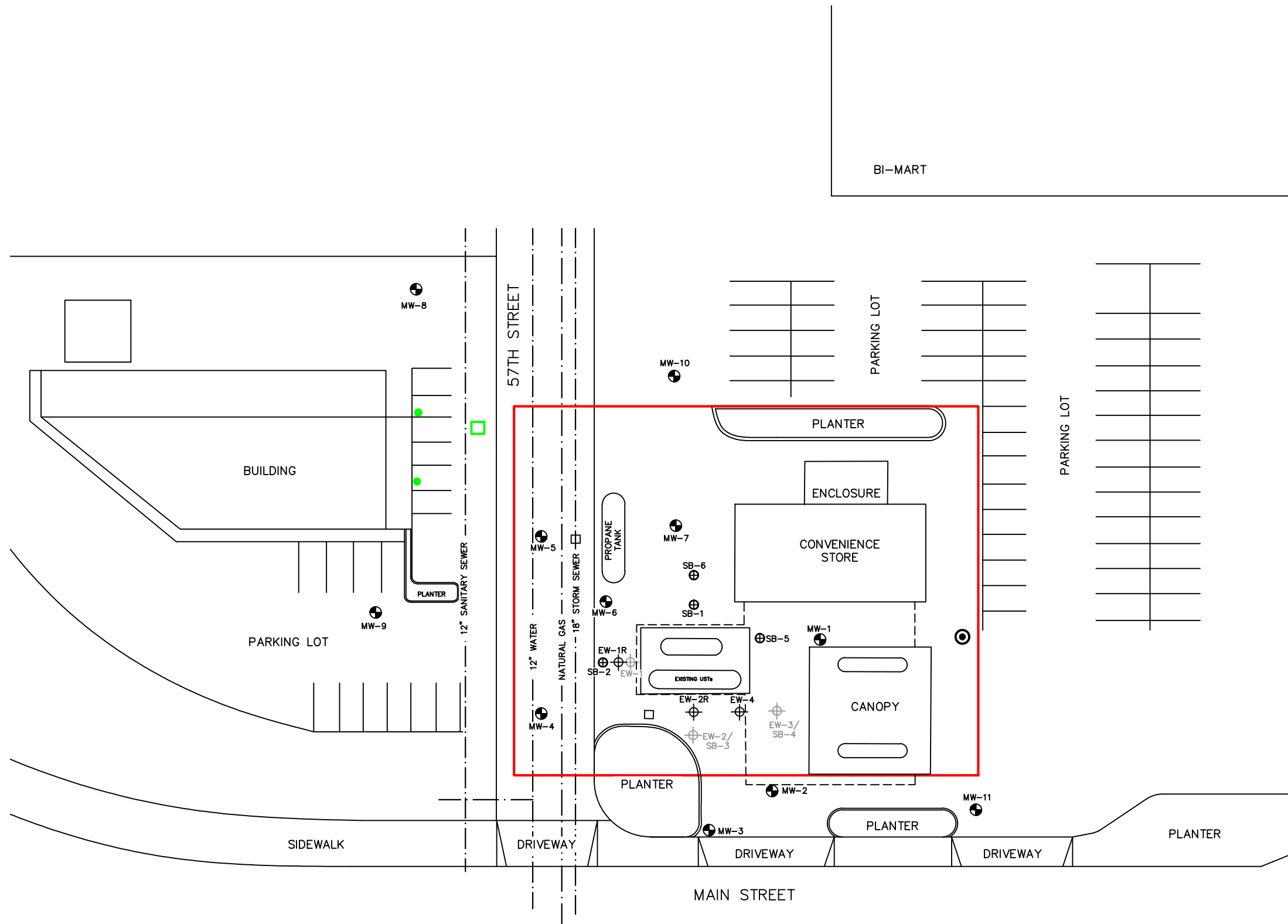
PROJECT NO.  
 006811


FILE NO.  
 006811F1-SLM

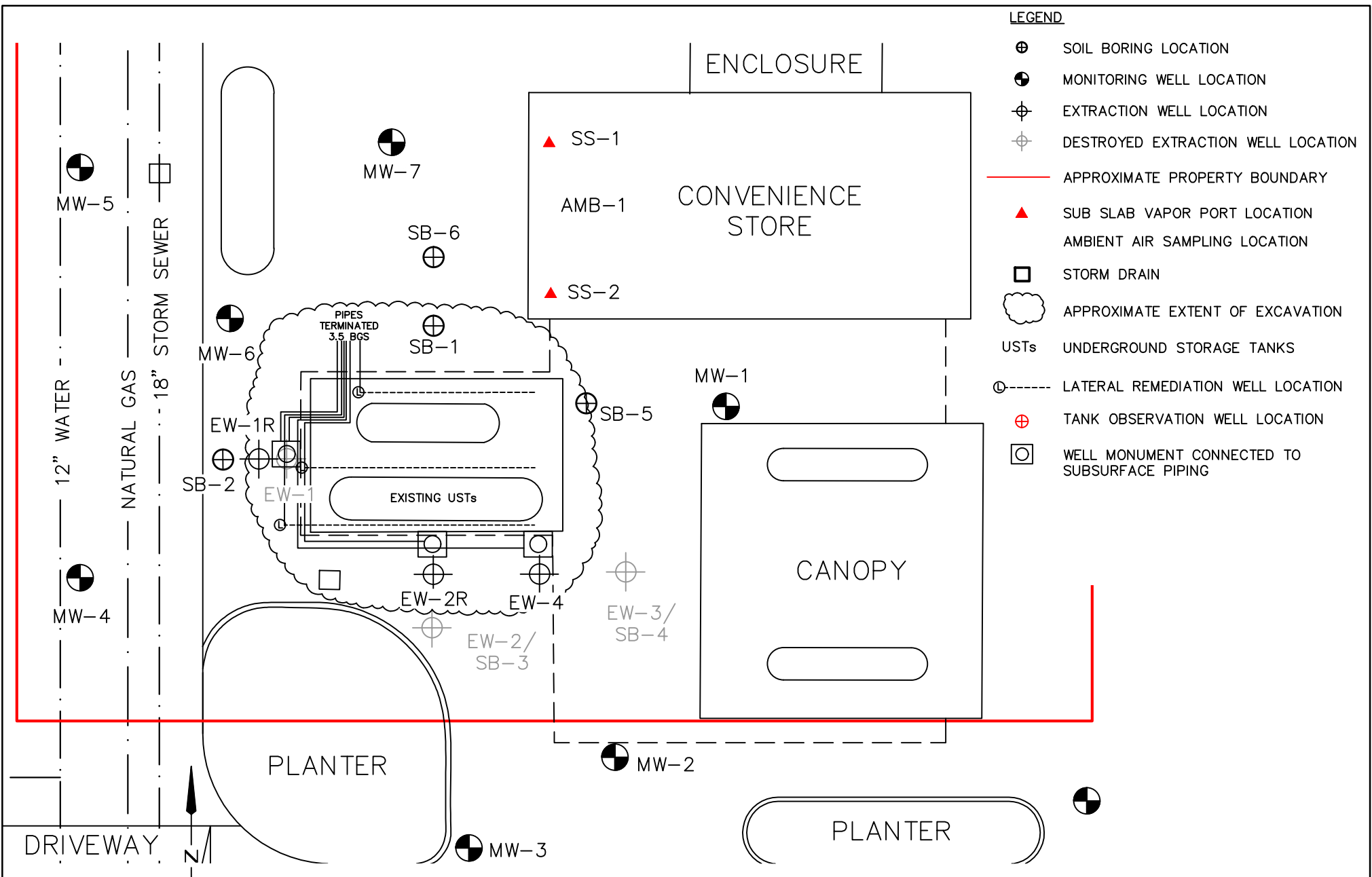
BI-MART

LEGEND

- ⊕ SOIL BORING LOCATION
- ⊙ MONITORING WELL LOCATION
- ⊕ EXTRACTION WELL LOCATION
- ⊕ DESTROYED EXTRACTION WELL LOCATION
- PROPOSED WELL LOCATION
- PROPOSED VAPOR PROBE LOCATION
- ⊙ PRECLEARED PROPOSED WELL LOCATION (MW-12)



 <p>1631 E. Saint Andrew Place, Santa Ana, CA 92705   t 714.919.6500</p>	FIGURE 2	DATE DRAWN 05/28/2024
	AREA PLAN	PROJECT NO. 027409
	United Pacific #5468 5720 Main Street, Springfield, OR 97478	FILE NO. 027409F2-AP



**LEGEND**

- ⊕ SOIL BORING LOCATION
- ⊗ MONITORING WELL LOCATION
- ⊕ EXTRACTION WELL LOCATION
- ⊕ DESTROYED EXTRACTION WELL LOCATION
- APPROXIMATE PROPERTY BOUNDARY
- ▲ SUB SLAB VAPOR PORT LOCATION
- AMBIENT AIR SAMPLING LOCATION
- STORM DRAIN
- ☁ APPROXIMATE EXTENT OF EXCAVATION
- USTs UNDERGROUND STORAGE TANKS
- ⊕ LATERAL REMEDIATION WELL LOCATION
- ⊕ TANK OBSERVATION WELL LOCATION
- ⊕ WELL MONUMENT CONNECTED TO SUBSURFACE PIPING

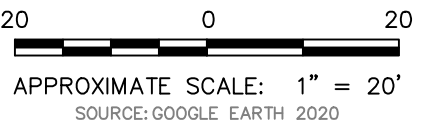


FIGURE 3

**SITE PLAN**

United Pacific #5468  
5720 Main Street,  
Springfield, OR 97478

DATE DRAWN  
5/23/2024

PROJECT NO.  
004668

FILE NO.  
004668F3-SP

- LEGEND**
- ⊕ SOIL BORING LOCATION
  - ⊗ MONITORING WELL LOCATION
  - ⊕ EXTRACTION WELL LOCATION
  - ⊕ DESTROYED EXTRACTION WELL LOCATION
  - APPROXIMATE PROPERTY BOUNDARY
  - STORM DRAIN
  - ↙ 0.008 FT/FT APPROXIMATE GROUNDWATER DIRECTION AND MAGNITUDE IN FEET PER FOOT
  - USTs UNDERGROUND STORAGE TANKS
  - LPH LIQUID PHASE HYDROCARBONS
  - - - APPROXIMATE CURRENT EXTENT OF LPH
  - 0.01 FEET OF LPH IN WELL
  - <5.0 COMPOUND NOT DETECTED AT OR ABOVE LABORATORY METHOD REPORTING LIMIT
  - TPHg TOTAL GASOLINE-RANGE PETROLEUM HYDROCARBONS
  - B BENZENE
  - MTBE METHYL TERT-BUTYL ETHER
  - ug/L MICROGRAMS PER LITER
  - \* NOT SAMPLED DUE TO LPH PRESENCE
  - SHEEN** SHEEN WAS OBSERVED
  - BOLD** DETECTION EXCEEDS RISK BASED CONCENTRATION (RBC)

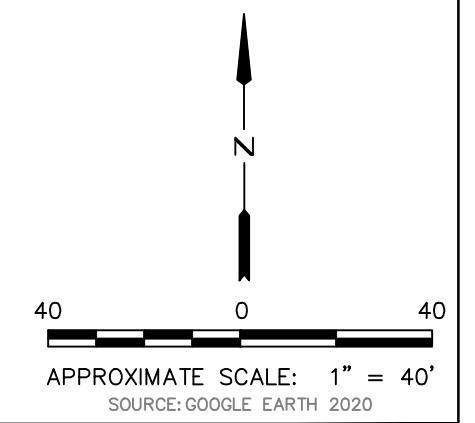
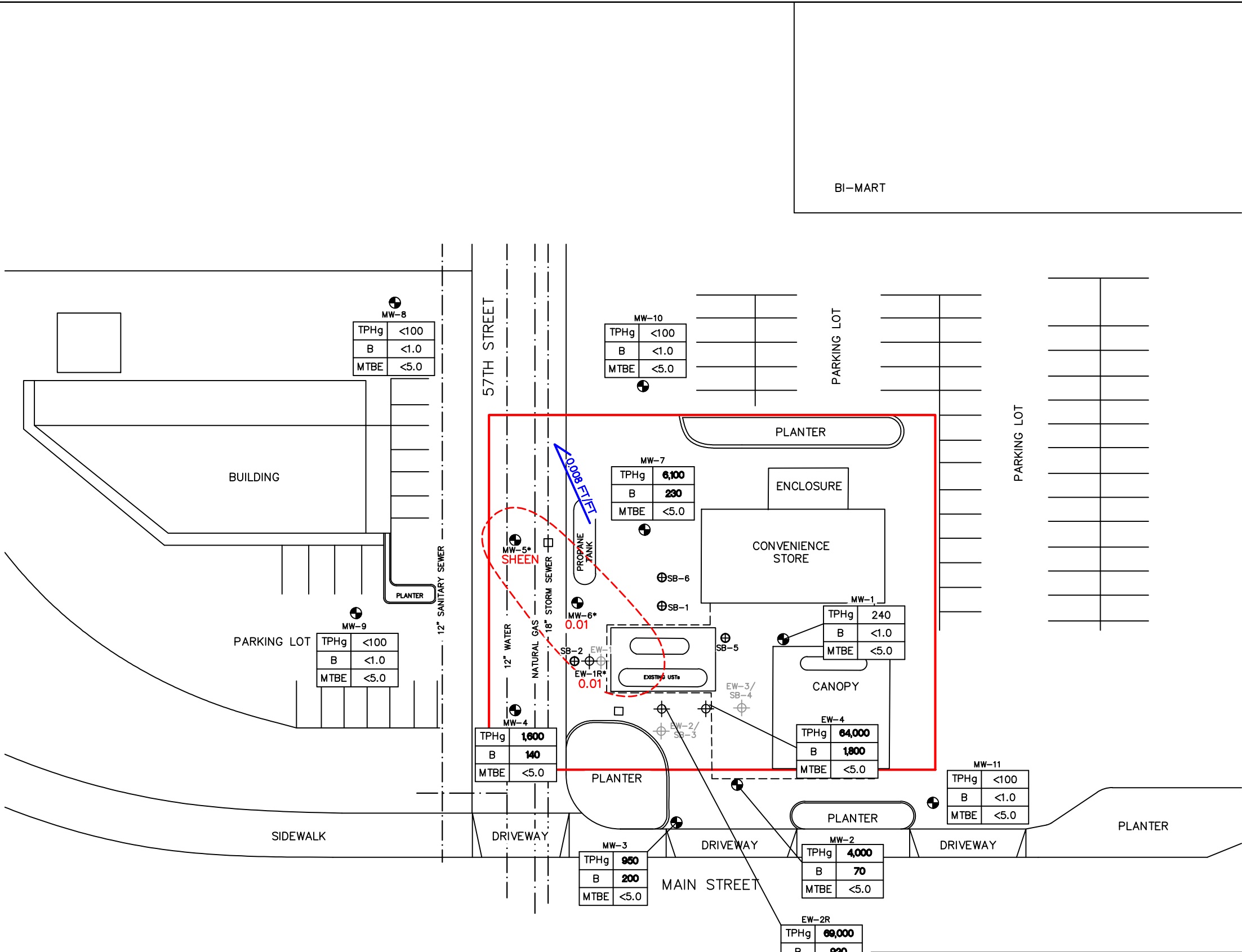


FIGURE 4  
GROUNDWATER ANALYTICAL MAP  
MARCH 27 & 28, 2024

United Pacific #5468  
5720 Main Street,  
Springfield, OR 97478

DATE DRAWN 04/30/2024
PROJECT NO. 027409
FILE NO. 027409F4-GAR

BI-MART

LEGEND

- ⊕ SOIL BORING LOCATION
- ⊙ MONITORING WELL LOCATION
- ⊕ EXTRACTION WELL LOCATION
- ⊕ DESTROYED EXTRACTION WELL LOCATION
- APPROXIMATE PROPERTY BOUNDARY
- STORM DRAIN
- ↙ 0.008 FT/FT APPROXIMATE GROUNDWATER DIRECTION AND MAGNITUDE IN FEET PER FOOT
- USTs UNDERGROUND STORAGE TANKS
- 499.17 GROUNDWATER ELEVATION IN FEET AMSL
- AMSL ABOVE MEAN SEA LEVEL
- - - APPROXIMATE GROUNDWATER CONTOUR IN FEET AMSL; DASHED WHERE INFERRED
- ⊕ DEPRESSION CONTOUR

NOTE: WELLS MW-1, MW-8 AND MW-9 USED TO CALCULATE GROUNDWATER FLOW DIRECTION AND GRADIENT

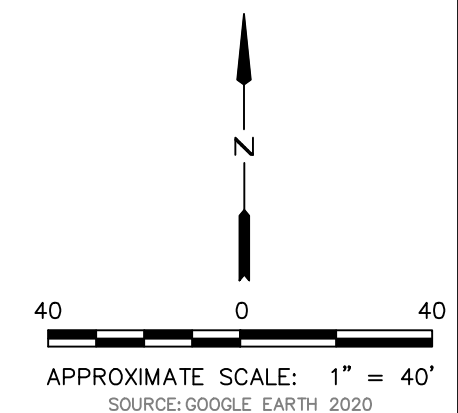
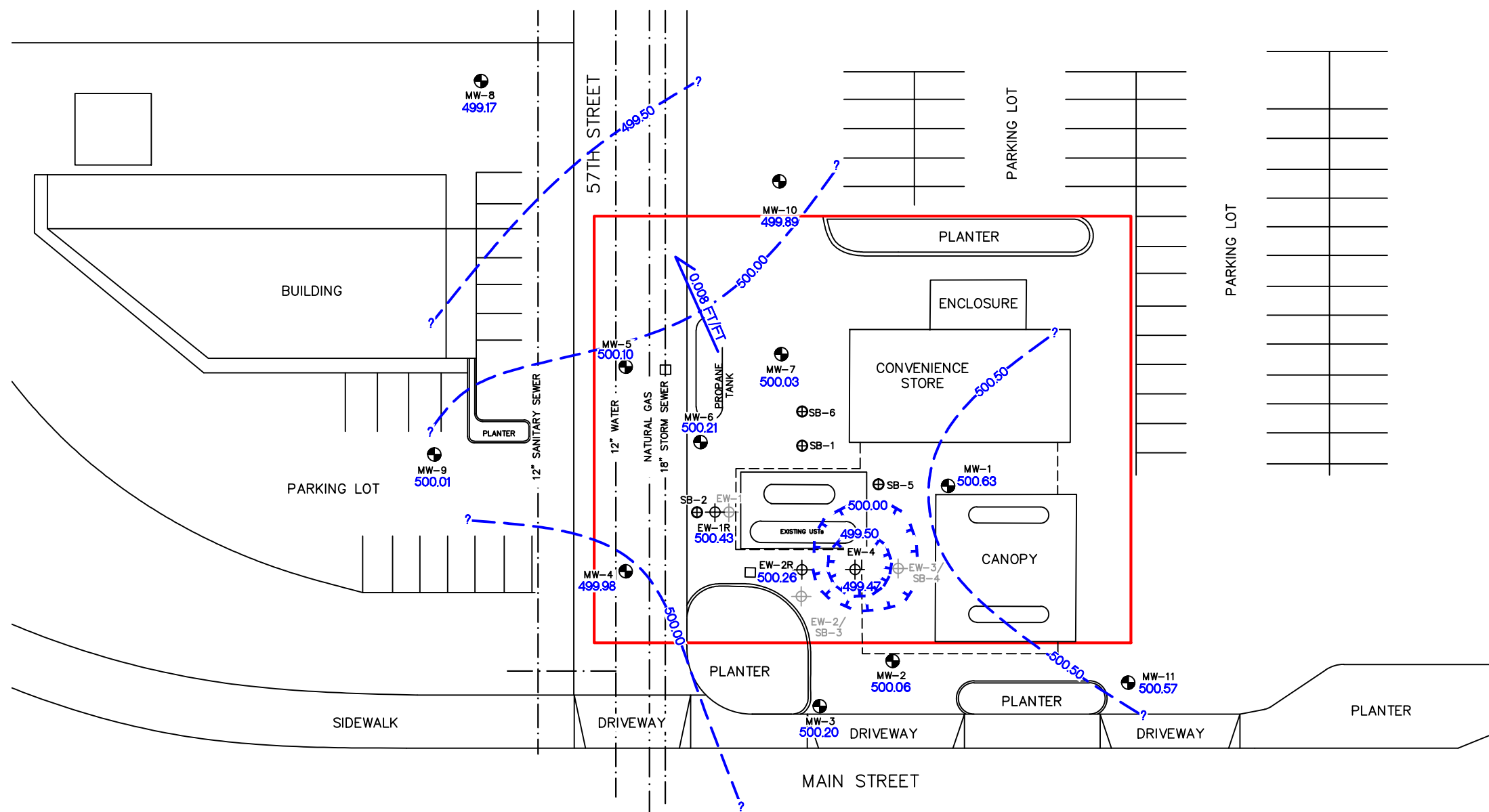


FIGURE 5  
 GROUNDWATER CONTOUR MAP  
 MARCH 27 & 28, 2024

United Pacific #5468  
 5720 Main Street,  
 Springfield, OR 97478

DATE DRAWN 4/30/2024
PROJECT NO. 027409
FILE NO. 027409F5-GCM

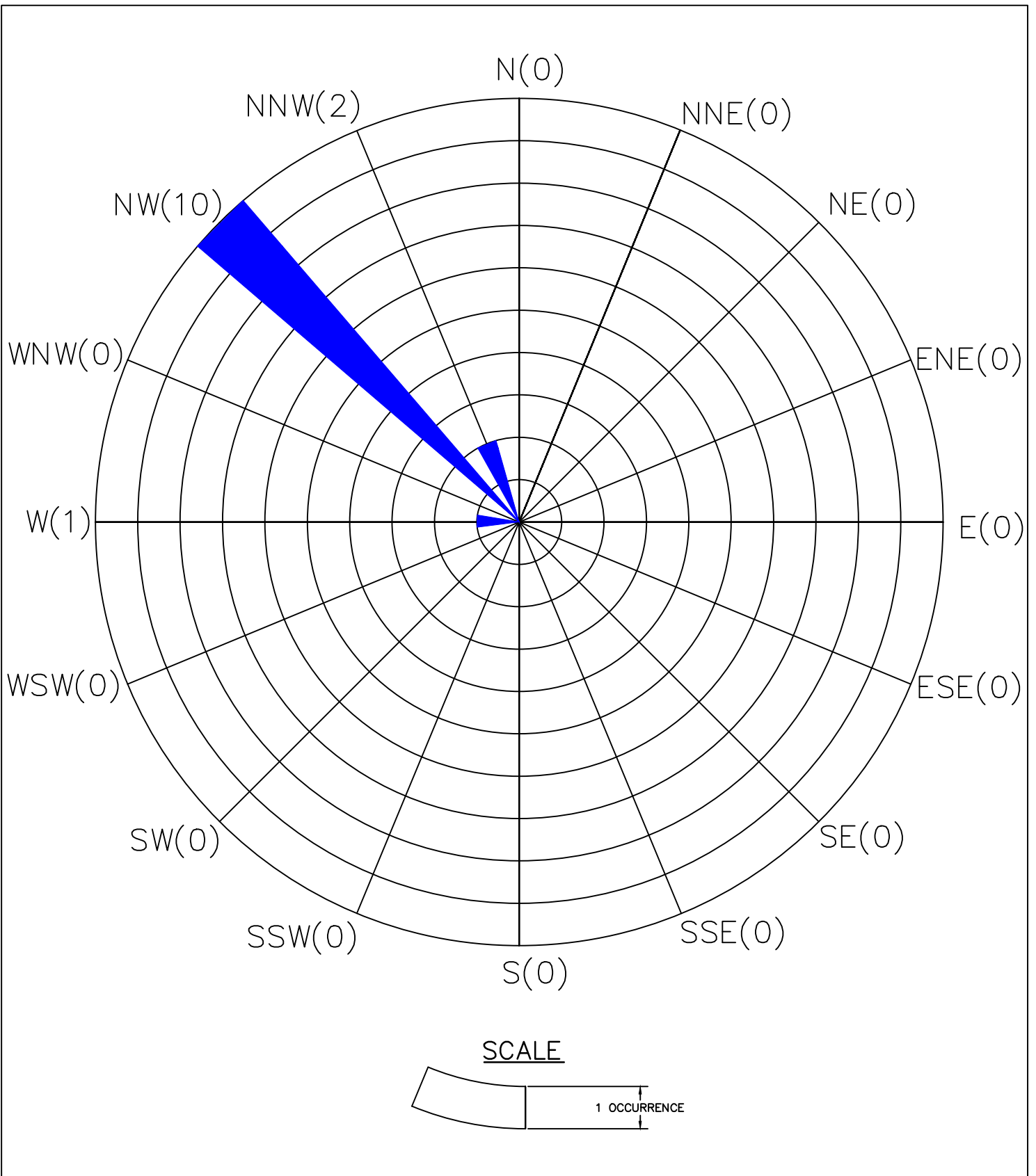


FIGURE 6  
GROUNDWATER FLOW DIRECTION  
ROSE DIAGRAM

United Pacific #5468  
5720 Main Street,  
Springfield, OR 97478

DATE DRAWN  
5/22/2024

PROJECT NO.  
027409

FILE NO.  
027409F6-RD



## TABLES

**Table 1**  
**United Pacific #5468**  
**Summary of LPH Removal**  
**Springfield, Oregon**  
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Well ID	Date Measured	TOC Elevation (ft amsl)	Depth to LPH (ft btoc)	Depth to Water (ft btoc)	LPH Thickness (ft)	Thickness Change (ft)	Groundwater Elevation (ft amsl)	Elevation Change (ft)	Estimated LPH Removed (gal)	Cumulative LPH Removed (gal)	Estimated Water Removed (gal)	Cumulative Water Removed (gal)
EW-1	11/19/20 <sup>(a)</sup>	510.97	--	11.05	--	--	499.92	--	--	--	700.0	700.0
	01/13/21 <sup>(b)</sup>		--	10.48	--	--	500.49	0.57	--	--	--	700.0
	01/27/21 <sup>(b)</sup>		10.70	10.92	0.22	0.22	500.22	-0.27	0.35	0.35	1.4	701.4
	02/03/21 <sup>(b)</sup>		10.55	10.57	0.02	-0.20	500.42	0.20	5.00	5.35	50.0	751.4
	02/25/21 <sup>(b)</sup>		10.55	10.59	0.04	0.02	500.41	0.00	0.25	5.60	3.0	754.4
	03/30/21		11.05	11.14	0.09	0.05	499.90	-0.51	0.00	5.60	0.0	754.4
	04/20/21		11.55	11.73	0.18	0.09	499.38	-0.52	0.00	5.60	0.0	754.4
	05/20/21 <sup>(f)</sup>		11.80	11.94	0.14	-0.04	499.14	-0.24	15.00	20.60	135.0	889.4
	06/08/21		--	11.73	0.00	-0.14	499.24	0.10	0.00	20.60	0.0	889.4
	06/23/21 <sup>(b)</sup>		--	11.74	0.00	0.00	499.23	-0.01	0.00	20.60	1.7	891.1
	07/08/21		--	11.96	0.00	0.00	499.01	-0.22	0.00	20.60	0.0	891.1
	07/22/21		12.11	12.12	0.01	0.01	498.86	-0.15	0.25	20.85	1.0	892.1
	08/05/21		--	12.18	0.00	-0.01	498.79	-0.07	0.00	20.85	0.0	892.1
	08/18/21		--	12.29	0.00	0.00	498.68	-0.11	0.00	20.85	0.0	892.1
	09/01/21		--	12.26	0.00	0.00	498.71	0.03	0.00	20.85	0.0	892.1
	09/22/21		--	11.72	0.00	0.00	499.25	0.54	0.00	20.85	1.4	893.5
	10/06/21		--	11.40	0.00	0.00	499.57	0.32	0.00	20.85	0.0	893.5
	10/20/21		--	11.37	0.00	0.00	499.60	0.03	0.00	20.85	0.0	893.5
	11/03/21		--	11.02	0.00	0.00	499.95	0.35	0.00	20.85	0.0	893.5
	11/17/21		--	10.81	0.00	0.00	500.16	0.21	0.00	20.85	0.0	893.5
	12/08/21		--	10.68	0.00	0.00	500.29	0.13	0.00	20.85	0.0	893.5
	12/22/21		--	9.90	0.00	0.00	501.07	0.78	0.00	20.85	0.0	893.5
	01/11/22		--	10.20	0.00	0.00	500.77	-0.30	0.00	20.85	0.0	893.5
	01/26/22		--	10.37	0.00	0.00	500.60	-0.17	0.00	20.85	0.0	893.5
	02/07/22		--	10.26	0.00	0.00	500.71	0.11	0.00	20.85	0.0	893.5
	Well Decommissioned on 02/08/22											
EW-1R	10/12/22 <sup>(a)</sup>	510.86	12.17	12.19	0.02	--	498.69	--	0.10	0.10	2.0	2.0
	11/14/22		--	10.90	0.00	-0.02	499.96	1.27	0.00	0.10	0.0	2.0
	12/19/22		--	11.32	0.00	0.00	499.54	-0.42	0.00	0.10	3.0	5.0
	01/18/23		--	10.91	0.00	0.00	499.95	0.41	0.00	0.10	0.0	5.0
	02/28/23		--	10.69	0.00	0.00	500.17	0.22	0.00	0.10	0.0	5.0
	03/27/23		--	10.35	0.00	0.00	500.51	0.34	1.00	1.10	5.5	10.5
	01/18/23		--	10.91	0.00	0.00	499.95	-0.56	0.00	0.00	0.0	10.5
	02/23/23 <sup>(b)</sup>		--	10.69	0.00	0.00	500.17	0.22	0.00	0.00	0.0	10.5
	03/27/23 <sup>(b)</sup>		--	10.35	0.00	0.00	500.51	0.34	0.00	0.00	0.0	10.5
	04/06/23 <sup>(b)</sup>		10.10	10.11	0.01	0.01	500.76	0.25	0.20	1.30	1.3	11.8
	05/09/23		--	10.53	0.00	0.00	500.33	-0.43	0.00	1.30	3.0	14.8
	06/29/23		--	11.82	0.00	0.00	499.04	-1.29	0.00	1.30	0.0	14.8
	07/27/23		--	12.11	0.00	0.00	498.75	-0.29	0.00	1.30	0.25	15.1
	08/10/23		12.32	12.33	0.01	0.01	498.54	-0.21	0.10	1.40	2.4	17.5
	09/19/23		12.30	12.45	0.15	0.14	498.52	-0.01	0.15	1.55	3.3	20.7
	10/25/23		11.38	11.45	0.07	-0.08	499.46	0.94	0.10	1.65	3.0	23.7
	11/21/23		--	11.25	0.02	-0.05	499.63	0.16	0.05	1.70	1.05	24.8
	12/13/23		--	10.18	Sheen	-0.02	500.68	1.05	0.01	1.71	1.75	26.5
	01/30/24		--	9.66	0.00	0.00	501.20	0.52	0.00	1.71	1.75	28.3
	02/28/24		--	10.37	Sheen	0.00	500.49	-0.71	0.00	1.71	2.25	30.5
03/28/24	10.43	10.44	0.01	0.01	500.43	-0.06	0.01	1.72	2.00	32.5		
EW-2	11/19/20 <sup>(b)</sup>	510.90	11.20	11.68	0.48	--	499.59	--	32.5	32.50	617.5 <sup>(d)</sup>	617.5
	01/13/21 <sup>(b)</sup>		10.22	12.05	1.83	1.35	500.25	0.66	5.00	37.50	45.0	662.5
	01/27/21 <sup>(b)</sup>		10.50	12.35	1.85	0.02	499.97	-0.28	2.60	40.10	2.4	664.9
	02/03/21 <sup>(b)</sup>		10.77	11.37	0.60	-1.25	499.99	0.02	23.00	63.10	209.0	873.9
	02/25/21 <sup>(b)</sup>		10.74	11.10	0.36	-0.24	500.08	0.09	0.50	63.60	0.0	873.9
	03/30/21		11.20	11.28	0.08	-0.28	499.68	-0.39	0.03	63.63	0.0	873.9
	04/20/21		11.74	11.93	0.19	0.11	499.12	-0.57	0.00	63.63	0.0	873.9
	05/20/21 <sup>(f)</sup>		11.95	12.20	0.25	0.06	498.89	-0.22	15.00	78.63	135.0	1,008.9
	06/08/21 <sup>(b)</sup>		11.90	12.00	0.10	-0.15	498.98	0.09	0.25	78.88	4.0	1,012.9
	06/23/21 <sup>(b)</sup>		11.88	12.07	0.19	0.09	498.98	0.00	0.40	79.28	4.2	1,017.1
	07/08/21 <sup>(b)</sup>		12.12	12.17	0.05	-0.14	498.77	-0.21	0.26	79.54	3.2	1,020.3
	07/22/21		--	12.28	0.00	-0.05	498.62	-0.15	0.00	79.54	0.0	1,020.3
	08/05/21 <sup>(b)</sup>		12.32	12.33	0.01	0.01	498.58	-0.04	0.10	79.64	0.4	1,020.7
	08/18/21 <sup>(b)</sup>		12.48	12.50	0.02	0.01	498.42	-0.16	0.10	79.74	1.0	1,021.7
	09/01/21 <sup>(b)</sup>		12.40	12.42	0.02	0.00	498.50	0.08	0.10	79.84	1.0	1,022.7
	09/22/21 <sup>(b)</sup>		11.84	11.87	0.03	0.01	499.05	0.56	0.20	80.04	3.0	1,025.7
	10/06/21		11.55	11.59	0.04	0.01	499.34	0.29	0.25	80.29	2.0	1,027.7
	10/20/21 <sup>(b,c)</sup>		11.52	11.63	0.11	0.07	499.35	0.01	0.25	80.54	3.0	1,030.7
	11/03/21		--	11.19	0.00	-0.11	499.71	0.36	0.00	80.54	0.0	1,030.7
	11/17/21		--	11.02	0.00	0.00	499.88	0.17	0.00	80.54	0.0	1,030.7
	12/08/21 <sup>(f)</sup>		10.95	10.97	0.02	0.02	499.95	0.07	1.30	81.84	128.7	1,159.4
	12/22/21		10.20	10.22	0.02	0.00	500.70	0.75	0.13	81.97	0.0	1,159.4
	01/11/22		10.00	11.96	1.96	1.94	500.44	-0.26	6.60	88.57	2.4	1,161.8
	01/26/22 <sup>(f)</sup>		10.95	12.00	1.05	-0.91	499.70	-0.74	11.60	100.17	20.0	1,181.8
	02/07/22		9.98	11.99	2.01	0.96	500.45	0.74	1.59	101.76	0.0	1,181.8
	Well Decommissioned on 02/08/22											



**Table 1**  
**United Pacific #5468**  
**Summary of LPH Removal**  
**Springfield, Oregon**  
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Well ID	Date Measured	TOC Elevation (ft amsl)	Depth to LPH (ft btoc)	Depth to Water (ft btoc)	LPH Thickness (ft)	Thickness Change (ft)	Groundwater Elevation (ft amsl) <sup>(1)</sup>	Elevation Change (ft)	Estimated LPH Removed (gal)	Cumulative LPH Removed (gal)	Estimated Water Removed (gal)	Cumulative Water Removed (gal)		
EW-2R	10/12/22 <sup>(4)</sup>	510.91	12.32	12.34	0.02	--	498.59	--	0.20	0.20	3.0	3.0		
	11/14/22		--	10.94	0.00	-0.02	499.97	1.38	0.00	0.20	0.0	3.0		
	12/19/22		11.53	11.54	0.01	0.01	499.38	-0.59	0.50	0.70	6.0	9.0		
	01/18/23 <sup>(4)</sup>		11.11	11.12	0.01	0.00	499.80	0.42	0.13	0.83	4.0	13.0		
	02/28/23		--	10.93	0.00	0.00	499.98	0.18	0.00	0.83	0.0	13.0		
	03/27/23		--	10.53	0.00	0.00	500.38	0.40	0.00	0.83	0.0	13.0		
	04/06/23		--	10.32	0.00	0.00	500.59	0.21	0.00	0.83	0.0	13.0		
	05/09/23		--	10.59	0.00	0.00	500.32	-0.27	0.00	0.83	0.0	13.0		
	06/29/23		--	12.17	0.00	0.00	498.74	-1.58	0.00	0.83	0.0	13.0		
	07/27/23		--	12.74	0.00	0.00	498.17	-0.57	0.00	0.83	0.0	13.0		
	08/10/23		--	12.44	0.00	0.00	498.47	0.30	0.00	0.83	0.0	13.0		
	09/19/23		--	12.46	0.00	0.00	498.45	-0.02	0.00	0.83	0.0	13.0		
	10/25/23		--	11.60	0.00	0.00	499.31	0.86	0.00	0.83	0.1	13.1		
	11/21/23		--	11.37	0.00	0.00	499.54	0.23	0.00	0.83	0.2	13.3		
	12/13/23		--	10.44	0.00	0.00	500.47	0.93	0.00	0.83	0.0	13.3		
	01/30/24		--	9.96	0.00	0.00	500.95	0.48	0.00	0.83	0.0	13.3		
	02/27/24		--	10.63	0.00	0.00	500.28	-0.67	0.00	0.83	0.0	13.3		
03/28/24	--	10.65	0.00	0.00	500.26	-0.02	0.00	0.83	0.0	13.3				
EW-3	11/19/20 <sup>(5)</sup>	511.63	12.02	12.45	0.43	--	499.51	--	32.5	32.50	617.5 <sup>(12)</sup>	617.5		
	01/13/21 <sup>(5)</sup>		11.13	11.29	0.16	-0.27	500.46	0.95	5.00	37.50	45.0	662.5		
	01/27/21 <sup>(5)</sup>		11.36	11.68	0.32	0.16	500.19	-0.27	0.60	38.10	3.9	666.4		
	02/03/21 <sup>(5)</sup>		12.79	12.89	0.10	-0.22	498.82	-1.38	16.00	54.10	149.0	815.4		
	02/25/21 <sup>(5)</sup>		ND	11.39	0.00	-0.10	500.24	1.42	0.00	54.10	0.0	815.4		
	03/30/21		11.68	11.90	0.22	0.22	499.90	-0.34	0.07	54.17	1.5	816.9		
	04/20/21 <sup>(5)</sup>		12.25	12.64	0.39	0.17	499.29	-0.61	0.00	54.17	0.0	816.9		
	05/20/21 <sup>(7)</sup>		12.42	12.84	0.42	0.03	499.11	-0.18	15.00	69.17	135.0	951.9		
	06/08/21		--	12.44	0.00	-0.42	499.19	0.08	0.00	69.17	0.0	951.9		
	06/23/21 <sup>(4)</sup>		12.40	12.41	0.01	0.01	499.23	0.04	0.07	69.24	0.5	952.4		
	07/8/21 <sup>(4)</sup>		12.62	12.71	0.09	0.08	498.99	-0.24	0.40	69.64	0.8	953.2		
	07/22/21 <sup>(4)</sup>		12.80	12.94	0.14	0.05	498.80	-0.19	1.00	70.64	4.0	957.2		
	08/05/21 <sup>(4)</sup>		12.86	13.07	0.21	0.07	498.72	-0.08	0.50	71.14	2.0	959.2		
	08/18/21 <sup>(4)</sup>		13.01	13.20	0.19	-0.02	498.58	-0.15	1.50	72.64	2.0	961.2		
	09/01/21 <sup>(4)</sup>		13.00	13.14	0.14	-0.05	498.60	0.02	0.25	72.89	1.5	962.7		
	09/22/21 <sup>(4)</sup>		12.36	12.45	0.09	-0.05	499.25	0.65	0.40	73.29	4.0	966.7		
	10/06/21		--	12.16	0.00	-0.09	499.47	0.22	0.00	73.29	0.0	966.7		
	10/20/21 <sup>(4,5)</sup>		12.08	12.12	0.00	0.00	499.51	0.04	0.10	73.39	3.0	969.7		
	11/03/21		--	11.75	0.00	0.00	499.88	0.37	0.00	73.39	0.0	969.7		
	11/17/21		--	11.55	0.00	0.00	500.08	0.20	0.00	73.39	0.0	969.7		
	12/08/21		--	11.44	0.00	0.00	500.19	0.11	0.00	73.39	0.0	969.7		
	12/22/21		10.76	10.77	0.01	0.01	500.87	0.68	0.13	73.52	0.3	970.0		
	01/11/22		11.43	11.44	0.01	0.00	500.20	-0.67	0.16	73.68	2.9	972.9		
	01/26/22		--	11.73	0.00	-0.01	499.90	-0.30	0.00	73.68	0.0	972.9		
	02/07/22		11.39	11.51	0.12	0.12	500.21	0.31	0.80	74.48	0.8	973.7		
	Well Decommissioned on 02/07/22													
	EW-4		10/12/22 <sup>(5)</sup>	511.52	12.89	12.90	0.01	--	498.63	--	0.10	0.10	2.0	2.0
11/14/22		--	10.97		0.00	-0.01	500.55	1.92	0.00	0.10	0.0	2.0		
12/19/22 <sup>(4,5)</sup>		12.08	12.30		0.22	0.22	499.39	-1.16	1.00	1.10	8.0	10.0		
01/18/23 <sup>(4)</sup>		11.67	11.68		0.01	-0.21	499.85	0.46	0.50	1.60	4.5	14.5		
02/28/23 <sup>(5)</sup>		--	11.60		0.00	-0.01	499.92	0.07	0.00	1.60	1.5	16.0		
03/27/23		--	11.20		0.00	0.00	500.32	0.40	1.60	3.20	4.9	20.9		
04/06/23		--	11.00		0.00	0.00	500.52	0.20	0.10	3.30	1.4	22.3		
05/09/23		10.60	10.62		0.02	0.02	500.92	0.40	0.30	3.60	3.0	25.3		
06/29/23		--	12.72		0.00	-0.02	498.80	-2.12	0.00	3.60	0.0	25.3		
07/27/23		--	12.81		0.00	0.00	498.71	-0.09	0.00	3.60	0.0	25.3		
08/10/23		--	13.04		0.00	0.00	498.48	-0.23	0.00	3.60	0.0	25.3		
09/19/23		--	13.07		0.00	0.00	498.45	-0.03	0.00	3.60	0.0	25.3		
10/25/23		--	12.19		0.00	0.00	499.33	0.88	0.00	3.60	0.0	25.3		
11/21/23		--	12.01		0.00	0.00	499.51	0.18	0.00	3.60	0.0	25.3		
12/13/23		--	9.29		0.00	0.00	502.23	2.72	0.00	3.60	0.0	25.3		
01/30/24	--	10.51	0.00	0.00	501.01	-1.22	0.00	3.60	0.0	25.3				
02/27/24	--	11.19	0.00	0.00	500.33	-0.68	0.00	3.60	0.5	25.8				
03/28/24	--	11.20	0.00	0.00	500.32	-0.01	0.00	3.60	0.0	25.8				
MW-1	03/30/21	512.70	12.78	12.79	0.01	--	499.92	--	0.00	0.00	0.0	0.0		
	04/20/21		13.40	13.59	0.19	0.18	499.26	-0.66	0.00	0.00	0.0	0.0		
	05/20/21 <sup>(7)</sup>		13.61	13.95	0.34	0.15	499.01	-0.25	15.00	15.00	135.0	135.0		
	06/08/21 <sup>(4)</sup>		13.59	13.86	0.27	-0.07	499.05	0.04	2.00	17.00	2.0	137.0		
	06/23/21 <sup>(5)</sup>		13.55	13.83	0.28	0.01	499.08	0.04	0.40	17.40	2.1	139.1		
	07/8/21 <sup>(4,5)</sup>		13.76	14.15	0.39	0.11	498.85	-0.24	2.10	19.50	0.8	139.9		
	07/22/21		13.95	14.22	0.27	-0.12	498.69	-0.16	2.50	22.00	3.0	142.9		
	08/05/21		14.02	14.27	0.25	-0.02	498.62	-0.07	2.00	24.00	2.0	144.9		
	08/18/21		14.17	14.25	0.08	-0.17	498.51	-0.11	2.00	26.00	1.5	146.4		
	09/01/21 <sup>(5)</sup>		14.15	14.16	0.01	-0.07	498.55	0.04	0.10	26.10	1.0	147.4		
	09/22/21 <sup>(4)</sup>		13.56	13.57	0.01	0.00	499.14	0.59	0.10	26.20	1.0	148.4		
	10/06/21		--	13.18	0.00	-0.01	499.52	0.38	0.00	26.20	0.0	148.4		
	10/20/21		--	13.23	0.00	0.00	499.47	-0.05	0.00	26.20	0.0	148.4		
	11/03/21		--	12.80	0.00	0.00	499.90	0.43	0.00	26.20	0.0	148.4		
	11/17/21		--	12.39	0.00	0.00	500.31	0.41	0.00	26.20	0.0	148.4		



**Table 1**  
**United Pacific #5468**  
**Summary of LPH Removal**  
**Springfield, Oregon**  
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Well ID	Date Measured	TOC Elevation (ft amsl)	Depth to LPH (ft btoc)	Depth to Water (ft btoc)	LPH Thickness (ft)	Thickness Change (ft)	Groundwater Elevation (ft amsl) <sup>(1)</sup>	Elevation Change (ft)	Estimated LPH Removed (gal)	Cumulative LPH Removed (gal)	Estimated Water Removed (gal)	Cumulative Water Removed (gal)		
MW-1 Cont.	12/08/21	512.70	--	12.47	0.00	0.00	500.23	-0.08	0.00	26.20	0.0	148.4		
	12/22/21		--	11.61	0.00	0.00	501.09	0.86	0.00	26.20	0.0	148.4		
	01/11/22		--	11.82	0.00	0.00	500.88	-0.21	0.00	26.20	0.0	148.4		
	01/26/22		--	12.56	0.00	0.00	500.14	-0.74	0.00	26.20	0.0	148.4		
	02/07/22		--	11.88	0.00	0.00	500.82	0.68	0.00	26.20	0.0	148.4		
	03/23/22		12.97	13.00	0.03	0.03	499.72	-1.10	0.00	26.20	0.0	148.4		
	06/28/22 <sup>(4,5)</sup>		13.14	13.16	0.02	-0.01	499.56	-0.17	0.10	26.30	2.0	150.4		
	08/11/22		--	13.75	0.00+	-0.02	498.95	-0.61	0.11	26.41	0.5	150.9		
	08/25/22 <sup>(4)</sup>		13.97	14.00	0.03	0.03	498.72	-0.23	0.30	26.71	2.0	152.9		
	09/08/22 <sup>(4)</sup>		13.88	13.90	0.02	-0.01	498.82	0.09	0.50	27.21	3.25	156.2		
	10/12/22 <sup>(4)</sup>		13.07	13.11	0.04	0.02	499.62	0.81	0.50	27.71	3.0	159.2		
	11/14/22		12.37	12.39	0.02	-0.02	500.33	0.70	0.50	28.21	3.0	162.2		
	12/19/22 <sup>(4)</sup>		--	13.17	0.00	-0.02	499.53	-0.80	0.00	28.21	1.0	163.2		
	01/18/23		--	12.68	0.00	0.00	500.02	0.49	0.00	28.21	0.0	163.2		
	02/28/23		--	11.90	0.00	0.00	500.80	0.78	0.00	28.21	0.0	163.2		
	03/27/23		--	11.59	0.00	0.00	501.11	0.31	0.00	28.21	0.0	163.2		
	04/06/23		--	11.64	0.00	0.00	501.06	-0.05	0.00	28.21	0.0	163.2		
	05/09/23		--	12.69	0.00	0.00	500.01	-1.05	0.00	28.21	0.0	163.2		
	06/29/23		--	12.75	0.00	0.00	499.95	-0.06	0.00	28.21	0.0	163.2		
	07/27/23		--	14.04	Sheen	0.00	498.66	-1.29	0.00	28.21	0.25	163.4		
	08/10/23		14.18	14.25	0.07	0.00	498.50	-0.16	0.10	28.31	0.90	164.3		
	09/19/23		14.23	14.25	0.02	0.00	498.47	-0.04	0.05	28.36	0.60	164.9		
	10/25/23		--	13.10	0.00	-0.02	499.60	1.13	0.00	28.36	0.10	165.0		
	11/21/23		--	13.01	0.00	0.00	499.69	0.09	0.00	28.36	0.20	165.2		
	12/13/23		--	11.78	0.00	0.00	500.92	1.23	0.00	28.36	0.00	165.2		
	01/30/24		--	11.47	0.00	0.00	501.23	0.31	0.00	28.36	0.00	165.2		
	02/27/24		--	12.18	0.00	0.00	500.52	-0.71	0.00	28.36	0.00	165.2		
	03/28/24		--	12.07	0.00	0.00	500.63	0.11	0.00	28.36	0.00	165.2		
	MW-2		03/30/21	511.29	11.42	11.93	0.51	--	499.75	--	0.00	0.00	0.0	0.0
			04/20/21 <sup>(4,5)</sup>		11.88	12.60	0.72	0.21	499.24	-0.51	3.25	3.25	5.0	5.0
			05/20/21 <sup>(7)</sup>		--	12.30	0.00	-0.72	498.99	-0.25	15.53	18.78	135.0	140.0
			06/08/21		--	12.27	0.00	0.00	499.02	0.03	0.00	18.78	0.0	140.0
			06/23/21 <sup>(4)</sup>		12.15	12.16	0.01	0.01	499.14	0.12	0.07	18.85	0.5	140.5
07/08/21 <sup>(4)</sup>		12.36	12.49		0.13	0.12	498.90	-0.24	0.80	19.65	1.6	142.1		
07/22/21 <sup>(4)</sup>		12.50	12.67		0.17	0.04	498.75	-0.15	1.50	21.15	3.0	145.1		
08/05/21		12.54	12.76		0.22	0.05	498.70	-0.05	1.00	22.15	3.0	148.1		
08/18/21		12.70	12.95		0.25	0.03	498.53	-0.17	0.75	22.90	2.0	150.1		
09/01/21 <sup>(4,5)</sup>		12.64	12.85		0.21	-0.04	498.60	0.07	0.50	23.40	2.0	152.1		
09/22/21		12.09	12.16		0.07	-0.14	499.18	0.58	0.75	24.15	3.0	155.1		
10/06/21		--	11.84		0.00	-0.07	499.45	0.27	0.00	24.15	0.0	155.1		
10/20/21		--	11.80		0.00	0.00	499.49	0.04	0.00	24.15	0.0	155.1		
11/03/21		--	11.51		0.00	0.00	499.78	0.29	0.00	24.15	0.0	155.1		
11/17/21		--	11.17		0.00	0.00	500.12	0.34	0.00	24.15	0.0	155.1		
12/08/21		--	11.12		0.00	0.00	500.17	0.05	0.00	24.15	0.0	155.1		
12/22/21		10.50	10.51		0.01	0.01	500.79	0.62	0.07	24.22	0.0	155.1		
01/11/22		--	11.40		0.00	-0.01	499.89	-0.90	0.00	24.22	0.3	155.4		
01/26/22		--	11.49		0.00	0.00	499.80	-0.09	0.00	24.22	0.0	155.4		
02/07/22		--	11.47		0.00	0.00	499.82	0.02	0.13	24.35	0.3	155.7		
03/23/22		11.75	11.76		0.01	0.01	499.54	-0.28	0.00	24.35	0.0	155.7		
06/28/22		12.12	12.14		0.02	0.01	499.17	-0.37	0.10	24.45	2.0	157.7		
08/11/22 <sup>(4)</sup>		12.40	12.42		0.02	0.00	498.89	-0.28	0.23	24.68	3.2	160.9		
08/25/22 <sup>(4)</sup>		--	12.70		0.00	-0.02	498.59	-0.30	0.20	24.88	0.5	161.4		
09/08/22 <sup>(4,5)</sup>		12.55	12.56		0.01	0.01	498.74	0.15	0.10	24.98	3.0	164.4		
10/12/22 <sup>(4)</sup>		12.77	12.84		0.07	0.06	498.50	-0.23	0.25	25.23	3.0	167.4		
11/14/22		10.93	10.95		0.02	-0.05	500.36	1.85	0.25	25.48	2.5	169.9		
12/19/22		--	11.95		0.00	-0.02	499.34	-1.02	0.13	25.61	0.5	170.4		
01/18/23		--	11.55		0.00	0.00	499.74	0.40	0.00	25.61	0.5	170.9		
02/28/23		11.33	11.34		0.01	0.01	499.96	0.22	0.10	25.71	1.3	172.1		
03/27/23		--	11.02		0.00	-0.01	500.27	0.31	0.10	25.81	1.4	173.5		
04/06/23		--	10.81		0.00	0.00	500.48	0.21	0.00	25.81	0.5	174.0		
05/09/23		--	11.75		0.00	0.00	499.54	-0.94	0.00	25.81	0.5	174.5		
06/29/23	--	12.33	0.00	0.00	498.96	-0.58	0.00	25.81	0.5	175.0				
07/27/23	--	12.71	0.00	0.00	498.58	-0.38	0.00	25.81	0.5	175.5				
08/10/23	12.86	12.91	0.05	0.00	498.42	-0.16	0.05	25.86	0.45	176.0				
09/19/23	12.98	13.04	0.06	0.00	498.30	-0.12	0.05	25.91	1.20	177.2				
10/25/23	--	12.07	0.00	-0.06	499.22	0.92	0.00	25.91	0.00	177.2				
11/21/23	--	11.85	0.00	0.00	499.44	0.22	0.00	25.91	0.00	177.2				
12/13/23	--	10.84	0.00	0.00	500.45	1.01	0.00	25.91	0.00	177.2				
01/30/24	--	10.49	0.00	0.00	500.80	0.35	0.00	25.91	0.00	177.2				
02/27/24	--	11.12	0.00	0.00	500.17	-0.63	0.00	25.91	0.00	177.2				
03/27/24	--	11.23	0.00	0.00	500.06	-0.11	0.00	25.91	0.00	177.2				
MW-5	03/30/21	509.10	--	9.56	0.00	--	499.54	--	0.00	0.00	0.0	0.0		
	04/20/21		--	10.13	0.00	0.00	498.97	-0.57	0.00	0.00	0.0	0.0		
	05/20/21		--	10.32	0.00	0.00	498.78	-0.19	0.00	0.00	0.0	0.0		
	06/08/21		--	10.31	0.00	0.00	498.79	0.01	0.00	0.00	0.0	0.0		
	06/23/21		--	10.29	0.00	0.00	498.81	0.02	0.00	0.00	0.0	0.0		
	07/08/21		--	10.53	0.00	0.00	498.57	-0.24	0.00	0.00	0.0	0.0		



**Table 1**  
**United Pacific #5468**  
**Summary of LPH Removal**  
**Springfield, Oregon**  
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Well ID	Date Measured	TOC Elevation (ft amsl)	Depth to LPH (ft btoc)	Depth to Water (ft btoc)	LPH Thickness (ft)	Thickness Change (ft)	Groundwater Elevation (ft amsl) <sup>(1)</sup>	Elevation Change (ft)	Estimated LPH Removed (gal)	Cumulative LPH Removed (gal)	Estimated Water Removed (gal)	Cumulative Water Removed (gal)		
MW-5 Cont.	07/22/21	509.10	--	10.69	0.00	0.00	498.41	-0.16	0.00	0.00	0.0	0.0		
	08/05/21 <sup>(4)</sup>		10.74	10.76	0.02	0.02	498.36	-0.05	0.10	0.10	0.5	0.5		
	08/18/21 <sup>(4)</sup>		10.87	11.10	0.23	0.21	498.18	-0.18	0.75	0.85	2.5	3.0		
	09/01/21 <sup>(4)</sup>		10.76	10.77	0.01	-0.22	498.34	0.16	0.10	0.95	1.0	4.0		
	09/22/21		--	10.27	0.00	-0.01	498.83	0.49	0.00	0.95	0.9	4.9		
	10/06/21		--	9.93	0.00	0.00	499.17	0.34	0.00	0.95	0.0	4.9		
	10/20/21		--	9.95	0.00	0.00	499.15	-0.02	0.00	0.95	0.0	4.9		
	11/03/21		--	9.56	0.00	0.00	499.54	0.39	0.00	0.95	0.0	4.9		
	11/17/21		--	9.37	0.00	0.00	499.73	0.19	0.00	0.95	0.0	4.9		
	12/08/21		--	9.25	0.00	0.00	499.85	0.12	0.00	0.95	0.0	4.9		
	12/22/21		--	8.45	0.00	0.00	500.65	0.80	0.00	0.95	0.0	4.9		
	01/11/22		--	8.81	0.00	0.00	500.29	-0.36	0.00	0.95	0.0	4.9		
	01/26/22		--	9.14	0.00	0.00	499.96	-0.33	0.00	0.95	0.0	4.9		
	02/07/22		--	8.84	0.00	0.00	500.26	0.30	0.00	0.95	0.0	4.9		
	03/23/22		--	9.50	0.00	0.00	499.60	-0.66	0.00	0.95	0.0	4.9		
	06/29/22		--	10.02	0.00	0.00	499.08	-0.52	0.00	0.95	2.9	7.8		
	08/11/22 <sup>(4,5)</sup>		10.41	10.50	0.09	0.09	498.67	-0.41	0.10	1.05	2.0	9.8		
	08/25/22		10.63	10.73	0.10	0.01	498.45	-0.22	0.75	1.80	0.75	10.6		
	09/08/22 <sup>(4)</sup>		10.57	10.58	0.01	-0.09	498.53	0.08	0.30	2.10	3.5	14.1		
	10/12/22 <sup>(4)</sup>		11.68	11.75	0.07	0.06	497.40	-1.12	1.00	3.10	5.0	19.1		
	11/14/22		--	9.34	0.00	-0.07	499.76	2.36	0.50	3.60	0.0	19.1		
	12/19/22 <sup>(4)</sup>		--	9.82	0.00	0.00	499.28	-0.48	0.10	3.70	2.0	21.1		
	01/18/23		--	9.44	0.00	0.00	499.66	0.38	0.25	3.95	1.0	22.1		
	02/28/23 <sup>(4)</sup>		9.22	9.23	0.01	0.01	499.88	0.22	5.90	9.85	0.6	22.7		
	03/27/23		--	9.12	0.00	-0.01	499.98	0.10	0.00	9.85	1.0	23.7		
	04/06/23		--	8.66	0.00	0.00	500.44	0.46	0.13	9.98	1.5	25.2		
	05/09/23		--	9.55	0.00	0.00	499.55	-0.89	0.10	10.08	1.0	26.2		
	06/29/23		10.50	10.56	0.06	0.06	498.59	-0.96	0.79	10.87	0.3	26.4		
	07/27/23		--	11.89	0.00	-0.06	497.21	-1.38	0.00	10.87	0.0	26.4		
	08/10/23		10.90	10.97	0.07	0.07	498.18	0.97	0.05	10.92	0.95	27.4		
	09/19/23		--	11.98	Sheen	-0.07	497.12	-1.06	0.00	10.92	0.35	27.7		
	10/25/23		9.93	9.94	0.01	0.01	499.17	2.05	0.10	11.02	1.65	29.4		
	11/21/23		--	11.13	0.00	-0.01	497.97	-1.20	0.65	11.67	0.10	29.5		
	12/13/23		8.78	8.79	0.01	0.01	500.32	2.35	0.05	11.72	1.70	31.2		
	01/30/24		--	8.11	0.00	-0.01	500.99	0.67	0.00	11.72	1.75	32.9		
	02/28/24		--	8.93	Sheen	0.00	500.17	-0.82	0.00	11.72	2.50	35.4		
	03/28/24		--	9.00	Sheen	0.00	500.10	-0.07	0.01	11.73	2.1	37.5		
	MW-6		03/30/21 <sup>(6,7)</sup>	510.51	10.50	12.15	1.65	--	499.62	--	6.00	6.00	1.0	1.0
			04/20/21 <sup>(4)</sup>		11.31	12.04	0.73	-0.92	499.03	-0.59	4.00	10.00	6.0	7.0
			05/20/21 <sup>(7)</sup>		11.60	12.22	0.62	-0.11	498.76	-0.26	17.24	27.24	135.0	142.0
06/08/21 <sup>(4)</sup>		11.70	11.72		0.02	-0.60	498.81	0.04	2.08	29.32	4.0	146.0		
06/23/21 <sup>(4)</sup>		11.60	11.62		0.02	0.00	498.91	0.10	1.65	30.97	0.5	146.5		
07/08/21		--	11.91		0.00	-0.02	498.60	-0.31	2.10	33.07	2.1	148.6		
07/22/21 <sup>(4)</sup>		11.92	12.18		0.26	0.26	498.53	-0.07	3.00	36.07	3.5	152.1		
08/05/21 <sup>(4)</sup>		11.88	12.56		0.68	0.42	498.47	-0.06	3.50	39.57	3.5	155.6		
08/18/21 <sup>(4)</sup>		11.95	12.75		0.80	0.12	498.37	-0.10	3.50	43.07	2.0	157.6		
09/1/21 <sup>(4)</sup>		11.98	12.58		0.60	-0.20	498.39	0.02	3.25	46.32	1.0	158.6		
09/22/21 <sup>(4)</sup>		11.47	11.88		0.41	-0.19	498.94	0.55	5.20	51.52	6.0	164.6		
10/06/21		--	11.04		0.00	-0.41	499.47	0.53	0.00	51.52	0.0	164.6		
10/20/21 <sup>(4)</sup>		11.05	11.85		0.00	0.00	498.66	-0.81	3.50	55.02	4.0	168.6		
11/3/21 <sup>(4)</sup>		10.88	10.90		0.02	0.02	499.63	0.97	1.45	56.47	0.7	169.3		
11/17/21		--	10.61		0.00	-0.02	499.90	0.27	0.13	56.60	0.0	169.3		
12/08/21		--	10.53		0.00	0.00	499.98	0.08	0.26	56.86	0.0	169.3		
12/22/21		9.91	9.92		0.01	0.01	500.60	0.62	0.13	56.99	0.5	169.8		
01/11/22 <sup>(4)</sup>		10.08	10.13		0.05	0.04	500.42	-0.18	1.98	58.97	4.0	173.8		
01/26/22 <sup>(4)</sup>		10.88	10.92		0.04	-0.01	499.62	-0.80	0.81	59.78	2.1	175.9		
02/07/22 <sup>(4)</sup>		10.12	10.26		0.14	0.10	500.36	0.74	2.50	62.28	3.5	179.4		
03/23/22 <sup>(4)</sup>		10.74	11.15		0.41	0.27	499.67	-0.68	1.84	64.12	2.1	181.5		
06/28/22 <sup>(4)</sup>		11.17	11.86		0.69	0.28	499.18	-0.50	3.00	67.12	6.0	187.5		
08/11/22 <sup>(4)</sup>		11.68	11.95		0.27	-0.42	498.77	-0.41	2.50	69.62	3.5	191.0		
08/25/22		--	12.12		0.00	-0.27	498.39	-0.38	1.00	70.62	0.0	191.0		
09/08/22 <sup>(4)</sup>		11.85	11.92		0.07	0.07	498.64	0.25	2.50	73.12	3.5	194.5		
10/12/22 <sup>(4)</sup>		11.99	12.12		0.13	0.06	498.49	-0.15	2.50	75.62	6.0	200.5		
11/24/22		10.55	10.71		0.16	0.03	499.92	1.43	1.25	76.87	3.0	203.5		
12/19/22		11.09	11.64		0.55	0.39	499.29	-0.63	3.00	79.87	3.5	207.0		
01/18/23 <sup>(4)</sup>		10.73	10.75		0.02	-0.53	499.78	0.48	2.00	81.87	5.0	212.0		
02/28/23 <sup>(4)</sup>		10.52	10.58		0.06	0.04	499.98	0.20	3.00	84.87	0.3	212.3		
03/27/23		10.27	10.34		0.07	0.01	500.22	0.25	1.20	86.07	6.0	218.3		
04/06/23		9.95	10.00		0.05	-0.02	500.55	0.32	1.00	87.07	7.5	225.8		
05/09/23 <sup>(4)</sup>		11.18	11.29		0.11	0.06	499.30	-1.24	0.50	87.57	5.0	230.8		
06/29/23		11.78	11.89		0.11	0.00	498.70	-0.60	0.79	88.36	0.3	231.1		
07/27/23		--	12.11		Sheen	-0.11	498.40	-0.30	1.00	89.36	0.0	231.1		
08/10/23		12.28	12.45		0.17	0.17	498.19	-0.21	0.50	89.86	0.0	231.1		
09/19/23		12.26	12.30		0.04	-0.13	498.24	0.05	1.00	90.86	0.25	231.3		
10/25/23		--	11.38		Sheen	-0.04	499.13	0.89	0.01	90.87	0.50	231.8		
11/21/23		--	9.82		0.00	0.00	500.69	1.56	0.00	90.87	0.00	231.8		
12/13/23		--	10.10		Sheen	0.00	500.41	-0.28	0.00	90.87	1.75	233.6		



**Table 1**  
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**Summary of LPH Removal**  
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Well ID	Date Measured	TOC Elevation (ft amsl)	Depth to LPH (ft btoc)	Depth to Water (ft btoc)	LPH Thickness (ft)	Thickness Change (ft)	Groundwater Elevation <sup>(1)</sup> (ft amsl)	Elevation Change (ft)	Estimated LPH Removed (gal)	Cumulative LPH Removed (gal)	Estimated Water Removed (gal)	Cumulative Water Removed (gal)
MW-6 Cont.	01/30/24	510.51	9.49	9.50	0.01	0.00	501.02	0.61	0.00	90.87	1.75	235.3
	02/28/24		--	10.21	Sheen	0.00	500.30	-0.72	0.05	90.92	2.75	238.1
	03/28/24		10.30	10.31	0.01	0.01	500.21	-0.09	0.05	90.97	1.8	239.9
									EW-1 Cumulative	20.85	893.5	
									EW-2 Cumulative	101.76	1,181.8	
									EW-3 Cumulative	74.48	973.7	
									EW-4 Cumulative	3.60	25.8	
									EW-1R Cumulative	1.72	32.5	
									EW-2R Cumulative	0.83	13.3	
									MW-1 Cumulative	28.36	165.2	
									MW-2 Cumulative	25.91	177.2	
									MW-5 Cumulative	11.73	37.5	
									MW-6 Cumulative	90.97	239.9	
<b>Cumulative Removed From Site Wells</b>										<b>360.20</b>	<b>3,740.4</b>	
<p><b>Notes:</b></p> <p>(1): groundwater elevation corrected for the presence of free-product using the following calculation: casing elevation minus depth to water plus the product thickness times its density (0.765).</p> <p>(2): recorded value is gallons of LPH and water removed</p> <p>(3): overpurgng conducted using a vacuum truck</p> <p>(4): LPH removal by manual bailing</p> <p>(5): LPH removal using downhole skimmer initiated</p> <p>(6): LPH removal using peristaltic pump</p> <p>(7): LPH removal using vacuum truck</p> <p>(8): well sampled using low-flow purge methods</p> <p>(9): downhole skimmer removed</p> <p>--: not detected / not applicable / not surveyed</p> <p>*: thickness measurements made in reference to total depth of premium UST = 12.20 btocf</p> <p>** : water volume estimates based on Containment Solutions® 12,000 gallon fiberglass double wall UST volume chart</p> <p>‡: LPH accumulation in skimmer</p> <p>amsl: above mean sea level</p> <p>btoc: below top of casing</p> <p>btocf: below top of fill port</p> <p>ft: feet</p> <p>gal: gallons</p> <p>LPH: liquid phase hydrocarbons</p> <p>Sheen: LPH sheen observed</p> <p>TOC: top of casing</p> <p>TOFP: top of fill port</p>												



**Table 2**  
**Summary of Groundwater Monitoring Data**  
**United Pacific #5468**  
**Springfield, Oregon**  
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WELL ID	WELL STATUS	SAMPLE DATE	ANALYTICAL PARAMETERS											WATER QUALITY PARAMETERS						MONITORING PARAMETERS				WELL ELEVATION			WELL					
			TPH-Ox (µg/L)	TPH-Dx (µg/L)	TPH-Gx (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Naph (µg/L)	EDB* (µg/L)	EDC (µg/L)	Lead (µg/L)	DO (mg/L) <sup>(6)</sup>	ORP (mV)	Conductivity (µs/cm)	pH	Temp (°C)	Turbidity (NTU)	Fe <sup>2+</sup> (mg/L)	DTP (ft btoc)	DTW (ft btoc)	DTB (ft btoc)	PT (ft)	CASING (ft amsl)	GW (ft amsl)	GW Δ (ft amsl)	DIA (inches)	SCREEN (ft bgs)		
			NWTPH-Dx		NWTPH-Gx		EPA Method 8260D											EPA 7010														
MW-1	Active	03/28/24	--	--	240	<1.0	<2.0	<1.0	<2.0	<5.0	<5.0	<0.010	<1.0	<5.0	40.36	-56.2	238.8	6.00	14.3	8.74	0.0	--	12.07	24.22	0.00	512.70	500.63	-0.29	4	5-25		
MW-2	Active	03/27/24	--	--	<b>4,000</b>	<b>70</b>	340	<b>200</b>	420	<5.0	<5.0	<0.010	<1.0	<5.0	34.98	-211.4	136.5	6.31	14.2	10.5	2.0	--	11.23	25.05	0.00	511.29	500.06	-0.39	4	5-25		
MW-3	Active	03/27/24	--	--	<b>950</b>	<b>200</b>	<2.0	<b>50</b>	<2.0	<5.0	<b>5.0</b>	<0.010	<1.0	<5.0	11.95	-235.2	428.6	6.99	15.4	4.14	0.0	--	10.92	26.30	0.00	511.12	500.20	-0.26	4	5-25		
MW-4	Active	03/27/24	--	--	<b>1,600</b>	<b>140</b>	4.7	<1.0	220	<5.0	<b>26</b>	<0.010	<1.0	<5.0	2.22	-110.5	423.0	7.10	13.7	4.22	0.0	--	9.80	24.01	0.00	509.78	499.98	-0.51	4	5-25		
MW-5 <sup>(1)</sup>	Active	03/28/24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Sheen	9.00	22.61	0.00	509.10	500.10	-0.22	4	3.5-23.5		
MW-6 <sup>(1)</sup>	Active	03/28/24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10.30	10.31	23.90	0.01	510.51	500.21	-0.20	4	5-25		
MW-7	Active	03/27/24	--	--	<b>6,100</b>	<b>230</b>	21	<b>260</b>	<b>1,200</b>	<5.0	<b>19</b>	<0.010	<1.0	<5.0	0.68	-112.9	725	6.46	15.7	63.7	4.0	--	11.62	24.96	0.00	511.65	500.03	-0.58	4	5-25		
MW-8	Active	03/27/24	--	--	<100	<1.0	<2.0	<1.0	<2.0	<5.0	<5.0	<0.010	<1.0	<5.0	8.19	-6.3	175.7	6.15	13.3	4.59	0.0	--	10.58	18.02	0.00	509.75	499.17	-0.50	4	8-18		
MW-9	Active	03/27/24	--	--	<100	<1.0	<2.0	<1.0	<2.0	<5.0	<5.0	<0.010	<1.0	<5.0	6.67	-6.0	176.5	5.92	12.4	0.22	0.0	--	9.88	17.29	0.00	509.89	500.01	-1.16	4	7-17		
MW-10	Active	03/27/24	--	--	<100	<1.0	<2.0	<1.0	<2.0	<5.0	<5.0	<0.010	<1.0	<5.0	4.97	-33.3	329.7	6.27	15.4	5.10	0.0	--	11.24	17.98	0.00	511.13	499.89	-0.53	4	7-17		
MW-11	Active	03/27/24	--	--	<100	<1.0	<2.0	<1.0	<2.0	<5.0	<5.0	<0.010	<1.0	<5.0	7.69	-28.6	281.5	6.20	14.8	0.97	0.0	--	11.12	19.98	0.00	511.69	500.57	-0.32	2	10-20		
EW-1R <sup>(1)</sup>	Active	03/28/24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10.43	10.44	15.58	0.01	510.86	500.43	-0.25	4	13-23		
EW-2R	Active	03/28/24	--	--	<b>69,000</b>	<b>920</b>	<b>9,000</b>	<b>850</b>	<b>13,000</b>	<5.0	<b>51</b>	<0.010	<1.0	<5.0	30.64	-129.2	249.0	6.31	13.2	30.3	4.0	--	10.65	22.86	0.00	510.91	500.26	-0.21	4	13-23		
EW-4	Active	03/28/24	--	--	<b>64,000</b>	<b>1,800</b>	<b>10,000</b>	<b>1,300</b>	<b>7,900</b>	<5.0	<b>130</b>	<0.010	<1.0	<5.0	0.92	-204.1	471.6	6.87	13.8	14.7	4.0	--	11.20	22.86	0.00	510.67	499.47	-0.21	4	13-23		
NW Obs.	Observation	03/28/24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11.22	16.81	0.00	--	--	--	4	5-15		
NE Obs.	Observation	03/28/24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10.16	14.83	0.00	--	--	--	4	5-15		
SE Obs.	Observation	03/28/24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11.32	14.91	0.00	--	--	--	4	5-15		
SW Obs.	Observation	03/28/24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10.94	13.51	0.00	--	--	--	4	5-15		
RBC: Ingestion/Inhalation from Tapwater <sup>(2)</sup>			430	430	450	2.1	6,300	6.4	830	68	0.72	0.034	0.78	15	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	
RBC: Volatilization to Outdoor Air <sup>(3)</sup>			>S	>S	>S	14,000	>S	43,000	>S	1,500,000	16,000	790	9,000	nv	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	
RBC: Volatilization to Indoor Air <sup>(4)</sup>			1,700	1,700	520	12/650	150,000/160,000	31/420,000	3,300/200,000	3,200/1,600,000	50/83,000	1.5/--	18/--	--	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
RBC: Groundwater in Excavations <sup>(5)</sup>			>S	>S	14,000	1,800	220,000	4,500	23,000	63,000	500	27	630	<S	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

**Notes:**

Results in **BOLD** indicate detections that exceed the ODEQ Risk-Based Concentrations (RBCs) for groundwater  
(1): sample not collected due to liquid-phase hydrocarbons (LPH; free-product) present in well; groundwater elevation corrected for the presence of LPH using the following calculation: TOC elevation minus DTW plus the product thickness times its density (0.765)  
(2): RBC for Groundwater - Ingestion and Inhalation from Tapwater, occupational receptor scenario (see ODEQ Table of RBCs - revised May 2018 amended June 2023)  
(3): RBC for Groundwater - Volatilization to Outdoor Air, occupational receptor scenario (see ODEQ Table of RBCs - revised May 2018 amended June 2023)  
(4): RBC for Groundwater - Volatilization to Indoor Air, Commercial scenario; Chronic/Acute screening values (see OQED Vapor Intrusion Risk-Based Concentration Table 1 - June 2023)  
(5): RBC for Groundwater in Excavation, Contact to Construction and Excavation Workers  
(6): DO readings were anomalous and field repairs failed to correct issue  
--: not analyzed / not measured / unknown  
<: less than the laboratory method detection limit  
>S: RBC exceeds the solubility limit  
°C: degrees celsius  
\*: analyzed using SIM (selected ion monitoring)  
µg/L: micrograms per Liter  
µs/cm: microsiemens per centimeter

Active: groundwater well currently used for monitoring  
amsl: above mean sea level  
bgs: below ground surface  
BTEX: benzene, toluene, ethylbenzene, and total xylenes  
btoc: below top of casing  
DIA: casing diameter  
DO: dissolved oxygen  
DTB: depth to bottom  
DTP: depth to product  
DTW: depth to water  
DTW Δ: Change in depth to water since last monitoring event  
EDB: 1,2-dibromoethane  
EDC: 1,2-dichloroethane  
EPA: Environmental Protection Agency  
Fe<sup>2+</sup>: ferrous iron  
ft: feet  
GW: groundwater  
mg/L: milligrams per Liter

mV: millivolts  
na: not applicable  
Naph: naphthalene  
ND: not detected  
NM: not measured  
NTU: nephelometric turbidity units  
nv: chemical is considered "non volatile" for purposes of the exposure calculations in this document  
Observation: Observation well located within tank cavity used for periodic gauging  
ODEQ: Oregon Department of Environmental Quality  
ORP: oxidation reduction potential  
pH: potential hydrogen  
PT: free-product thickness  
RBC: Risked Based Concentration established by the Oregon Department of Environmental Quality (ODEQ)  
Sheen: sheen observed in well  
Temp: temperature  
TPH-Dx: total diesel-range petroleum hydrocarbons, analyzed by Northwest Method NWTPH-Dx  
TPH-Gx: total gasoline-range petroleum hydrocarbons, analyzed by Northwest Method NWTPH-Gx  
TPH-Ox: total oil-range petroleum hydrocarbons, analyzed by Northwest Method NWTPH-Ox



**Table 3**  
**Summary of Historical Groundwater Monitoring Data**  
**United Pacific #5468**  
**Springfield, Oregon**  
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WELL ID	WELL STATUS	SAMPLE DATE	ANALYTICAL PARAMETERS													MONITORING PARAMETERS			WELL ELEVATION		
			TPH-Ox	TPH-Dx	TPH-Gx	B	T	E	X	MTBE	Naph	EDB	EDC	Other VOCs	DTP <sup>(1)</sup>	DTW	PT	CASING <sup>(2)</sup>	GW <sup>(3)</sup>	GW <sup>Δ</sup>	
			(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(ft btoc)	(ft btoc)	(ft)	(ft amsl)	(ft amsl)	(ft amsl)	
MW-1	Active	03/30/21	--	--	--	--	--	--	--	--	--	--	--	--	12.78	12.79	0.01	512.70	499.92	--	
		06/23/21	--	--	--	--	--	--	--	--	--	--	--	--	13.55	13.83	0.28	--	499.08	-0.83	
		09/23/21	--	--	--	--	--	--	--	--	--	--	--	--	13.56	13.57	0.01	--	499.14	0.05	
		12/22/21	--	--	<b>3,900</b>	<b>260 E</b>	67	<1.0	230	<5.0	<5.0	<0.01	<1.0	(9)	ND	11.61	0.00	--	501.09	1.95	
		01/11/22 <sup>(10)</sup>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		03/23/22	--	--	--	--	--	--	--	--	--	--	--	--	12.97	13.00	0.03	--	499.72	-1.37	
		06/28/22	--	--	--	--	--	--	--	--	--	--	--	--	13.14	13.16	0.02	--	499.56	-0.17	
		10/12/22	--	--	--	--	--	--	--	--	--	--	--	--	13.07	13.11	0.04	--	499.62	0.06	
		12/20/22	--	--	<b>2,100</b>	1.1	2.6	<1.0	250	<5.0	<5.0	<0.01	<1.0	(9)	ND	13.17	0.00	--	499.53	-0.09	
		04/06/23	--	--	--	--	--	--	--	--	--	--	--	--	ND	11.64	0.00	--	501.06	1.53	
		06/29/23	--	--	<b>3,200</b>	<b>62</b>	510	65	440	<5.0	<b>19</b>	0.014	<1.0	(9)	ND	12.75	0.00	--	499.95	-1.11	
		09/19/23 <sup>(11)</sup>	--	--	--	--	--	--	--	--	--	--	--	--	14.23	14.25	0.02	--	498.47	-1.48	
		12/13/23	--	--	<b>1,100</b>	<1.0	<2.0	1.4	11	<5.0	<5.0	<0.010	<1.0	(8)	ND	11.78	0.00	--	500.92	2.45	
		03/28/24	--	--	<b>240</b>	<1.0	<2.0	<1.0	<2.0	<5.0	<5.0	<0.010	<1.0	(8)	ND	12.07	0.00	--	500.63	-0.29	
MW-2	Active	03/30/21	--	--	--	--	--	--	--	--	--	--	--	11.42	11.93	0.51	511.29	499.75	--		
		06/23/21	--	--	--	--	--	--	--	--	--	--	--	12.15	12.16	0.01	--	499.14	-0.61		
		09/23/21	--	--	--	--	--	--	--	--	--	--	--	12.09	12.16	0.07	--	499.18	0.05		
		12/22/21	--	--	--	--	--	--	--	--	--	--	--	10.50	10.51	0.01	--	500.79	1.60		
		01/11/22 <sup>(10)</sup>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
		03/23/22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	499.54	-1.25
		06/28/22	--	--	--	--	--	--	--	--	--	--	--	--	12.12	12.14	0.02	--	499.17	-0.37	
		10/12/22	--	--	<b>26,000</b>	<b>1,000</b>	2,600	<b>510</b>	<b>2,300</b>	<5.0	<b>89</b>	<0.010	<1.0	(9)	ND	11.95	0.00	--	498.50	-0.67	
		12/20/22	--	--	--	--	--	--	--	--	--	--	--	--	ND	10.81	0.00	--	499.34	0.84	
		04/06/23	--	--	--	--	--	--	--	--	--	--	--	--	ND	10.81	0.00	--	500.48	1.14	
		06/29/23	--	--	<b>31,000</b>	<b>780</b>	5,400	<b>760</b>	<b>4,400</b>	<5.0	<b>70</b>	0.016	<1.0	(9)	ND	12.33	0.00	--	498.96	-1.52	
		09/18/23 <sup>(11)</sup>	--	--	--	--	--	--	--	--	--	--	--	--	12.98	13.04	0.06	--	498.30	-0.66	
		12/13/23	--	--	<b>25,000</b>	<b>260</b>	2,200	<b>620</b>	<b>4,700</b>	<5.0	<b>120</b>	<0.010	<1.0	(9)	ND	10.84	0.00	--	500.45	2.15	
		03/27/24	--	--	<b>4,000</b>	<b>70</b>	340	<b>200</b>	<b>420</b>	<5.0	<b>5.0</b>	<0.010	<1.0	(8)	ND	11.23	0.00	--	500.06	-0.39	
MW-3	Active	03/30/21	--	--	<100	<1.0	<1.0	<1.0	<1.0	<5.0	<0.01	<1.0	(8)	ND	11.32	0.00	511.12	499.80	--		
		06/23/21	--	--	<100	<1.0	<1.0	<1.0	<2.0	<5.0	<0.01	<1.0	(8)	ND	11.89	0.00	--	499.23	-0.57		
		09/23/21	--	--	<100	<1.0	<1.0	<1.0	<2.0	<5.0	<0.01	<1.0	(8)	--	--	--	--	--	--		
		12/22/21	--	--	<100	<1.0	<1.0	<1.0	<2.0	<5.0	<0.01	<1.0	(8)	ND	11.86	0.00	--	499.26	0.03		
		01/11/22 <sup>(10)</sup>	--	--	110	20	<1.0	<1.0	2.3	<5.0	<5.0	<0.01	<1.0	(8)	ND	10.33	0.00	--	500.79	1.53	
		03/23/22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
		06/28/22	--	--	260	36	32	1.9	26	<5.0	<5.0	<0.01	<1.0	(9)	ND	11.31	0.00	--	499.81	-0.98	
		10/12/22	--	--	220	<1.0	<1.0	<1.0	32	<5.0	<5.0	<0.01	<1.0	(9)	ND	11.77	0.00	--	499.35	-0.46	
		12/20/22	--	--	<100	<1.0	<1.0	<1.0	<2.0	<5.0	<5.0	<0.01	<1.0	(8)	ND	12.33	0.00	--	498.79	-0.56	
		04/06/23	--	--	<100	<1.0	<1.0	<1.0	<2.0	<5.0	<5.0	<0.01	<1.0	(8)	--	--	--	--	--	--	
		06/29/23	--	--	<100	56	<1.0	<1.0	<2.0	<5.0	<5.0	<0.010	<1.0	(9)	ND	11.55	0.00	--	499.57	0.78	
		09/19/23	--	--	<100	<1.0	<1.0	<1.0	<2.0	<5.0	<5.0	<0.010	<1.0	(8)	ND	10.50	0.00	--	500.62	1.05	
		12/13/23	--	--	<100	<1.0	<1.0	<1.0	<2.0	<5.0	<5.0	<0.010	<1.0	(8)	ND	11.01	0.00	--	499.11	-1.51	
		03/27/24	--	--	<100	<1.0	<2.0	<1.0	<2.0	<5.0	<5.0	<0.010	<1.0	(8)	ND	10.66	0.00	--	498.64	-0.47	
03/27/24	--	--	<b>950</b>	<b>200</b>	<2.0	50	<2.0	<5.0	<b>5.0</b>	<0.010	<1.0	(8)	ND	10.92	0.00	--	500.20	-0.26			
MW-4	Active	03/30/21	--	--	180,000	3,000	25,000 E	3,100	18,000	<5.0	<b>180</b>	<0.01	<1.0	(9)	ND	10.17	0.00	509.78	499.61	--	
		06/23/21	--	--	190,000	3,000	25,000 E	3,000	17,000	<5.0	<b>250</b>	<0.01	<1.0	(9)	--	--	--	--	--	--	
		09/23/21	--	--	52,000	1,600	17,000	2,200	21,000	<5.0	<b>500</b>	<0.01	<1.0	(9)	ND	10.83	0.00	--	498.95	-0.66	
		12/22/21	--	--	40,000	1,300	6,600	1,400	8,600	<5.0	<b>530</b>	<0.01	<1.0	(9)	ND	10.78	0.00	--	499.00	0.05	
		01/11/22 <sup>(10)</sup>	--	--	39,000	1,200	5,500	1,400	6,900	<5.0	<b>620</b>	<0.01	<1.0	(9)	--	--	--	--	--	--	
		03/23/22	--	--	<100	<1.0	<1.0	<1.0	<2.0	<5.0	<5.0	<0.01	<1.0	(8)	ND	9.11	0.00	--	500.67	1.67	
		06/28/22	--	--	2,400	250	53	<1.0	160	<5.0	--	--	--	--	--	--	--	--	--	--	
		10/12/22	--	--	62,000	1,100	5,900	1,600	10,000	<250	<b>250</b>	<0.5	<50	(9)	ND	10.11	0.00	--	499.67	-1.00	
		12/20/22	--	--	37,000	560	1,400	<1.0	10,000	<5.0	<b>130</b>	<0.01	<1.0	(9)	ND	10.53	0.00	--	499.25	-0.42	
		04/06/23	--	--	24,000	600	380	510	5,500	<5.0	<b>78</b>	<0.01	<1.0	(9)	ND	11.26	0.00	--	498.52	-0.73	
		06/29/23	--	--	33,000	330	2,000	480	3,800	50	<b>380</b>	<0.1	<10	(9)	ND	10.37	0.00	--	499.41	0.89	
		09/19/23	--	--	4,400	82	<10	<1.0	1,500	50	<50	<0.10	<10	(9)	ND	10.29	0.00	--	499.49	0.08	
		12/13/23	--	--	4,000	67	190	33	890	<5.0	<b>48</b>	<0.010	<1.0	(9)	ND	10.93	0.00	--	498.85	-0.64	
		03/27/24	--	--	19,000	300	140	3.9	5,100	<5.0	<b>130</b>	<0.010	<1.0	(9)	ND	11.29	0.00	--	498.49	-0.36	
03/27/24	--	--	7,800	56	420	290	1,500	<5.0	<b>92</b>	<0.010	<1.0	(9)	ND	9.29	0.00	--	500.49	2.00			
03/27/24	--	--	5,800	53	500	170	1,400	<5.0	<b>19</b>	<0.010	<1.0	(9)	ND	9.80	0.00	--	499.98	-0.51			
03/27/24	--	--	1,600	140	4.7	<1.0	220	<5.0	<b>26</b>	<0.010	<1.0	(9)	ND	9.80	0.00	--	499.98	-0.51			
MW-5	Active	03/30/21	--	--	250,000 E	3,900	34,000 E	3,500	23,000	<5.0	<b>230</b>	<0.01	<1.0	(9)	ND	9.56	0.00	509.10	499.54	--	
		06/23/21	--	--	58,000	4,400	24,000 E	2,500	17,000	<5.0	<b>350</b>	<0.01	<1.0	(9)	ND	10.29	0.00	--	498.81	-0.73	
		09/23/21	--	--	65,000	3,900	18,000 E	1,600	11,000	<5.0	<b>450</b>	<0.01	<1.0	(9)	ND	10.27	0.00	--	498.83	0.02	
		12/22/21	--	--	230,000	4,900	29,000 E	210	18,000	<5.0	<b>310</b>	<0.01	<1.0	(9)	ND	8.45	0.00	--	500.65	1.82	
		01/11/22 <sup>(10)</sup>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
		03/23/22	--	--	110,000	4,000	14,000 E	1,800	15,000	<250	<b>360</b>	<0.5	<50	(9)	ND	9.50	0.00	--	499.60	-1.05	
		06/29/22	--	--	260,000 E	5,800	45,000 E	2,900	34,000 E	<5.0	<b>320</b>	<0.01	<1.0	(9)	ND	10.02	0.00	--	499.08	-0.52	
		10/12/22	--	--	--	--	--	--	--	--	--	--	--	--	11.68	11.75	0.07	--	497.40	-1.68	
		12/20/22	--	--	80,000	3,700	10,000	1,800	11,000	50	<b>270</b>	<0.1	<10	(9)	ND	9.90	0.00	--	499.20	1.80	
		04/06/23 <sup>(11)</sup>	--	--	--	--	--	--	--	--	--	--	--	--	Sheen	8.66	0.00	--	500.44	1.24	
		06/29/23 <sup>(11)</sup>	--	--	--	--	--	--	--	--	--	--	--	--	10.50	10.56	0.06	--	498.59	-1.85	
		09/19/23 <sup>(11)</sup>	--	--	--	--	--	--	--	--	--	--	--	--	Sheen	11.98	0.00	--	497.12	-1.47	
		12/13/23 <sup>(11)</sup>	--	--	--	--															



**Table 3**  
**Summary of Historical Groundwater Monitoring Data**  
**United Pacific #5468**  
**Springfield, Oregon**  
**Page 3 of 3**

WELL ID	WELL STATUS	SAMPLE DATE	ANALYTICAL PARAMETERS											MONITORING PARAMETERS			WELL ELEVATION			
			TPH-Ox	TPH-Dx	TPH-Gx	B	T	E	X	MTBE	Naph	EDB	EDC	Other VOCs	DTP <sup>(1)</sup>	DTW	PT	CASING <sup>(2)</sup>	GW <sup>(3)</sup>	GW A
			(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(ft bloc)	(ft bloc)	(ft)	(ft amsl)	(ft amsl)	(ft amsl)
EPA Method 8260D																				
QA/QC Samples																				
EB-1		03/30/21	--	--	<100	<1.0	1.1	<1.0	<2.0	<5.0	<5.0	<0.01	<1.0	(8)	--	--	--	--	--	--
		06/23/21	--	--	<100	<1.0	10	1.3	8.1	<5.0	<5.0	<0.01	<1.0	(9)	--	--	--	--	--	--
		09/23/21	--	--	100	<1.0	2.2	<1.0	2.3	<5.0	<5.0	<0.01	<1.0	(9)	--	--	--	--	--	--
		12/22/21	--	--	<100	<1.0	<1.0	<1.0	<2.0	<5.0	<5.0	<0.01	<1.0	(9)	--	--	--	--	--	--
		03/23/22	--	--	<100	<1.1	<1.0	<1.0	<2.0	<5.0	<5.0	<0.01	<1.0	(8)	--	--	--	--	--	--
		06/28/22	--	--	<100	<1.1	<1.0	<1.0	<2.0	<5.0	<5.0	<0.01	<1.0	(8)	--	--	--	--	--	--
		10/12/22	--	--	<100	<1.0	<1.0	<1.0	<2.0	<5.0	<5.0	<0.01	<1.0	(8)	--	--	--	--	--	--
		12/19/22	--	--	<100	<1.0	<1.0	<1.0	<2.0	<5.0	<5.0	<0.01	<1.0	(8)	--	--	--	--	--	--
		04/06/23	--	--	<100	<1.0	<1.0	<1.0	<2.0	<5.0	<5.0	<0.010	<1.0	(8)	--	--	--	--	--	--
		06/29/23	--	--	<100	<1.0	<1.0	<1.0	<2.0	<5.0	<5.0	<0.010	<1.0	(8)	--	--	--	--	--	--
		09/19/23	--	--	<100	<1.0	<2.0	<1.0	<2.0	<5.0	<5.0	<0.01	<1.0	(8)	--	--	--	--	--	--
		12/12/23	--	--	<100	<1.0	<2.0	<1.0	<2.0	<5.0	<5.0	<0.010	<1.0	(8)	--	--	--	--	--	--
		03/27/24	--	--	<100	<1.0	<2.0	<1.0	<2.0	<5.0	<5.0	<0.010	<1.0	(8)	--	--	--	--	--	--
	EB-2		06/29/22	--	--	<100	<1.1	<1.0	<1.0	<2.0	<5.0	<5.0	<0.01	<1.0	(8)	--	--	--	--	--
		12/20/22	--	--	<100	<1.1	<1.0	<1.0	<2.0	<5.0	<5.0	<0.01	<1.0	(8)	--	--	--	--	--	
EB-2 Dup			12/20/22	--	--	<100	<1.1	<1.0	<1.0	<2.0	<5.0	<5.0	<0.01	<1.0	(8)	--	--	--	--	--
			06/29/23	--	--	<100	<1.1	<1.0	<1.0	<2.0	<5.0	<5.0	<0.01	<1.0	(8)	--	--	--	--	--
			09/19/23	--	--	<100	<1.0	<2.0	<1.0	<2.0	<5.0	<5.0	<0.01	<1.0	(8)	--	--	--	--	--
	12/13/23	--	--	770	3.8	140	20	160	<5.0	<5.0	<0.01	<1.0	(8)	--	--	--	--	--		
	03/27/24	--	--	<100	<1.0	<2.0	<1.0	<2.0	<5.0	<5.0	<0.010	<1.0	(8)	--	--	--	--	--		
Trip Blank		06/23/21	--	--	<100	<1.0	<1.0	<1.0	<2.0	<5.0	<5.0	<0.01	<1.0	(8)	--	--	--	--	--	
		12/22/21	--	--	<100	<1.0	<1.0	<1.0	<2.0	<5.0	<5.0	<0.01	<1.0	(8)	--	--	--	--	--	
		03/23/22	--	--	<100	<1.1	<1.0	<1.0	<2.0	<5.0	<5.0	<0.01	<1.0	(8)	--	--	--	--	--	
		10/12/22	--	--	<100	<1.0	<1.0	1.2	<2.0	<5.0	<5.0	<0.01	<1.0	(8)	--	--	--	--	--	
		12/20/22	--	--	<100	<1.0	<1.0	<1.0	<2.0	<5.0	<5.0	<0.01	<1.0	(8)	--	--	--	--	--	
		04/06/23	--	--	<100	<1.0	<1.0	<1.0	<2.0	<5.0	<5.0	<0.010	<1.0	(8)	--	--	--	--	--	
		06/29/23	--	--	<100	<1.0	<1.0	<1.0	<2.0	<5.0	<5.0	<0.010	<1.0	(8)	--	--	--	--	--	
		09/19/23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	12/13/23	--	--	<100	<1.0	<2.0	<1.0	<2.0	<5.0	<5.0	<0.010	<1.0	(8)	--	--	--	--	--		
	03/27/24	--	--	<100	<1.0	<2.0	<1.0	<2.0	<5.0	<5.0	<0.010	<1.0	(8)	--	--	--	--	--		
RBC: Injection/Inhalation from Tapwater <sup>(4)</sup>			430	430	450	2.1	6,300	6.4	830	68	0.72	0.034	0.78	--	na	na	na	na	na	na
RBC: Volatilization to Outdoor Air <sup>(5)</sup>			>5	>5	>5	14,000	>5	43,000	>5	1,500,000	16,000	790	9,000	--	na	na	na	na	na	na
RBC: Volatilization to Indoor Air <sup>(6)</sup>			1,700	1,700	520	12,650	150,000/160,000	31/420,000	3,300/200,000	3,200/1,600,000	50/83,000	1.5/-	55/-	--	na	na	na	na	na	na
RBC: Groundwater in Excavations <sup>(7)</sup>			>5	>5	14,000	1,800	220,000	4,500	23,000	63,000	500	27	630	--	na	na	na	na	na	na
<b>Notes:</b>																				
Results in <b>BOLD</b> indicate detections that exceed ODEQ Risk-Based Concentrations (RBCs) for groundwater										Active: groundwater well currently used for monitoring										
(1): wells containing free product were not sampled										amsl: above mean sea level										
(2): top of casing elevations surveyed on 12/09/20 and 03/23/21										BTEX: benzene, toluene, ethylbenzene, and total xylenes										
(3): groundwater elevation corrected for the presence of free-product using the following calculation: casing elevation minus depth to water plus the product thickness times its density (0.765). An average density of 0.765 (based on published literature) is used in the calculation.										bloc: below top of casing										
(4): RBC for Groundwater - Injection and Inhalation from Tapwater, occupational receptor scenario (see ODEQ Table of RBCs - revised May 2018 amended June 2023)										DTP: depth to product										
(5): RBC for Groundwater - Volatilization to Outdoor Air, occupational receptor scenario (see ODEQ Table of RBCs - revised May 2018 amended June 2023)										DTW: depth to water										
(6): RBC for Groundwater - Volatilization to Indoor Air, Commercial scenario; Chronic/Acute screening values (see ODEQ Vapor Intrusion Risk-Based Concentration Table 1 - June 2023)										DTW a: Change in depth to water since last monitoring event										
(7): RBC for Groundwater in Excavation, Contact to Construction and Excavation Workers										DUP: duplicate sample										
(8): No other VOCs detected in sample										E: reported result is an estimate because it exceeds the calibration range										
(9): Other VOCs detected in sample; refer to Table 4 for other VOCs detected										EB-1: equipment blank										
(10): Confirmation samples collected from Wells MW-4 and MW-7 on 1/11/2022										EDB: 1,2-dibromoethane										
(11): Wells EW-1, EW-2, and EW-3 abandoned on March 7 and 8, 2022										EDC: 1,2-dichloroethane										
(12): Wells EW-3A, EW-2A, and EW-4 installed on September 20 and 21, 2022										ft: feet										
--: not analyzed / not measured / unknown										GW: groundwater										
<: less than the laboratory method reporting limit										MTBE: Methyl tert-butyl ether										
>: RBC exceeds the solubility limit										na: not applicable										
µg/L: micrograms per Liter										ND: not detected										
										PF: free-product thickness										
										RBC: Risk Based Concentration established by the Oregon Department of Environmental Quality (ODEQ)										
										TPH-Dx: total diesel-range petroleum hydrocarbons, analyzed by Northwest Method NWTPH-Dx										
										TPH-Gx: total gasoline-range petroleum hydrocarbons, analyzed by Northwest Method NWTPH-Gx										
										TPH-Ox: total oil-range petroleum hydrocarbons, analyzed by Northwest Method NWTPH-Ox										



**TABLE 4**  
**Additional VOCs detected in Groundwater**  
**United Pacific #5468**  
**Springfield, Oregon**  
**Page 1 of 3**

Boring ID	Well Status	Date Sampled	CM (µg/L)	IPB (µg/L)	NPB (µg/L)	1,3,5-TMB (µg/L)	1,2,4-TMB (µg/L)	SBB (µg/L)	IPT (µg/L)	TBB (µg/L)	NBB (µg/L)	2-methyl (µg/L)	1-methyl (µg/L)
Method 8260D													
MW-1	Active	03/30/21 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		06/23/21 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		09/23/21 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		12/22/21	33	<4.0	<1.0	41	36	<1.0	2.3	<1.0	<1.0	--	--
		03/23/22 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		06/28/22 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		10/12/22 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		12/20/22	2.4	<4.0	<1.0	140	83	<1.0	9.7	<1.0	3.6	--	--
		04/06/23	--	--	--	--	--	--	--	--	--	--	--
		06/29/23	<2.0	<4.0	8.8	24	94	<1.0	1.3	<1.0	<1.0	--	--
		09/18/23 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
12/13/23	--	--	--	--	--	--	--	--	--	<5.0	<5.0		
03/28/24	--	--	--	--	--	--	--	--	--	<5.0	<5.0		
MW-2	Active	03/30/21 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		06/23/21 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		09/23/21 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		12/22/21 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		03/23/22 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		6/28/22 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		10/12/22 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		12/20/22	24	31	99	150	560	<1.0	<1.0	<1.0	6.8	--	--
		04/06/23	--	--	--	--	--	--	--	--	--	--	--
		06/29/23	<2.0	36	130	230	880	7.0	15	<1.0	7.0	--	--
		09/18/23 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
12/13/23	--	--	--	--	--	--	--	--	--	83	49		
03/27/24	--	--	--	--	--	--	--	--	--	<5.0	<5.0		
MW-3	Active	03/30/21	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		06/23/21	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		09/23/21	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		12/22/21	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		03/23/22	<2.0	<4.0	<1.0	<1.0	2.0	<1.0	<1.0	<1.0	<1.0	--	--
		06/28/22	<2.0	<4.0	<1.0	5.8	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		10/12/22	<2.0	<4.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	--	--
		12/20/22	<2.0	<4.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	--	--
		04/06/23	2.2	<4.0	<1.0	<1.0	1.0	<1.0	<1.0	<1.0	<1.0	--	--
		06/29/23	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		09/19/23	--	--	--	--	--	--	--	--	--	<5.0	<5.0
12/13/23	--	--	--	--	--	--	--	--	--	<5.0	<5.0		
03/27/24	--	--	--	--	--	--	--	--	--	<5.0	<5.0		
MW-4	Active	03/30/21	<2.0	74	190	430	1,700	<1.0	11	280	6.8	--	--
		06/23/21	<2.0	73	220	460	1,800	<1.0	12	270	6.6	--	--
		09/23/21	24	52	94	750	2,800	<1.0	15	1.0	6.2	--	--
		12/22/21	18	59	120	250	1,200	<1.0	12	1.0	4.6	--	--
		03/23/22	15	52	110	340	1,200	<1.0	11	<1.0	4.1	--	--
		06/28/22	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		10/12/22	<100	<200	140	500	1,700	<50	50	250	50	--	--
		12/20/22	18	<4.0	<1.0	310	1,300	<1.0	<1.0	<1.0	<1.0	--	--
		04/06/23	14	12	10	430	1,300	2.4	15	86	11	--	--
		06/29/23	20	40	11	320	990	<10	11	<10	41	--	--
		09/18/23	<20	<40	<10	46	14	<10	<10	<10	<10	--	--
12/13/23	<2.0	4.2	4.5	27	120	<1.0	2.5	<1.0	<1.0	--	--		
03/27/24	--	--	--	--	--	--	--	--	--	27	40		
MW-5	Active	03/30/21	<2.0	94	300	600	2,600	<1.0	19	410	10	--	--
		06/23/21	38	66	310	860	2,900	<1.0	25	<1.0	13	--	--
		09/23/21	48	57	140	560	1,800	<1.0	20	<1.0	9	--	--
		12/22/21	<2.0	71	1,700	590	2,100	<1.0	26	<1.0	<1.0	--	--
		03/23/22	<100	<200	170	840	2,600	<50	<50	<50	<50	--	--
		06/29/22	87	83	154	1,200	4,100	<1.0	31	570	107	--	--
		10/12/22 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		12/20/22	20	80	300	630	1,900	<10	24	<10	14	--	--
		04/06/23 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		06/29/23 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		09/18/23 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
12/13/23 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--		
03/28/24 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--		
MW-6	Active	03/30/21 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		06/23/21 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		09/23/21 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		12/22/21 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		03/23/22 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		06/28/22 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		10/12/22 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		12/20/22 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--



**TABLE 4**  
**Additional VOCs detected in Groundwater**  
**United Pacific #5468**  
**Springfield, Oregon**  
**Page 2 of 3**

Boring ID	Well Status	Date Sampled	CM (µg/L)	IPB (µg/L)	NPB (µg/L)	1,3,5-TMB (µg/L)	1,2,4-TMB (µg/L)	SBB (µg/L)	IPT (µg/L)	TBB (µg/L)	NBB (µg/L)	2-methyl (µg/L)	1-methyl (µg/L)	
Method 8260D														
MW-6 cont.	Active	04/06/23 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--	
		06/29/23 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--	
		09/18/23 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--	
		12/13/23 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--	
		03/28/24 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--	
MW-7	Active	03/30/21	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	
		06/23/21	<2.0	<4.0	<1.0	3.7	12	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		09/23/21	<2.0	<4.0	<1.0	1.1	3.5	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
	DUP-1	09/23/21	8.4	<4.0	<1.0	1.8	6.9	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		12/22/21	18	3.9	8.9	19	71	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		12/22/21	21	4.7	11	24	89	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
	MW-7 Dup	03/23/22	4.1	7.9	20	41	130	<1.0	1.8	<1.0	<1.0	<1.0	--	--
		DUP-2	03/23/22	<100	<200	<50	<50	140	<50	<50	<50	<50	--	--
		06/28/22	<2.0	5.2	14	35	162	<1.0	<1.0	23	5.8	--	--	
	DUP-2	10/12/22	<2.0	5.7	17	38	150	<1.0	<1.0	24	<1.0	--	--	
		12/20/22	<2.0	4.5	13	32	120	<1.0	1.4	<1.0	<1.0	--	--	
		04/06/23	--	--	--	--	--	--	--	--	--	--	--	
	DUP-1	06/29/23	<2.0	9.5	<1.0	55	<b>300</b>	1.6	2.3	<1.0	<1.0	--	--	
		06/29/23	<2.0	9.6	29	62	<b>330</b>	1.6	2.4	<1.0	<1.0	--	--	
		09/19/23	--	--	--	--	--	--	--	--	--	15	10	
DUP-1	09/19/23	--	--	--	--	--	--	--	--	--	12	7.6		
	12/12/23	--	--	--	--	--	--	--	--	--	32	22		
	03/27/24	--	--	--	--	--	--	--	--	--	<5.0	<5.0		
MW-8	Active	12/19/22	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	
		04/06/23	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	
	DUP-1	04/06/23	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	
		06/29/23	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	
		09/18/23	--	--	--	--	--	--	--	--	--	<5.0	<5.0	
DUP-1	12/12/23	--	--	--	--	--	--	--	--	--	<5.0	<5.0		
	03/27/24	--	--	--	--	--	--	--	--	--	<5.0	<5.0		
MW-9	Active	12/19/22	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	
		04/06/23	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	
		06/29/23	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	
		09/18/23	--	--	--	--	--	--	--	--	--	<5.0	<5.0	
		12/12/23	--	--	--	--	--	--	--	--	--	<5.0	<5.0	
DUP-1	03/27/24	--	--	--	--	--	--	--	--	--	<5.0	<5.0		
	03/27/24	--	--	--	--	--	--	--	--	--	<5.0	<5.0		
MW-10	Active	12/20/22	<2.0	<4.0	<1.0	<1.0	3.6	<1.0	<1.0	<1.0	<1.0	--	--	
		DUP-1	12/20/22	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
	DUP-1	04/06/23	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	
		06/29/23	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	
		09/18/23	--	--	--	--	--	--	--	--	--	<5.0	<5.0	
DUP-1	12/12/23	--	--	--	--	--	--	--	--	--	<5.0	<5.0		
	03/27/24	--	--	--	--	--	--	--	--	--	<5.0	<5.0		
MW-11	Active	12/20/22	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	
		04/06/23	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	
		06/29/23	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	
		09/19/23	--	--	--	--	--	--	--	--	--	<5.0	<5.0	
		12/13/23	--	--	--	--	--	--	--	--	--	<5.0	<5.0	
03/27/24	--	--	--	--	--	--	--	--	--	<5.0	<5.0			
EW-1	Active	03/30/21 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--	
		06/23/21	46	100	490	<b>930</b>	<b>3,900</b>	<1.0	19	<1.0	9.3	--	--	
		09/22/21	13	22	63	130	<b>520</b>	<1.0	7.0	<1.0	3.6	--	--	
		12/22/21	29	29	91	220	<b>742</b>	<1.0	12	<1.0	<1.0	--	--	
		DUP-1	12/22/21	30	31	97	230	<b>770</b>	<1.0	11	<1.0	<1.0	--	--
Abandoned <sup>(9)</sup>	03/23/22	--	--	--	--	--	--	--	--	--	--	--		
EW-1R <sup>(9)</sup>	Active	10/12/22 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--	
		12/20/22 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--	
		04/06/23 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--	
		06/29/23	<2.0	11	35	61	<b>1,000</b>	2.8	4.4	<1.0	2.8	--	--	
		09/19/23 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--	
12/13/23 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--			
03/28/24 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--			
EW-2	Active	03/30/21 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--	
		06/23/21 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--	
		09/23/21 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--	
		12/22/21 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--	
		Abandoned <sup>(9)</sup>	03/23/22	--	--	--	--	--	--	--	--	--	--	--
EW-2R <sup>(9)</sup>	Active	10/12/22 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--	
		12/20/22 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--	
		04/06/23	--	--	--	--	--	--	--	--	--	--	--	
		06/29/23	<2.0	16	1.3	36	160	1.2	1.2	<1.0	1.3	--	--	
		09/19/23	--	--	--	--	--	--	--	--	--	<5.0	<5.0	
12/13/23	--	--	--	--	--	--	--	--	--	220	260			
03/28/24	--	--	--	--	--	--	--	--	--	51	31			



**TABLE 4**  
**Additional VOCs detected in Groundwater**  
**United Pacific #5468**  
**Springfield, Oregon**  
**Page 3 of 3**

Boring ID	Well Status	Date Sampled	CM (µg/L)	IPB (µg/L)	NPB (µg/L)	1,3,5-TMB (µg/L)	1,2,4-TMB (µg/L)	SBB (µg/L)	IPT (µg/L)	TBB (µg/L)	NBB (µg/L)	2-methyl (µg/L)	1-methyl (µg/L)
<b>Method 8260D</b>													
EW-3	Active	03/30/21 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		06/23/21 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		09/23/21 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
	Abandoned <sup>(6)</sup>	12/22/21 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		03/23/22	--	--	--	--	--	--	--	--	--	--	--
EW-4 <sup>(7)</sup>	Active	10/12/22 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		12/20/22 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		04/06/23 <sup>(1)</sup>	--	--	--	--	--	--	--	--	--	--	--
		06/29/23	<2.0	37	110	220	900	7.3	10	<1.0	8.1	--	--
	Abandoned	09/19/23	--	--	--	--	--	--	--	--	--	43	25
		12/13/23	--	--	--	--	--	--	--	--	--	170	190
		03/28/24	--	--	--	--	--	--	--	--	--	92	36
<b>QA/QC Samples</b>													
EB-1		03/30/21	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		06/23/21	<2.0	<4.0	<1.0	<1.0	1.3	<1.0	<1.0	<1.0	<1.0	--	--
		09/23/21	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		12/22/21	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		03/23/22	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		06/28/22	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		10/12/22	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		12/19/22	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		04/06/23	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		06/29/23	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		09/19/23	--	--	--	--	--	--	--	--	--	<5.0	<5.0
		12/12/23	--	--	--	--	--	--	--	--	--	<5.0	<5.0
		03/27/24	--	--	--	--	--	--	--	--	--	<5.0	<5.0
	EB-2		06/29/22	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--
		12/20/22	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
EB-2 Dup		12/20/22	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		06/29/23	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		09/19/23	--	--	--	--	--	--	--	--	--	<5.0	<5.0
		12/13/23	--	--	--	--	--	--	--	--	--	<5.0	<5.0
Trip Blank		06/23/21	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		12/22/21	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		03/23/22	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		10/12/22	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		12/20/22	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		04/06/23	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		06/29/23	<2.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--
		09/19/23	--	--	--	--	--	--	--	--	--	<5.0	<5.0
		12/12/23	--	--	--	--	--	--	--	--	--	<5.0	<5.0
		03/27/24	--	--	--	--	--	--	--	--	--	<5.0	<5.0
RBC: Injection/Inhalation from Tapwater <sup>(2)</sup>			79	2,000	ne	280	250	ne	ne	ne	ne	ne	
RBC: Volatilization to Outdoor Air <sup>(3)</sup>			1,800,000	>S	ne	>S	>S	ne	ne	ne	ne	ne	
RBC: Volatilization to Indoor Air <sup>(4)</sup>			1,500/12,000	9,100/--	22,000/--	1,700/--	2,400/--	ne	ne	NITI	NITI	ne	ne
RBC: Groundwater in Excavations <sup>(5)</sup>			22,000	51,000	ne	7,500	6,300	ne	ne	ne	ne	ne	ne
<b>Notes:</b>													
Results in <b>BOLD</b> indicate detections that exceed the ODEQ Risk-Based Concentrations (RBCs) for groundwater samples analyzed for gasoline-range organics using NWTPH-Gx and BTEX using Method 8260D;													
select samples further analyzed for diesel- and oil-range organics using NWTPH-Dx/Ox, for full scan VOCs using Method 8260													
(1): sample not collected due to liquid-phase hydrocarbons (LPH; free-product) in well													
(2): RBC for Groundwater - Injection and Inhalation from Tapwater, occupational receptor scenario (see ODEQ Table of RBCs - revised May 2018 amended June 2023)													
(3): RBC for Groundwater - Volatilization to Outdoor Air, occupational receptor scenario (see ODEQ Table of RBCs - revised May 2018 amended June 2023)													
(4): RBC for Groundwater - Volatilization to Indoor Air, Commercial scenario; Chronic/Acute screening values (see OQED Vapor Intrusion Risk-Based Concentration Table 1 - June 2023)													
(5): RBC for Groundwater in Excavation, Contact to Construction and Excavation Workers													
(6): Wells EW-1, EW-2, and EW-3 abandoned on March 7 and 8, 2022													
(7): Wells EW-1R, EW-2R, and EW-4 installed on September 20 and 21, 2022													
1,2,4-TMB: 1,2,4-trimethylbenzene													
1,3,5-TMB: 1,3,5-trimethylbenzene													
1-methyl: 1-methylnaphthalene													
2-methyl: 2-methylnaphthalene													
--: not analyzed													
<: not detected at or above stated laboratory reporting limit (RL)													
>S: groundwater RBC exceeds the solubility limit. Refer to RBC Table Appendix D for value of S. Groundwater concentration in excess of S indicate free product may be present													
BB: butylbenzene													
CM: chloromethane													
DUP: duplicate sample													
EB-1: Equipment blank													
ft bgs: feet below ground surface													
IPB: iso-propylbenzene (cumene)													
IPT: p-isopropyltoluene													
na: not applicable													
NBB: n-butylbenzene													
ne: not established on RBC Table													
NITI: listed as no inhalation toxicity information													
NPB: n-propylbenzene													
ODEQ RBCs: State of Oregon Department of Environmental Quality Risk-Based Concentrations													
ppmv: parts per million per volume													
SSB: sec-butylbenzene													
TBB: tert-butylbenzene													
VOCs: volatile organic compounds													



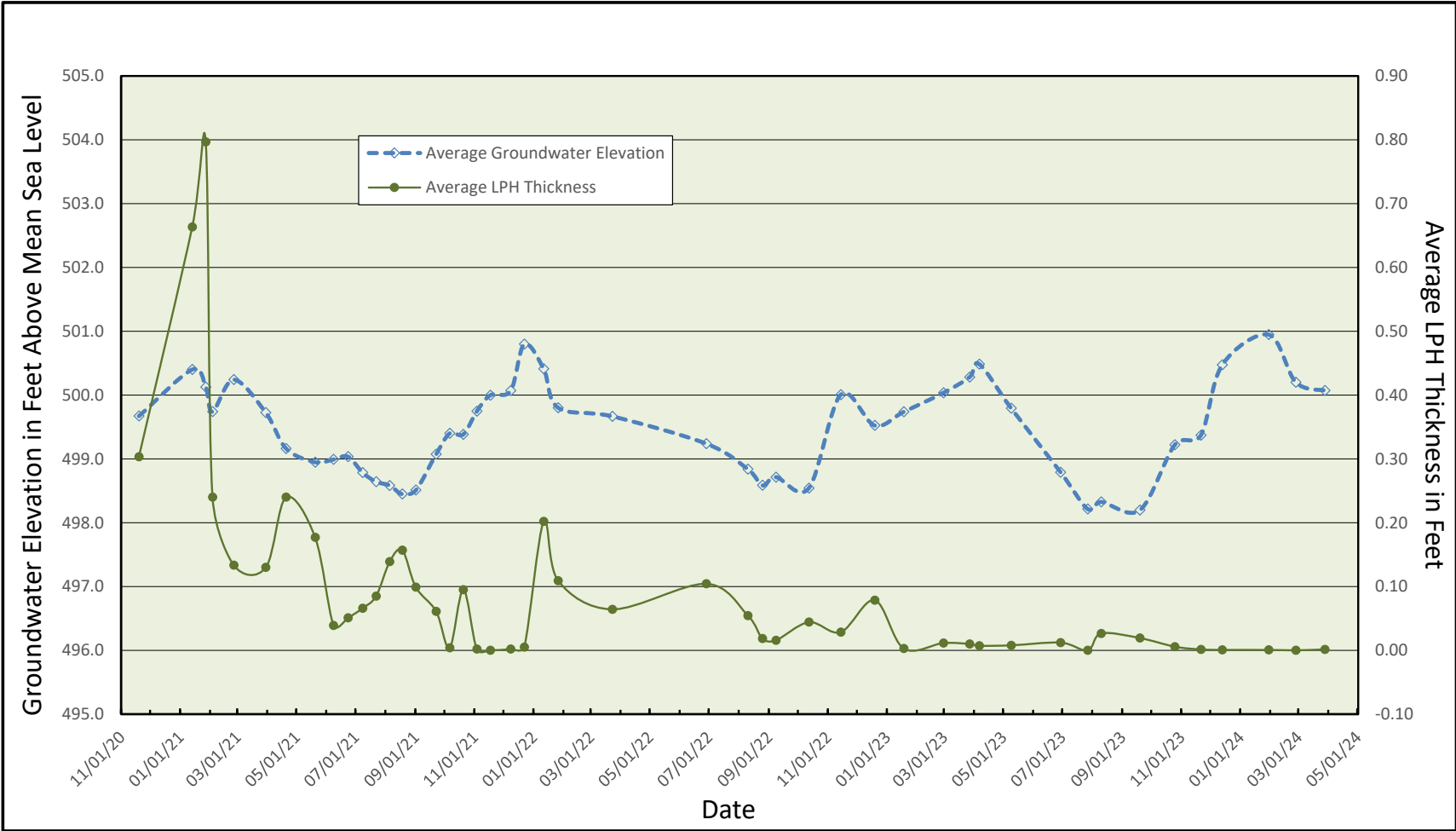
**Table 5**  
**Summary of Groundwater Flow Direction and Gradient Data**  
**United Pacific #5468**  
**Springfield, Oregon**  
**Page 1 of 1**

Date	Groundwater Gradient (ft/ft)	Groundwater Flow Direction															
		North	North-northeast	Northeast	East-northeast	East	East-southeast	Southeast	South-southeast	South	South-southwest	Southwest	West-southwest	West	West-northwest	Northwest	North-northwest
03/30/21	0.003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
06/23/21	0.004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
09/22/21	0.004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
12/22/21	0.002	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
03/23/22	0.0014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
06/28/22	0.005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
10/12/22	0.024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
12/20/22	0.004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
04/06/23	0.0077	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
06/29/23	0.012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
09/19/23	0.013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12/13/23	0.003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
03/28/24	0.008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<b>TOTAL</b>		0	0	0	0	0	0	0	0	0	0	0	0	1	0	10	2
<i>Notes:</i> ft/ft: feet per foot																	

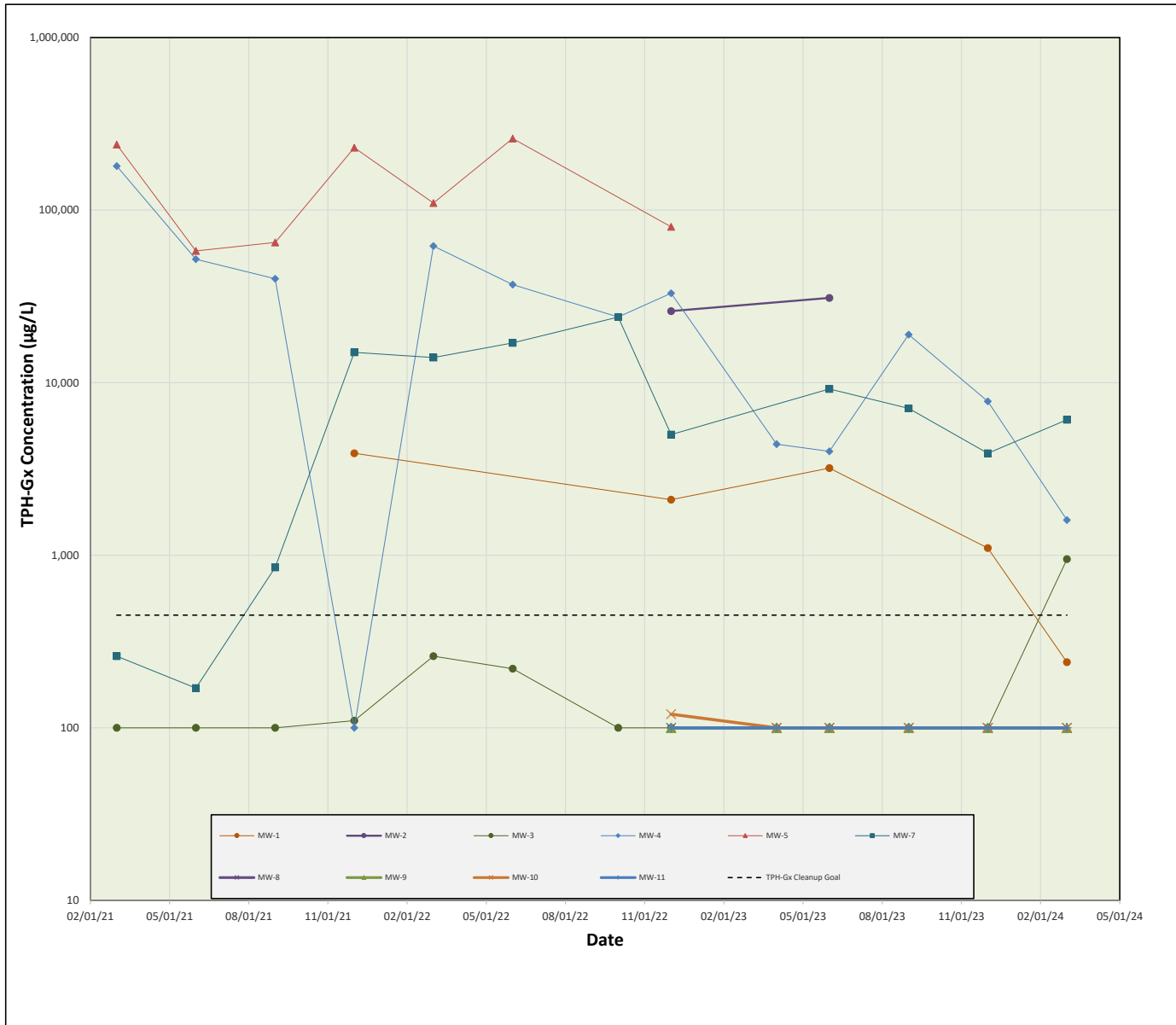


## CHARTS

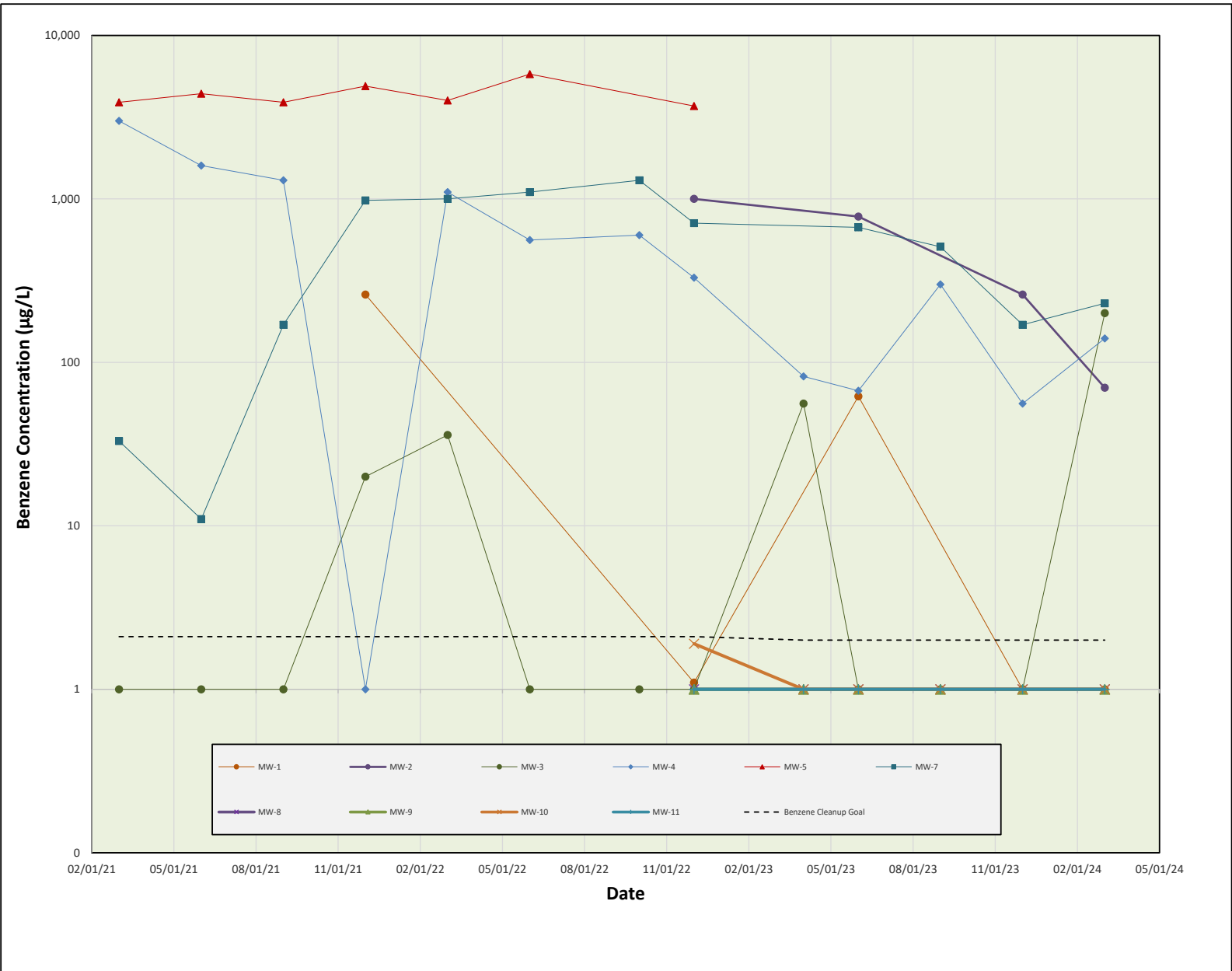
**CHART 1**  
**Groundwater Elevation Trends**  
**United Pacific #5468**  
**Springfield, Oregon**



**Chart 2**  
**TPH-Gx Concentration Trends**  
**United Pacific #5468**  
**Springfield, Oregon**



**Chart 3**  
**Benzene Concentration Trends**  
**United Pacific #5468**  
**Springfield, Oregon**



**APPENDIX A**  
**LPH Removal Field Forms**

### WELL GAUGING DATA FORM

Site Name: Springfield  
 Project No: 796340

Location: 5720 Main St, Springfield, OR.  
 Date: 30/Jan/24  
 Technician: Matt Engel

Well ID	Time	Well Dia (inch)	Sheen / Odor	Depth to Product (feet)	Thickness of Product (feet)	Depth to Water (feet)	Total Well Depth (feet below TOC)	Survey Point (TOC)	Dissolved Oxygen (mg/L)
MW-1	0951	4"	N/A	-	-	11.47	25.07	✓	-
MW-2	0959	4"	N/A	-	-	10.49	25.11	✓	-
MW-3	1006	4"	N/A	-	-	10.25	26.23	✓	-
MW-4	0930	4"	N/A	-	-	8.83	24.06	✓	-
MW-5	1113	4"	None	-	-	8.11	22.60	✓	-
MW-6	1200	4"	Both	9.49	0.01	9.50	23.96	✓	-
MW-7	0855	4"	N/A	-	-	10.62	25.14	✓	-
MW-8	0912	4"	N/A	-	-	9.63	17.95	✓	-
MW-9	0919	4"	N/A	-	-	7.68	17.25	✓	-
MW-10	0904	4"	N/A	-	-	10.46	18.02	✓	-
MW-11	0940	2"	N/A	-	-	10.63	19.97	✓	-
EW-1R	1051	4"	Odor	-	-	9.66	17.42	✓	-
EW-2R	1036	4"	N/A	-	-	9.96	22.76	✓	-
EW-4	1016	4"	N/A	-	-	10.51	22.91	✓	-

Notes:

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N - No  
 Y - Yes  
 NA - not applicable  
 NM - not measured  
 TOC - top of casing  
 mg/L: milligrams per Liter



LPH Removal Field Sheet

Project No.: PROJ-006811	United Pacific #5468
Sampler: <b>MW-5 Matt Engel</b>	Gauging Date: <b>30/Jan/24</b>
Well ID: <b>MW-5</b>	Well Diameter (in): <b>4"</b>
Total Well Depth (ft): <b>22.60</b>	Depth to Water (ft): <b>8.11</b>
Depth to Free Product: <b>N/A</b>	Thickness of Free Product (ft): <b>0.00</b>
to: <b>N/A</b>	Equipment: <b>Solinist</b>

Purge Method: <b>In-placed bailer.</b>	Other: <input checked="" type="checkbox"/>
Sampling Method: <b>Same.</b>	

Purge Start Time: 1120 Flow Rate: — Pump Depth (ft): —

Time	DTP (feet btoc)	DTW	Water Removed	LPH Removed	
1120	—	8.11	1.75g	0.80	—

Did well dewater? : <b>No</b>	Amount of H2O actually evacuated: <b>1.75 gal</b>
Sampling Time: <b>1120</b>	Sampling Date: <b>—</b>
Sample ID: <b>—</b>	Laboratory: <b>—</b>
Analyzed for: <b>—</b>	
Equipment Blank ID: <b>—</b>	Duplicate ID: <b>—</b>
Other Information: <b>—</b>	

LPH Removal Field Sheet

Project No.: PROJ-006811	ME United Pacific #5468
Sampler: Matt Engel	Gauging Date: 4 <sup>th</sup> 30/Jan/24
Well ID: MW-6	Well Diameter (in): 4"
Total Well Depth (ft): 23.96	Depth to Water (ft): 9.50
Depth to Free Product: 9.49	Thickness of Free Product (ft): 0.01
to: 9.50	Equipment: Solinist

Purge Method: In-placed bailer	Other: —
Sampling Method: Same	

Purge Start Time: \_\_\_\_\_ Flow Rate: \_\_\_\_\_ Pump Depth (ft): \_\_\_\_\_

Time	DTP (feet btoc)	DTW	Water Removed	LPH Removed	
1204	9.49	9.50	1.75g	Sheen	—

Did well dewater?: No	Amount of H2O actually evacuated: 1.75 gal
Sampling Time: 1204	Sampling Date: —
Sample ID: —	Laboratory: —
Analyzed for: —	
Equipment Blank ID: —	Duplicate ID: —
Other Information: —	

LPH Removal Field Sheet

Project No.: PROJ-006811	United Pacific #5468
Sampler: <b>Matt Engel</b>	Gauging Date: <b>30/Jan/24</b>
Well ID: <b>EW-1R</b>	Well Diameter (in): <b>4"</b>
Total Well Depth (ft): <b>17.42</b>	Depth to Water (ft): <b>9.66</b>
Depth to Free Product: <b>N/A</b>	Thickness of Free Product (ft): <b>0.00</b>
to: <b>N/A</b>	Equipment: <b>Solinist</b>

Purge Method: <b>In-placed bailer</b>	Other: <b>—</b>
Sampling Method: <b>Same</b>	

Purge Start Time: \_\_\_\_\_ Flow Rate: \_\_\_\_\_ Pump Depth (ft): \_\_\_\_\_

Time	DTP (feet btoc)	DTW	Water Removed	LPH Removed	
1055	—	9.66	1.75g	Shoen	—

Did well dewater?: <b>No</b>	Amount of H2O actually evacuated: <b>1.75 gal</b>
Sampling Time: <b>1055</b>	Sampling Date: <b>—</b>
Sample ID: <b>—</b>	Laboratory: <b>—</b>
Analyzed for: <b>—</b>	
Equipment Blank ID: <b>—</b>	Duplicate ID: <b>—</b>
Other Information: <b>—</b>	

## WELLHEAD INSPECTION FORM

 PN: 796340

 Date: 30/Jan/24

 Page: 1 of 1

 Site: Springfield, OR

 Client: -

 Technician: Matt Engel

Well ID	Well inspected - No corrective action required	Cap non-functional	Lock non-functional	Bolts missing (list quantity)	Tabs stripped (list quantity)	Tabs broken (list quantity)	Annular seal incomplete	Apron damaged	Rim/lid broken	Trip hazard	Below grade	Other (explain in notes)	Well not inspected (explain in notes)	NOTES - please note if cap or lock is replaced, if there are access issues associated with repairs, if traffic control is required, if stand pipe is damaged, or any other details not covered by checklist
MW-1	✓	-	-	2	-	-	-	-	-	-	-	-	-	<del>NF</del> ME NF
MW-2	X	-	-	1	-	-	X	-	-	-	-	-	-	Flooded
MW-3	✓	-	-	-	-	-	-	-	-	-	-	-	-	
MW-4	✓	-	-	-	-	-	-	-	-	-	-	-	-	
MW-5	✓	-	-	-	-	-	-	-	-	-	-	-	-	
MW-6	✓	-	-	-	-	-	-	-	-	-	-	-	-	
MW-7	X	-	-	1	1	-	X	-	-	-	-	-	-	Not flooded (NF)
MW-8	✓	-	-	-	-	-	-	-	-	-	-	-	-	
MW-9	X	-	-	-	-	-	X	-	-	-	-	-	-	Flooded
MW-10	X	-	-	2	?	-	-	-	-	-	-	-	-	NF
MW-11	X	-	-	1	-	-	X	-	-	-	-	-	-	Flooded
EW-1R	✓	-	-	-	-	-	-	-	-	-	-	-	-	
EW-2R	X	-	-	-	-	-	X	-	-	-	-	-	-	Flooded
EW-4	✓	-	-	-	-	-	-	-	-	-	-	-	-	



#796340

DRUM LOG

Site Name/No.: Springfield OR  
Site Address.: 5720 Main St.

Project No.: 796340

STATUS OF DRUM(S) UPON ARRIVAL				
Date:	30/Jan/24			
Number of Drums empty:	0			
Number of drums 1/4 full:	0			
Number of drums 1/2 full:	1			
Number of drums 3/4 full:	0			
Total drums onsite:	2			
Are the drums property labeled?	Yes			
Drum ID and contents:	Purge water, LPH			
If any drums are partially or totally filled, what is the first used date?	No date			

-If free product is added to a drum, the drum must contain at least 20 gallons of water.

-If drum contains free-product, it MUST be steel and appropriately labeled (haz-waste sticker)

STATUS OF DRUM(S) UPON DEPARTURE				
Date:	30/Jan/24			
Number of Drums empty:	0			
Number of drums 1/4 full:	1			
Number of drums 1/2 full:	1			
Number of drums 3/4 full:	0			
Total drums onsite:	2			
Are the drums property labeled?	Yes			
Drum ID and contents:	Purge water, LPH			
If any drums are partially or totally filled, what is the first used date?	No date 30/Jan/24			

**LOCATION OF DRUMS**

Near dumpster behind gas station in fenced off area.

FINAL STATUS				
Number of new drum(s) left onsite this event:	0			
Date of inspection:	30/Jan/24			
Drums labeled properly?:	Yes			
Technician's initials:	ME			

### WELL GAUGING DATA FORM

Site Name: Springfield  
 Project No: 6811

Location: 5720 Main St, Springfield, OR  
 Date: 27 Feb 2024  
 Technician: Matt Engel

Well ID	Time	Well Dia (inch)	Sheen / Odor	Depth to Product (feet)	Thickness of Product (feet)	Depth to Water (feet)	Total Well Depth (feet below TOC)	Survey Point (TOC)	Dissolved Oxygen (mg/L)
MW-1	1658	4"	None	-	-	12.18	24.33	✓	-
MW-2	1629	4"	-	-	-	11.12	25.12	✓	-
MW-3	1620	4"	-	-	-	10.62	26.83	✓	-
MW-4	1559	4"	-	-	-	9.55	23.88	✓	-
★ MW-5	0951	4"	Sheen	-	-	8.93	22.58	✓	-
★ MW-6	0920	4"	Both	-	Sheen	10.21	23.99	✓	-
MW-7	1515	4"	N/A	-	-	11.40	25.06	✓	-
MW-8	1533	4"	-	-	-	10.34	17.96	✓	-
MW-9	1546	4"	-	-	-	9.57	17.42	✓	-
MW-10	1526	4"	-	-	-	10.97	18.08	✓	-
MW-11	1640	2"	-	-	-	10.96	19.98	✓	-
★ EW-1R	0955	4"	Both	-	Sheen	10.37	17.22	✓	-
EW-2R	1726	4"	None	-	-	10.63	22.75	✓	-
EW-4	1709	4"	Odor	-	-	11.19	22.94	✓	-

Notes: ★ denotes wells gauged on 26/Feb/24, all others were gauged on 27/Feb/24

N - No  
 Y - Yes  
 NA - not applicable  
 NM - not measured  
 TOC - top of casing  
 mg/L: milligrams per Liter



### LPH Removal Field Sheet

Project No.: <u>6811</u>	<u>Springfield</u>
Sampler: <u>Matt Engel</u>	Gauging Date: <u>27/Feb/24</u>
Well ID: <u>EW-40</u>	Well Diameter (in): <u>4"</u>
Total Well Depth (ft): <u>22.94</u>	Depth to Water (ft): <u>11.19</u>
Depth to Free Product: <u>—</u>	Thickness of Free Product (ft): <u>0.00</u>
to: <u>—</u>	Equipment: <u>Solinist</u>

Purge Method: <u>Disposable bailer</u>	Other: <u>—</u>
Sampling Method: <u>Same</u>	

Purge Start Time: — Flow Rate: — Pump Depth (ft): —

Time	DTP (feet btoc)	DTW	Water Removed	LPH Removed	
<u>ME</u>					
<u>1515</u>	<u>—</u>	<u>11.19</u>	<u>0.5gal</u>	<u>0.00</u>	<u>— No product found</u>
<u>1715</u>					

Did well dewater?: <u>No</u>	Amount of H2O actually evacuated: <u>0.5 gal</u>
Sampling Time: <u>1715</u>	Sampling Date: <u>—</u>
Sample ID: <u>—</u>	Laboratory: <u>—</u>
Analyzed for: <u>—</u>	
Equipment Blank ID: <u>—</u>	Duplicate ID: <u>—</u>
Other Information: <u>—</u>	

LPH Removal Field Sheet

Project No.: 6641	Springfield
Sampler: Matt Engel	Gauging Date: 28 Feb/24
Well ID: EW-R	Well Diameter (in): 4"
Total Well Depth (ft): 7.22	Depth to Water (ft): 10.37
Depth to Free Product: 10.37	Thickness of Free Product (ft): Sheen
to: —	Equipment: Solinst

Purge Method: In-place bailer	Other: —
Sampling Method: Same	

Purge Start Time: — Flow Rate: — Pump Depth (ft): —

Time	DTP (feet btoc)	DTW	Water Removed	LPH Removed	
0950	—	10.37	2.25	sheen	Very thin sheen removed, not measurable. Confirmed with disposable bailer.

Did well dewater?: No	Amount of H2O actually evacuated: 2.25 gal
Sampling Time: 0950	Sampling Date: —
Sample ID: —	Laboratory: —
Analyzed for: —	
Equipment Blank ID: —	Duplicate ID: —
Other Information: —	

LPH Removal Field Sheet

Project No.: PROJ-006811	United Pacific #5468
Sampler: <i>Matt Engel</i>	Gauging Date: <i>28/Feb/24</i>
Well ID: <i>MW-6</i>	Well Diameter (in): <i>4"</i>
Total Well Depth (ft): <i>23.99</i>	Depth to Water (ft): <i>10.21</i>
Depth to Free Product: <i>10.21</i>	Thickness of Free Product (ft): <i>Sheen</i>
to: <i>—</i>	Equipment: <i>Solinist</i>

Purge Method: <i>In-place bailer</i>	Other: <i>—</i>
Sampling Method: <i>Same</i>	

Purge Start Time: *—* Flow Rate: *—* Pump Depth (ft): *—*

Time	DTP (feet btoc)	DTW	Water Removed	LPH Removed	
<i>0915</i>	<i>—</i>	<i>10.21</i>	<i>2.70</i>	<i>0.05</i>	<i>Little sheen removed, confirmed with disposable bailer</i>

Did well dewater?: <i>No</i>	Amount of H2O actually evacuated: <i>2.70 gal</i>
Sampling Time: <i>0915</i>	Sampling Date: <i>—</i>
Sample ID: <i>—</i>	Laboratory: <i>—</i>
Analyzed for: <i>—</i>	
Equipment Blank ID: <i>—</i>	Duplicate ID: <i>—</i>
Other Information: <i>—</i>	

LPH Removal Field Sheet

Project No.: 6811	Springfield
Sampler: Matt Engel	Gauging Date: 26/ Feb/24
Well ID: MW-5	Well Diameter (in): 4"
Total Well Depth (ft): 22.54	Depth to Water (ft): 9.93
Depth to Free Product: —	Thickness of Free Product (ft): 0.00
to: —	Equipment: Solinist

Purge Method: In-place bailer	Other: —
Sampling Method: Same	

Purge Start Time: — Flow Rate: — Pump Depth (ft): —

Time	DTP (feet btoc)	DTW	Water Removed	LPH Removed	
0947	—	9.93	2.50	0.00	Tiny amount of sheen found, which may have been from previous use of bucket

Did well dewater?: No	Amount of H2O actually evacuated: 2.50 gal
Sampling Time: 0947	Sampling Date: —
Sample ID: —	Laboratory: —
Analyzed for: —	
Equipment Blank ID: —	Duplicate ID: —
Other Information: —	

**DRUM LOG**

Site Name/No.: Springfield Project No.: 6811  
 Site Address.: 5220 Main St, Springfield, OR.

STATUS OF DRUM(S) UPON ARRIVAL				
Date:	<u>27/Feb/24</u>			
Number of Drums empty:	<u>0</u>			
Number of drums 1/4 full:	<u>1</u>			
Number of drums 1/2 full:	<u>0</u>			
Number of drums 3/4 full:	<u>1</u>			
Total drums onsite:	<u>2</u>			
Are the drums property labeled?	<u>Yes</u>			
Drum ID and contents:	<u>Purgewater, LPH</u>			
If any drums are partially or totally filled, what is the first used date?	<u>None</u> ↓ <u>30/Jan/24</u>			

-If free product is added to a drum, the drum must contain at least 20 gallons of water.

-If drum contains free-product, it MUST be steel and appropriately labeled (haz-waste sticker)

STATUS OF DRUM(S) UPON DEPARTURE				
Date:	<u>28/Feb/24</u>			
Number of Drums empty:	<u>0</u>			
Number of drums 1/4 full:	<u>1</u>			
Number of drums 1/2 full:	<u>0</u>			
Number of drums 3/4 full:	<u>1</u>			
Total drums onsite:	<u>2</u>			
Are the drums property labeled?	<u>Yes</u>			
Drum ID and contents:	<u>Purgewater, LPH</u>			
If any drums are partially or totally filled, what is the first used date?	<u>None</u> ↓ <u>30/Jan/24</u>			

**LOCATION OF DRUMS**  
 Near dumpster, behind fence, N of gas station.

FINAL STATUS				
Number of new drum(s) left onsite this event:	<u>0</u>			
Date of inspection:	<u>28/Feb/24</u>			
Drums labeled properly?:	<u>Yes</u>			
Technician's initials:	<u>ME</u>			

## **APPENDIX B**

### **Site Background Information**

## **SITE BACKGROUND**

United Pacific #5468  
5720 Main Street  
Springfield Oregon

### Site Assessment and Remediation History

The Site is an active retail fueling station located on the north side of Main Street, approximately 500 feet east of the intersection of Main Street and Bob Straub Parkway. The Site is located at the southern end of a large parking lot for multiple retail stores and restaurants. The property is improved with a convenience store and canopy covering four dispenser islands, each with one fuel dispenser. Gasoline and diesel fuel are both dispensed at the Site.

Three USTs are located on the Site; two contain unleaded gasoline and one contains diesel fuel. The capacities of the USTs are 12,000 gallons each. Note that the UST containing premium grade gasoline, suspected of leaking, was emptied and is not in use; UP plans to replace the entire fuel distribution system at the Site. The regular grade gasoline and diesel USTs are currently active.

A petroleum release at the Site was reported to DEQ in 1989. Various groundwater monitoring wells and remediation wells were installed and a remediation system was operated at the Site. A second fuel release was reported in 1997 and the remediation system operated until 2000. Numerous site assessments and groundwater monitoring events were conducted throughout the years and eventually, in 2012, the Site was granted NFA status by DEQ and the environmental issues at the Site were considered resolved.

On September 21, 2020, UP notified the DEQ of a failure of the UST containing premium gasoline at the Site and that the tank had been emptied and taken offline. On September 22, 2020, UP contacted Montrose to relay concerns regarding one of the USTs at the Site; the continuous statistical leak detection (CSLD) system had indicated a failure of the UST containing premium gasoline. On September 23, 2020, a *UST Petroleum Release Form* was submitted to the DEQ to further document the release. On September 24, 2020, Montrose performed a visit to inspect the Site and review recent fuel inventory records (kept in the convenience store office). Based on conversations with the station manager and a review of fuel inventory documents, problems with the fuel inventory were first observed on or around August 13, 2020. On September 15, 2020, the station stopped dispensing premium gasoline and over the next several days, physical measurements of the fuel level in the premium UST indicated that gasoline was exiting the system.

On September 19, 2020, approximately 3,914 gallons of gasoline was removed from the premium UST and on September 23, 2020, the fuel level was pumped down to the lowest achievable level and the fuel was transported offsite for disposal.

On October 13, 2020, Montrose prepared and submitted an Initial (Twenty Day) Report Form for UST Cleanup Projects to the DEQ and DEQ assigned the following leaking underground storage tank (LUST) number to the Site: 20-20-0844. Note, the Site had previously been identified by the following underground storage tank (UST) number: 791.



In November 2020, Montrose performed an initial site assessment which included advancing six soil borings (SB-1 through SB-6) using direct-push drilling techniques and the installation of three LPH extraction wells (EW-1 through EW-3) using roto-sonic drilling techniques. Visible LPH was observed during the advancement of Borings SB-2 through SB-5 and therefore, soil samples were only collected from Borings SB-1 and SB-6. Wells EW-1 through EW-3 were installed in an effort to access and recover the LPH observed during the initial direct-push drilling. Complete details of the work were reported in the *Initial Site Assessment and Interim Remedial Action Report*, dated December 15, 2021. Three soil samples collected contained COCs at concentrations exceeding the DEQ's RBCs for the leaching to groundwater scenario.

During January and February 2021, Montrose performed four separate LPH removal events, during which LPH and impacted groundwater were removed from Wells EW-1 through EW-3. LPH was recovered using various techniques including manual bailing and the use of a vacuum truck. On February 25, 2021, passive down-hole product skimmers were installed in Wells EW-2 and EW-3 to enhance recovery of LPH.

In February and March 2021, Montrose conducted additional site assessment work at the Site which included a vapor intrusion (VI) assessment, utility corridor assessment, and well installation activities. The VI assessment consisted of the collection of two sub-slab soil gas samples (SVP-1 and SVP-2), one indoor ambient air sample, and one outdoor ambient air sample. Additionally, seven groundwater monitoring wells (MW-1 through MW-7) were installed at the Site. Results of the VI assessment indicated that vapors from the liquid phase and dissolved phase hydrocarbon plumes beneath the Site did not currently pose a threat to either indoor or outdoor air. Soil samples collected from five of the seven wells contained COCs at concentrations exceeding DEQ's RBCs for the leaching to groundwater scenario. Following well installation, quarterly groundwater monitoring was initiated at the Site. Initial groundwater monitoring results indicated the presence of LPH or elevated COC concentrations in a majority of the wells. Complete details were reported in the *Additional Site Assessment, Well Installation, Vapor Intrusion, and Groundwater Monitoring Report*, dated June 7, 2021.

In September 2021, additional sub-slab soil vapor and indoor air and ambient air sampling was conducted. The results were reported in the *Third Quarter 2021 Air Monitoring Report*, dated November 16, 2021. Quarterly groundwater monitoring, continued VI assessment and LPH removal efforts are ongoing.

Montrose submitted the *Workplan for Additional Soil and Groundwater Investigation*, dated October 12, 2021, which proposed the installation of up to five additional groundwater monitoring wells, one soil vapor probe, continued vapor intrusion assessment, the collection of additional vapor and ambient air samples, and the completion of a preliminary site conceptual model. The DEQ concurred with the Workplan in their letter dated December 6, 2021.

In December 2021, additional sub-slab soil vapor and indoor air and ambient air sampling was conducted with the results presented in the *Fourth Quarter 2021 Air Monitoring Report*, dated March 10, 2022. The preliminary site conceptual model was completed by Montrose on February 1, 2022, and was sent to the DEQ and UP.



In February 2022, extraction wells EW-1, EW-2 and EW-3, located adjacent to the UST cavity, were decommissioned in advance of planned replacement of the fuel distribution system at the site. The field activities were summarized in the *Well Decommissioning Report*, dated April 25, 2022.

Beginning in March 2022, the fuel distribution system at the Site was replaced by Anderson Environmental Contracting of Kelso, Washington. Following removal of the old USTs, approximately 660 tons of petroleum contaminated soil (PCS) was over-excavated from the UST pit and exported to Coffin Butte Landfill, in Corvallis, Oregon. In addition to soil removal, approximately 47,000 gallons of UST pit water was pumped and disposed of to facilitate the installation of the two new USTs; one 20,000-gallon tank containing diesel and one 20,000-gallon dual-compartment UST containing 12,000-gallons of unleaded gasoline and 8,000-gallons of premium gasoline. Montrose conducted the decommissioning soil sampling as required by Oregon state law. Several soil samples collected from beneath former product lines contained COCs at concentrations exceeding applicable CULs. Montrose directed the over-excavation of soil from those areas and collected confirmation soil samples to show that all PCS was removed. Installation of the new fuel distribution system and rehabilitation of the Site was complete by June 30, 2022.

In September 2022, Montrose conducted drilling activities at the Site which included the installation of three replacement wells identified as EW-1R, EW-2R, and EW-4. The three wells serve as replacements for Wells EW-1, EW-2, and EW-3 that were formally decommissioned in February 2022, prior to the replacement of the fuel distribution system.

In November 2022, Montrose conducted additional assessment activities at the Site which included the installation of four groundwater monitoring wells at locations which served to further delineate hydrocarbon impacts beneath the site and neighboring properties. The wells were identified as MW-8 through MW-11. A fifth well was planned but was ultimately not installed due to time constraints for the project. Soil samples were collected from each of the borings and analyzed for fuel constituents. COCs were not detected at concentrations exceeding applicable CULs. Complete results were presented in the *Additional Site Assessment and Fourth Quarter 2022 Groundwater Monitoring Report*, dated March 2, 2023.

In March 2023, a limited step pumping test was performed in order to determine certain aquifer parameters and to acquire field data needed to assist in the design of a long-term remedial plan for the Site. Results of the test were presented in the *Aquifer Pumping Test Report*, dated May 31, 2023. The pumping test was performed in general accordance with *Workplan for Remedial Pilot Testing*, dated December 5, 2022.

Quarterly groundwater monitoring and periodic LPH removal efforts are ongoing at the Site while remedial strategies are being evaluated.



## **APPENDIX C**

### **Laboratory Analytical Report**



# Libby Environmental, Inc.

3322 South Bay Road NE • Olympia, WA 98506-2957

Phone (360) 352-2110 • libbyenv@gmail.com

April 08, 2024

Laura Skow  
Montrose Environmental Group, Inc.  
4150 B Place NW, Suite 106  
Auburn, WA 98001

RE: Springfield (Spr)  
Work Order Number: L24C123

Enclosed are the results of analyses for samples received by our laboratory on 3/29/2024.

Applicable detection limits and QA/QC data are included. The sample(s) will be disposed of within 30 days unless we are contacted to arrange long term storage.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please feel free to contact us. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Sherry Chilcutt  
Senior Chemist

**Libby Environmental, Inc.**

3322 South Bay Road NE  
Olympia, WA 98506  
Ph: 360-352-2110  
Fax: 360-352-4154

Client: Montrose Environmental Service (MES)

Address: 1631 E Saint Andrew Place

City: Santa Ana State: CA Zip: 92705

Phone: 714-743-7855 Fax: —

Client Project # PO-061674

**Chain of Custody Record**

Date: 28/Mar/24 Page: 1 of 1


Project Manager: Laura Skow

Project Name: Springfield (Spr)

Location: 5720 Main St City, State: Springfield, OR

Collector: Matt Engel Date of Collection: 27-28/Mar/24

Email: liskow@montrose-env.com

	VOC 8260	NMTPH-GX	BTEX (8260) / (8021)	NMTPH-HCID	PCB 8082	MTCRA 5 Metals	RCRA 8 Metals	PAH 8270	Semi Vol 8270	Lead
	PCE & Daughter Prod.	NMTPH-DX / DX	NMTPH-HCID	PCB 8082	MTCRA 5 Metals	RCRA 8 Metals	PAH 8270	Semi Vol 8270	Lead	

Sample Number	Date	Depth	Time	Sample Type	Container Type	Field Notes
1 MW-1	28/Mar	1204		GW	Keas, poly	Date of sample in "depth" column
2 MW-2	27/Mar	1433				
3 MW-3	27/Mar	1606				
4 MW-4	27/Mar	1232				
5 MW-7	27/Mar	0945				
6 MW-6	27/Mar	1104				
7 MW-9	27/Mar	1146				
8 MW-10	27/Mar	1020				
9 MW-11	27/Mar	1345				
10 EW-2R	28/Mar	1125				
11 EW-4	28/Mar	1040				
12 EB-1	27/Mar	0910				
13 EB-2	27/Mar	1616				
14 TB-1	—	—				No Volume for Pb Confirmed OK via Email -KD
15 Dup-1	—	—				
16						
17						

Relinquished by: [Signature] Date / Time: 29/Mar/24

Received by: [Signature] Date / Time: 3-29-24 1730

Relinquished by: [Signature] Date / Time: —

Received by: [Signature] Date / Time: —

Relinquished by: [Signature] Date / Time: —

Received by: [Signature] Date / Time: —

Sample Receipt

Good Condition? Y N

Cooler Temp. — °C

Sample Temp. — °C

Total Number of Containers —

Remarks:

TAT: 1-Day 2-Day 5-DAY



# Libby Environmental, Inc.

Montrose Environmental Group, Inc.  
4150 B Place NW, Suite 106  
Auburn, WA 98001

**Project:** Springfield (Spr)

**Project Manager:** Laura Skow

**City/State:** Springfield, OR

**Work Order:** L24C123

**Reported:** 04/08/2024 13:20

## Notes and Definitions

Item	Definition
A	Due to high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
E	Reported value is above the calibration range and should be considered an estimate.
R1	High Relative Percent Difference observed due to sample inhomogeneity.
S	Spike recovery indicates a possible matrix effect.
S4	Outlying surrogate recovery(ies) observed.
RL	Reporting Limit
ND	Analyte NOT DETECTED at or above the reporting limit
DET	Analyte DETECTED at or above the reporting limit
Qual	Qualifier
All results reported on an "as received" basis unless indicated by "Dry"	
RPD	Relative Percent Difference
%REC	Percent Recovery
Parent	Sample that was matrix spiked or duplicated

## Work Order Sample Summary

Lab ID	Sample	Matrix	Date Sampled	Date Received
L24C123-01	MW-1	Water	03/28/2024	03/29/2024
L24C123-02	MW-2	Water	03/27/2024	03/29/2024
L24C123-03	MW-3	Water	03/27/2024	03/29/2024
L24C123-04	MW-4	Water	03/27/2024	03/29/2024
L24C123-05	MW-7	Water	03/27/2024	03/29/2024
L24C123-06	MW-8	Water	03/27/2024	03/29/2024
L24C123-07	MW-9	Water	03/27/2024	03/29/2024
L24C123-08	MW-10	Water	03/27/2024	03/29/2024
L24C123-09	MW-11	Water	03/27/2024	03/29/2024
L24C123-10	EW-2R	Water	03/28/2024	03/29/2024
L24C123-11	EW-4	Water	03/28/2024	03/29/2024
L24C123-12	EB-1	Water	03/27/2024	03/29/2024
L24C123-13	EB-2	Water	03/27/2024	03/29/2024
L24C123-14	TB-1	Water	03/27/2024	03/29/2024
L24C123-15	Dup-1	Water	03/27/2024	03/29/2024



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**Project:** Springfield (Spr)  
**Project Manager:** Laura Skow

**City/State:** Springfield, OR  
**Work Order:** L24C123  
**Reported:** 04/08/2024 13:20

## Libby Environmental Sample Detection Summary

Analyte	Result	Qual	Units	RL	Method
<b>Sample: MW-1</b>			Lab#: L24C123-01		
Gasoline	240		ug/L	100	NWTPH-Gx
<b>Sample: MW-2</b>			Lab#: L24C123-02		
Gasoline	4000		ug/L	500	NWTPH-Gx
Benzene	70		ug/L	1.0	8260D
Toluene	340		ug/L	10	8260D
Ethylbenzene	200		ug/L	1.0	8260D
Total Xylenes	420		ug/L	10	8260D
<b>Sample: MW-3</b>			Lab#: L24C123-03		
Gasoline	950		ug/L	100	NWTPH-Gx
Benzene	200		ug/L	1.0	8260D
Ethylbenzene	50		ug/L	1.0	8260D
Naphthalene	5.0		ug/L	5.0	8260D
<b>Sample: MW-4</b>			Lab#: L24C123-04		
Gasoline	1600		ug/L	100	NWTPH-Gx
Benzene	140		ug/L	1.0	8260D
Toluene	4.7		ug/L	2.0	8260D
Total Xylenes	220		ug/L	2.0	8260D
Naphthalene	26		ug/L	5.0	8260D
1-Methylnaphthalene	5.7		ug/L	5.0	8260D
<b>Sample: MW-7</b>			Lab#: L24C123-05		
Gasoline	6100		ug/L	1000	NWTPH-Gx
Benzene	230		ug/L	10	8260D
Toluene	21		ug/L	2.0	8260D
Ethylbenzene	260		ug/L	10	8260D
Total Xylenes	1200		ug/L	20	8260D
Naphthalene	19		ug/L	5.0	8260D



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**Project Manager:** Laura Skow

**City/State:** Springfield, OR

**Work Order:** L24C123

**Reported:** 04/08/2024 13:20

## Libby Environmental Sample Detection Summary (Continued)

Analyte	Result	Qual	Units	RL	Method
<b>Sample: EW-2R</b>			Lab#: L24C123-10		
Gasoline	69000		ug/L	5000	NWTPH-Gx
Benzene	920		ug/L	10	8260D
Toluene	9000		ug/L	100	8260D
Ethylbenzene	850		ug/L	10	8260D
Total Xylenes	13000		ug/L	100	8260D
Naphthalene	51		ug/L	50	8260D
2-Methylnaphthalene	51		ug/L	5.0	8260D
1-Methylnaphthalene	31		ug/L	5.0	8260D
<b>Sample: EW-4</b>			Lab#: L24C123-11		
Gasoline	64000		ug/L	5000	NWTPH-Gx
Benzene	1800		ug/L	10	8260D
Toluene	10000		ug/L	100	8260D
Ethylbenzene	1300		ug/L	10	8260D
Total Xylenes	7900		ug/L	100	8260D
Naphthalene	130		ug/L	50	8260D
2-Methylnaphthalene	92		ug/L	5.0	8260D
1-Methylnaphthalene	36		ug/L	5.0	8260D

Note: If no entry is made, then no target compounds were detected.



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4150 B Place NW, Suite 106  
Auburn, WA 98001

**Project:** Springfield (Spr)

**Project Manager:** Laura Skow

**City/State:** Springfield, OR

**Work Order:** L24C123

**Reported:** 04/08/2024 13:20

## Sample Results

**Client Sample ID:** MW-1

**Lab ID:** L24C123-01 (Water)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
<b><u>Volatile Organic Compounds by EPA Method 8260D</u></b>						
Methyl tert-Butyl Ether (MTBE)	ND		5.0	ug/L	04/01/2024	PB
Benzene	ND		1.0	ug/L	04/01/2024	PB
1,2-Dichloroethane (EDC)	ND		1.0	ug/L	04/01/2024	PB
Toluene	ND		2.0	ug/L	04/01/2024	PB
1,2-Dibromoethane (EDB) (SIM)	ND		0.010	ug/L	04/01/2024	PB
Ethylbenzene	ND		1.0	ug/L	04/01/2024	PB
Total Xylenes	ND		2.0	ug/L	04/01/2024	PB
Naphthalene	ND		5.0	ug/L	04/01/2024	PB
2-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
1-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
<i>Surrogate: Dibromofluoromethane</i>	<i>121%</i>		<i>22.9-220</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>118%</i>		<i>32.2-196</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: Toluene-d8</i>	<i>140%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>98.0%</i>		<i>38.4-136</i>		<i>04/01/2024</i>	<i>PB</i>
<b><u>Gasoline by Method NWTPH-Gx</u></b>						
Gasoline	240		100	ug/L	04/01/2024	PB
<i>Surrogate: Toluene-d8</i>	<i>140%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>



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Auburn, WA 98001

**Project:** Springfield (Spr)

**Project Manager:** Laura Skow

**City/State:** Springfield, OR

**Work Order:** L24C123

**Reported:** 04/08/2024 13:20

## Sample Results (Continued)

**Client Sample ID:** MW-2

**Lab ID:** L24C123-02 (Water)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
<b><u>Volatile Organic Compounds by EPA Method 8260D</u></b>						
Methyl tert-Butyl Ether (MTBE)	ND		5.0	ug/L	04/01/2024	PB
Benzene	70		1.0	ug/L	04/01/2024	PB
1,2-Dichloroethane (EDC)	ND		1.0	ug/L	04/01/2024	PB
Toluene	340		10	ug/L	04/02/2024	PB
1,2-Dibromoethane (EDB) (SIM)	ND		0.010	ug/L	04/01/2024	PB
Ethylbenzene	200		1.0	ug/L	04/01/2024	PB
Total Xylenes	420		10	ug/L	04/02/2024	PB
Naphthalene	ND		5.0	ug/L	04/01/2024	PB
2-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
1-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
<i>Surrogate: Dibromofluoromethane</i>	<i>110%</i>		<i>22.9-220</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>108%</i>		<i>32.2-196</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: Toluene-d8</i>	<i>122%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>114%</i>		<i>38.4-136</i>		<i>04/01/2024</i>	<i>PB</i>
<b><u>Gasoline by Method NWTPH-Gx</u></b>						
Gasoline	4000		500	ug/L	04/02/2024	PB
<i>Surrogate: Toluene-d8</i>	<i>106%</i>		<i>47.3-146</i>		<i>04/02/2024</i>	<i>PB</i>



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**Project:** Springfield (Spr)

**Project Manager:** Laura Skow

**City/State:** Springfield, OR

**Work Order:** L24C123

**Reported:** 04/08/2024 13:20

## Sample Results (Continued)

**Client Sample ID:** MW-3

**Lab ID:** L24C123-03 (Water)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
<b><u>Volatile Organic Compounds by EPA Method 8260D</u></b>						
Methyl tert-Butyl Ether (MTBE)	ND		5.0	ug/L	04/01/2024	PB
Benzene	200		1.0	ug/L	04/01/2024	PB
1,2-Dichloroethane (EDC)	ND		1.0	ug/L	04/01/2024	PB
Toluene	ND		2.0	ug/L	04/01/2024	PB
1,2-Dibromoethane (EDB) (SIM)	ND		0.010	ug/L	04/01/2024	PB
Ethylbenzene	50		1.0	ug/L	04/01/2024	PB
Total Xylenes	ND		2.0	ug/L	04/01/2024	PB
Naphthalene	5.0		5.0	ug/L	04/01/2024	PB
2-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
1-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
<i>Surrogate: Dibromofluoromethane</i>	<i>120%</i>		<i>22.9-220</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>102%</i>		<i>32.2-196</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: Toluene-d8</i>	<i>130%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>94.6%</i>		<i>38.4-136</i>		<i>04/01/2024</i>	<i>PB</i>
<b><u>Gasoline by Method NWTPH-Gx</u></b>						
Gasoline	950		100	ug/L	04/01/2024	PB
<i>Surrogate: Toluene-d8</i>	<i>130%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>



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Auburn, WA 98001

**Project:** Springfield (Spr)

**Project Manager:** Laura Skow

**City/State:** Springfield, OR

**Work Order:** L24C123

**Reported:** 04/08/2024 13:20

## Sample Results (Continued)

**Client Sample ID:** MW-4

**Lab ID:** L24C123-04 (Water)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
<b><u>Volatile Organic Compounds by EPA Method 8260D</u></b>						
Methyl tert-Butyl Ether (MTBE)	ND		5.0	ug/L	04/01/2024	PB
Benzene	140		1.0	ug/L	04/01/2024	PB
1,2-Dichloroethane (EDC)	ND		1.0	ug/L	04/01/2024	PB
Toluene	4.7		2.0	ug/L	04/01/2024	PB
1,2-Dibromoethane (EDB) (SIM)	ND		0.010	ug/L	04/01/2024	PB
Ethylbenzene	ND		1.0	ug/L	04/01/2024	PB
Total Xylenes	220		2.0	ug/L	04/01/2024	PB
Naphthalene	26		5.0	ug/L	04/01/2024	PB
2-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
1-Methylnaphthalene	5.7		5.0	ug/L	04/01/2024	PB
<i>Surrogate: Dibromofluoromethane</i>	<i>115%</i>		<i>22.9-220</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>91.6%</i>		<i>32.2-196</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: Toluene-d8</i>	<i>112%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>99.0%</i>		<i>38.4-136</i>		<i>04/01/2024</i>	<i>PB</i>
<b><u>Gasoline by Method NWTPH-Gx</u></b>						
Gasoline	1600		100	ug/L	04/01/2024	PB
<i>Surrogate: Toluene-d8</i>	<i>112%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>



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Auburn, WA 98001

**Project:** Springfield (Spr)

**Project Manager:** Laura Skow

**City/State:** Springfield, OR

**Work Order:** L24C123

**Reported:** 04/08/2024 13:20

## Sample Results (Continued)

**Client Sample ID:** MW-7

**Lab ID:** L24C123-05 (Water)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
<b><u>Volatile Organic Compounds by EPA Method 8260D</u></b>						
Methyl tert-Butyl Ether (MTBE)	ND		5.0	ug/L	04/01/2024	PB
Benzene	230		10	ug/L	04/02/2024	PB
1,2-Dichloroethane (EDC)	ND		1.0	ug/L	04/01/2024	PB
Toluene	21		2.0	ug/L	04/01/2024	PB
1,2-Dibromoethane (EDB) (SIM)	ND		0.010	ug/L	04/01/2024	PB
Ethylbenzene	260		10	ug/L	04/02/2024	PB
Total Xylenes	1200		20	ug/L	04/02/2024	PB
Naphthalene	19		5.0	ug/L	04/01/2024	PB
2-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
1-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
<i>Surrogate: Dibromofluoromethane</i>	<i>113%</i>		<i>22.9-220</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>102%</i>		<i>32.2-196</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: Toluene-d8</i>	<i>118%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>107%</i>		<i>38.4-136</i>		<i>04/01/2024</i>	<i>PB</i>
<b><u>Gasoline by Method NWTPH-Gx</u></b>						
Gasoline	6100		1000	ug/L	04/02/2024	PB
<i>Surrogate: Toluene-d8</i>	<i>110%</i>		<i>47.3-146</i>		<i>04/02/2024</i>	<i>PB</i>



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Auburn, WA 98001

**Project:** Springfield (Spr)

**Project Manager:** Laura Skow

**City/State:** Springfield, OR

**Work Order:** L24C123

**Reported:** 04/08/2024 13:20

## Sample Results (Continued)

**Client Sample ID:** MW-8

**Lab ID:** L24C123-06 (Water)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
<b><u>Volatile Organic Compounds by EPA Method 8260D</u></b>						
Methyl tert-Butyl Ether (MTBE)	ND		5.0	ug/L	04/01/2024	PB
Benzene	ND		1.0	ug/L	04/01/2024	PB
1,2-Dichloroethane (EDC)	ND		1.0	ug/L	04/01/2024	PB
Toluene	ND		2.0	ug/L	04/01/2024	PB
1,2-Dibromoethane (EDB) (SIM)	ND		0.010	ug/L	04/01/2024	PB
Ethylbenzene	ND		1.0	ug/L	04/01/2024	PB
Total Xylenes	ND		2.0	ug/L	04/01/2024	PB
Naphthalene	ND		5.0	ug/L	04/01/2024	PB
2-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
1-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
<i>Surrogate: Dibromofluoromethane</i>	<i>113%</i>		<i>22.9-220</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>115%</i>		<i>32.2-196</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: Toluene-d8</i>	<i>115%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>102%</i>		<i>38.4-136</i>		<i>04/01/2024</i>	<i>PB</i>
<b><u>Gasoline by Method NWTPH-Gx</u></b>						
Gasoline	ND		100	ug/L	04/01/2024	PB
<i>Surrogate: Toluene-d8</i>	<i>115%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>



# Libby Environmental, Inc.

Montrose Environmental Group, Inc.  
4150 B Place NW, Suite 106  
Auburn, WA 98001

**Project:** Springfield (Spr)

**Project Manager:** Laura Skow

**City/State:** Springfield, OR

**Work Order:** L24C123

**Reported:** 04/08/2024 13:20

## Sample Results (Continued)

**Client Sample ID:** MW-9

**Lab ID:** L24C123-07 (Water)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
<b><u>Volatile Organic Compounds by EPA Method 8260D</u></b>						
Methyl tert-Butyl Ether (MTBE)	ND		5.0	ug/L	04/01/2024	PB
Benzene	ND		1.0	ug/L	04/01/2024	PB
1,2-Dichloroethane (EDC)	ND		1.0	ug/L	04/01/2024	PB
Toluene	ND		2.0	ug/L	04/01/2024	PB
1,2-Dibromoethane (EDB) (SIM)	ND		0.010	ug/L	04/01/2024	PB
Ethylbenzene	ND		1.0	ug/L	04/01/2024	PB
Total Xylenes	ND		2.0	ug/L	04/01/2024	PB
Naphthalene	ND		5.0	ug/L	04/01/2024	PB
2-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
1-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
<i>Surrogate: Dibromofluoromethane</i>	<i>129%</i>		<i>22.9-220</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>116%</i>		<i>32.2-196</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: Toluene-d8</i>	<i>114%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>94.0%</i>		<i>38.4-136</i>		<i>04/01/2024</i>	<i>PB</i>
<b><u>Gasoline by Method NWTPH-Gx</u></b>						
Gasoline	ND		100	ug/L	04/01/2024	PB
<i>Surrogate: Toluene-d8</i>	<i>114%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>



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**Project:** Springfield (Spr)  
**Project Manager:** Laura Skow

**City/State:** Springfield, OR  
**Work Order:** L24C123  
**Reported:** 04/08/2024 13:20

## Sample Results (Continued)

**Client Sample ID:** MW-10

**Lab ID:** L24C123-08 (Water)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
<b><u>Volatile Organic Compounds by EPA Method 8260D</u></b>						
Methyl tert-Butyl Ether (MTBE)	ND		5.0	ug/L	04/01/2024	PB
Benzene	ND		1.0	ug/L	04/01/2024	PB
1,2-Dichloroethane (EDC)	ND		1.0	ug/L	04/01/2024	PB
Toluene	ND		2.0	ug/L	04/01/2024	PB
1,2-Dibromoethane (EDB) (SIM)	ND		0.010	ug/L	04/01/2024	PB
Ethylbenzene	ND		1.0	ug/L	04/01/2024	PB
Total Xylenes	ND		2.0	ug/L	04/01/2024	PB
Naphthalene	ND		5.0	ug/L	04/01/2024	PB
2-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
1-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
<i>Surrogate: Dibromofluoromethane</i>	<i>115%</i>		<i>22.9-220</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>103%</i>		<i>32.2-196</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: Toluene-d8</i>	<i>110%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>88.0%</i>		<i>38.4-136</i>		<i>04/01/2024</i>	<i>PB</i>
<b><u>Gasoline by Method NWTPH-Gx</u></b>						
Gasoline	ND		100	ug/L	04/01/2024	PB
<i>Surrogate: Toluene-d8</i>	<i>110%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>



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**Project Manager:** Laura Skow

**City/State:** Springfield, OR

**Work Order:** L24C123

**Reported:** 04/08/2024 13:20

## Sample Results (Continued)

**Client Sample ID:** MW-11

**Lab ID:** L24C123-09 (Water)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
<b><u>Volatile Organic Compounds by EPA Method 8260D</u></b>						
Methyl tert-Butyl Ether (MTBE)	ND		5.0	ug/L	04/01/2024	PB
Benzene	ND		1.0	ug/L	04/01/2024	PB
1,2-Dichloroethane (EDC)	ND		1.0	ug/L	04/01/2024	PB
Toluene	ND		2.0	ug/L	04/01/2024	PB
1,2-Dibromoethane (EDB) (SIM)	ND		0.010	ug/L	04/01/2024	PB
Ethylbenzene	ND		1.0	ug/L	04/01/2024	PB
Total Xylenes	ND		2.0	ug/L	04/01/2024	PB
Naphthalene	ND		5.0	ug/L	04/01/2024	PB
2-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
1-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
<i>Surrogate: Dibromofluoromethane</i>	<i>120%</i>		<i>22.9-220</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>110%</i>		<i>32.2-196</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: Toluene-d8</i>	<i>113%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>87.6%</i>		<i>38.4-136</i>		<i>04/01/2024</i>	<i>PB</i>
<b><u>Gasoline by Method NWTPH-Gx</u></b>						
Gasoline	ND		100	ug/L	04/01/2024	PB
<i>Surrogate: Toluene-d8</i>	<i>113%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>



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**Work Order:** L24C123

**Reported:** 04/08/2024 13:20

## Sample Results (Continued)

**Client Sample ID:** EW-2R

**Lab ID:** L24C123-10 (Water)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
<b><u>Volatile Organic Compounds by EPA Method 8260D</u></b>						
Methyl tert-Butyl Ether (MTBE)	ND		5.0	ug/L	04/01/2024	PB
Benzene	920		10	ug/L	04/02/2024	PB
1,2-Dichloroethane (EDC)	ND		1.0	ug/L	04/01/2024	PB
Toluene	9000		100	ug/L	04/02/2024	PB
1,2-Dibromoethane (EDB) (SIM)	ND		0.010	ug/L	04/01/2024	PB
Ethylbenzene	850		10	ug/L	04/02/2024	PB
Total Xylenes	13000		100	ug/L	04/02/2024	PB
Naphthalene	51		50	ug/L	04/02/2024	PB
2-Methylnaphthalene	51		5.0	ug/L	04/01/2024	PB
1-Methylnaphthalene	31		5.0	ug/L	04/01/2024	PB
<i>Surrogate: Dibromofluoromethane</i>	<i>109%</i>		<i>22.9-220</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>89.6%</i>		<i>32.2-196</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: Toluene-d8</i>	<i>117%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>107%</i>		<i>38.4-136</i>		<i>04/01/2024</i>	<i>PB</i>
<b><u>Gasoline by Method NWTPH-Gx</u></b>						
Gasoline	69000		5000	ug/L	04/02/2024	PB
<i>Surrogate: Toluene-d8</i>	<i>113%</i>		<i>47.3-146</i>		<i>04/02/2024</i>	<i>PB</i>



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**Work Order:** L24C123

**Reported:** 04/08/2024 13:20

## Sample Results (Continued)

**Client Sample ID:** EW-4

**Lab ID:** L24C123-11 (Water)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
<b><u>Volatile Organic Compounds by EPA Method 8260D</u></b>						
Methyl tert-Butyl Ether (MTBE)	ND		5.0	ug/L	04/01/2024	PB
Benzene	1800		10	ug/L	04/02/2024	PB
1,2-Dichloroethane (EDC)	ND		1.0	ug/L	04/01/2024	PB
Toluene	10000		100	ug/L	04/02/2024	PB
1,2-Dibromoethane (EDB) (SIM)	ND		0.010	ug/L	04/01/2024	PB
Ethylbenzene	1300		10	ug/L	04/02/2024	PB
Total Xylenes	7900		100	ug/L	04/02/2024	PB
Naphthalene	130		50	ug/L	04/02/2024	PB
2-Methylnaphthalene	92		5.0	ug/L	04/01/2024	PB
1-Methylnaphthalene	36		5.0	ug/L	04/01/2024	PB
<i>Surrogate: Dibromofluoromethane</i>	<i>104%</i>		<i>22.9-220</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>94.0%</i>		<i>32.2-196</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: Toluene-d8</i>	<i>121%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>106%</i>		<i>38.4-136</i>		<i>04/01/2024</i>	<i>PB</i>
<b><u>Gasoline by Method NWTPH-Gx</u></b>						
Gasoline	64000		5000	ug/L	04/02/2024	PB
<i>Surrogate: Toluene-d8</i>	<i>122%</i>		<i>47.3-146</i>		<i>04/02/2024</i>	<i>PB</i>



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**City/State:** Springfield, OR

**Work Order:** L24C123

**Reported:** 04/08/2024 13:20

## Sample Results (Continued)

**Client Sample ID:** EB-1

**Lab ID:** L24C123-12 (Water)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
<b><u>Volatile Organic Compounds by EPA Method 8260D</u></b>						
Methyl tert-Butyl Ether (MTBE)	ND		5.0	ug/L	04/02/2024	PB
Benzene	ND		1.0	ug/L	04/02/2024	PB
1,2-Dichloroethane (EDC)	ND		1.0	ug/L	04/02/2024	PB
Toluene	ND		2.0	ug/L	04/02/2024	PB
1,2-Dibromoethane (EDB) (SIM)	ND		0.010	ug/L	04/02/2024	PB
Ethylbenzene	ND		1.0	ug/L	04/02/2024	PB
Total Xylenes	ND		2.0	ug/L	04/02/2024	PB
Naphthalene	ND		5.0	ug/L	04/02/2024	PB
2-Methylnaphthalene	ND		5.0	ug/L	04/02/2024	PB
1-Methylnaphthalene	ND		5.0	ug/L	04/02/2024	PB
<i>Surrogate: Dibromofluoromethane</i>	<i>162%</i>		<i>22.9-220</i>		<i>04/02/2024</i>	<i>PB</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>146%</i>		<i>32.2-196</i>		<i>04/02/2024</i>	<i>PB</i>
<i>Surrogate: Toluene-d8</i>	<i>117%</i>		<i>47.3-146</i>		<i>04/02/2024</i>	<i>PB</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>94.2%</i>		<i>38.4-136</i>		<i>04/02/2024</i>	<i>PB</i>
<b><u>Gasoline by Method NWTPH-Gx</u></b>						
Gasoline	ND		100	ug/L	04/02/2024	PB
<i>Surrogate: Toluene-d8</i>	<i>117%</i>		<i>47.3-146</i>		<i>04/02/2024</i>	<i>PB</i>



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**City/State:** Springfield, OR

**Work Order:** L24C123

**Reported:** 04/08/2024 13:20

## Sample Results (Continued)

**Client Sample ID:** EB-2

**Lab ID:** L24C123-13 (Water)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
<b><u>Volatile Organic Compounds by EPA Method 8260D</u></b>						
Methyl tert-Butyl Ether (MTBE)	ND		5.0	ug/L	04/01/2024	PB
Benzene	ND		1.0	ug/L	04/01/2024	PB
1,2-Dichloroethane (EDC)	ND		1.0	ug/L	04/01/2024	PB
Toluene	ND		2.0	ug/L	04/01/2024	PB
1,2-Dibromoethane (EDB) (SIM)	ND		0.010	ug/L	04/01/2024	PB
Ethylbenzene	ND		1.0	ug/L	04/01/2024	PB
Total Xylenes	ND		2.0	ug/L	04/01/2024	PB
Naphthalene	ND		5.0	ug/L	04/01/2024	PB
2-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
1-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
<i>Surrogate: Dibromofluoromethane</i>	<i>110%</i>		<i>22.9-220</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>102%</i>		<i>32.2-196</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: Toluene-d8</i>	<i>121%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>98.1%</i>		<i>38.4-136</i>		<i>04/01/2024</i>	<i>PB</i>
<b><u>Gasoline by Method NWTPH-Gx</u></b>						
Gasoline	ND		100	ug/L	04/01/2024	PB
<i>Surrogate: Toluene-d8</i>	<i>121%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>



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**City/State:** Springfield, OR

**Work Order:** L24C123

**Reported:** 04/08/2024 13:20

## Sample Results (Continued)

**Client Sample ID:** TB-1

**Lab ID:** L24C123-14 (Water)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
<b><u>Volatile Organic Compounds by EPA Method 8260D</u></b>						
Methyl tert-Butyl Ether (MTBE)	ND		5.0	ug/L	04/01/2024	PB
Benzene	ND		1.0	ug/L	04/01/2024	PB
1,2-Dichloroethane (EDC)	ND		1.0	ug/L	04/01/2024	PB
Toluene	ND		2.0	ug/L	04/01/2024	PB
1,2-Dibromoethane (EDB) (SIM)	ND		0.010	ug/L	04/01/2024	PB
Ethylbenzene	ND		1.0	ug/L	04/01/2024	PB
Total Xylenes	ND		2.0	ug/L	04/01/2024	PB
Naphthalene	ND		5.0	ug/L	04/01/2024	PB
2-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
1-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
<i>Surrogate: Dibromofluoromethane</i>	<i>115%</i>		<i>22.9-220</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>127%</i>		<i>32.2-196</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: Toluene-d8</i>	<i>113%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>91.1%</i>		<i>38.4-136</i>		<i>04/01/2024</i>	<i>PB</i>
<b><u>Gasoline by Method NWTPH-Gx</u></b>						
Gasoline	ND		100	ug/L	04/01/2024	PB
<i>Surrogate: Toluene-d8</i>	<i>113%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>



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**Project:** Springfield (Spr)

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**City/State:** Springfield, OR

**Work Order:** L24C123

**Reported:** 04/08/2024 13:20

## Sample Results (Continued)

**Client Sample ID:** Dup-1

**Lab ID:** L24C123-15 (Water)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
<b><u>Volatile Organic Compounds by EPA Method 8260D</u></b>						
Methyl tert-Butyl Ether (MTBE)	ND		5.0	ug/L	04/01/2024	PB
Benzene	ND		1.0	ug/L	04/01/2024	PB
1,2-Dichloroethane (EDC)	ND		1.0	ug/L	04/01/2024	PB
Toluene	ND		2.0	ug/L	04/01/2024	PB
1,2-Dibromoethane (EDB) (SIM)	ND		0.010	ug/L	04/01/2024	PB
Ethylbenzene	ND		1.0	ug/L	04/01/2024	PB
Total Xylenes	ND		2.0	ug/L	04/01/2024	PB
Naphthalene	ND		5.0	ug/L	04/01/2024	PB
2-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
1-Methylnaphthalene	ND		5.0	ug/L	04/01/2024	PB
<i>Surrogate: Dibromofluoromethane</i>	<i>117%</i>		<i>22.9-220</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>114%</i>		<i>32.2-196</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: Toluene-d8</i>	<i>107%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>96.0%</i>		<i>38.4-136</i>		<i>04/01/2024</i>	<i>PB</i>
<b><u>Gasoline by Method NWTPH-Gx</u></b>						
Gasoline	ND		100	ug/L	04/01/2024	PB
<i>Surrogate: Toluene-d8</i>	<i>107%</i>		<i>47.3-146</i>		<i>04/01/2024</i>	<i>PB</i>



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**City/State:** Springfield, OR

**Work Order:** L24C123

**Reported:** 04/08/2024 13:20

## Quality Control

### Volatile Organic Compounds by EPA Method 8260D

Analyte	Result	Qual	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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#### Batch: BYD0002 - VOA

##### Blank (BYD0002-BLK1)

Prepared & Analyzed: 4/1/2024

Methyl tert-Butyl Ether (MTBE)	ND		5.0	ug/L						
Benzene	ND		1.0	ug/L						
1,2-Dichloroethane (EDC)	ND		1.0	ug/L						
Toluene	ND		2.0	ug/L						
1,2-Dibromoethane (EDB) (SIM)	ND		0.010	ug/L						
Ethylbenzene	ND		1.0	ug/L						
Total Xylenes	ND		2.0	ug/L						
Naphthalene	ND		5.0	ug/L						
2-Methylnaphthalene	ND		5.0	ug/L						
1-Methylnaphthalene	ND		5.0	ug/L						
Surrogate: Dibromofluoromethane			23.8	ug/L	20.0		119	22.9-220		
Surrogate: 1,2-Dichloroethane-d4			23.9	ug/L	20.0		119	32.2-196		
Surrogate: Toluene-d8			27.4	ug/L	20.0		137	47.3-146		
Surrogate: 4-Bromofluorobenzene			18.2	ug/L	20.0		90.8	38.4-136		

##### LCS (BYD0002-BS1)

Prepared & Analyzed: 4/1/2024

Methyl tert-Butyl Ether (MTBE)	6.02		5.0	ug/L	5.00		120	17.2-189		
Benzene	5.78		1.0	ug/L	5.00		116	56.1-138		
1,2-Dichloroethane (EDC)	4.72		1.0	ug/L	5.00		94.3	39.6-177		
Toluene	6.26		2.0	ug/L	5.00		125	54-132		
1,2-Dibromoethane (EDB)	5.63		2.0	ug/L	5.00		113	10-319		
Ethylbenzene	3.69		1.0	ug/L	5.00		73.8	53.8-127		
Total Xylenes	9.72		2.0	ug/L	15.0		64.8	37.5-127		
Naphthalene	5.27		5.0	ug/L	5.00		105	10-186		
2-Methylnaphthalene	7.68		5.0	ug/L	5.00		154	13.2-160		
1-Methylnaphthalene	8.39		5.0	ug/L	5.00		168	10-181		
Surrogate: Dibromofluoromethane			22.8	ug/L	20.0		114	22.9-220		
Surrogate: 1,2-Dichloroethane-d4			21.9	ug/L	20.0		109	32.2-196		
Surrogate: Toluene-d8			25.6	ug/L	20.0		128	47.3-146		
Surrogate: 4-Bromofluorobenzene			21.0	ug/L	20.0		105	38.4-136		

##### Duplicate (BYD0002-DUP1)

##### Parent: L24C123-03

Prepared & Analyzed: 4/1/2024

Methyl tert-Butyl Ether (MTBE)	ND		5.0	ug/L	ND					35
Benzene	205	E	1.0	ug/L	199				2.71	35
1,2-Dichloroethane (EDC)	ND		1.0	ug/L	ND					35
Toluene	ND		2.0	ug/L	ND					35
1,2-Dibromoethane (EDB) (SIM)	ND		0.010	ug/L	ND					35
Ethylbenzene	52.8		1.0	ug/L	50.2				5.00	35
Total Xylenes	ND		2.0	ug/L	ND					35
Naphthalene	4.07		5.0	ug/L	5.02				20.9	35
2-Methylnaphthalene	ND		5.0	ug/L	ND					35
1-Methylnaphthalene	2.57		5.0	ug/L	ND					35
Surrogate: Dibromofluoromethane			24.5	ug/L	20.0		122	22.9-220		
Surrogate: 1,2-Dichloroethane-d4			20.2	ug/L	20.0		101	32.2-196		
Surrogate: Toluene-d8			24.8	ug/L	20.0		124	47.3-146		
Surrogate: 4-Bromofluorobenzene			21.3	ug/L	20.0		106	38.4-136		



# Libby Environmental, Inc.

Montrose Environmental Group, Inc.  
4150 B Place NW, Suite 106  
Auburn, WA 98001

**Project:** Springfield (Spr)  
**Project Manager:** Laura Skow

**City/State:** Springfield, OR  
**Work Order:** L24C123  
**Reported:** 04/08/2024 13:20

## Quality Control (Continued)

### Volatile Organic Compounds by EPA Method 8260D (Continued)

Analyte	Result	Qual	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Duplicate (BYD0002-DUP2)</b>		<b>Parent: L24C123-13</b>			Prepared & Analyzed: 4/1/2024					
Methyl tert-Butyl Ether (MTBE)	ND		5.0	ug/L		ND				35
Benzene	ND		1.0	ug/L		ND				35
1,2-Dichloroethane (EDC)	ND		1.0	ug/L		ND				35
Toluene	ND		2.0	ug/L		ND				35
1,2-Dibromoethane (EDB) (SIM)	ND		0.010	ug/L		ND				35
Ethylbenzene	ND		1.0	ug/L		ND				35
Total Xylenes	ND		2.0	ug/L		ND				35
Naphthalene	ND		5.0	ug/L		ND				35
2-Methylnaphthalene	ND		5.0	ug/L		ND				35
1-Methylnaphthalene	ND		5.0	ug/L		ND				35
<i>Surrogate: Dibromofluoromethane</i>			23.3	ug/L	20.0		116	22.9-220		
<i>Surrogate: 1,2-Dichloroethane-d4</i>			22.6	ug/L	20.0		113	32.2-196		
<i>Surrogate: Toluene-d8</i>			21.4	ug/L	20.0		107	47.3-146		
<i>Surrogate: 4-Bromofluorobenzene</i>			18.2	ug/L	20.0		91.0	38.4-136		
<b>Matrix Spike (BYD0002-MS1)</b>		<b>Parent: L24C123-03</b>			Prepared & Analyzed: 4/1/2024					
Methyl tert-Butyl Ether (MTBE)	2.63		5.0	ug/L	5.00	ND	52.5	10-240		
Benzene	239	A	1.0	ug/L	5.00	199	803	10-188		
1,2-Dichloroethane (EDC)	2.82		1.0	ug/L	5.00	ND	56.4	38.2-189		
Toluene	9.33		2.0	ug/L	5.00	ND	187	10-251		
1,2-Dibromoethane (EDB)	3.30		2.0	ug/L	5.00	ND	65.9	41.8-160		
Ethylbenzene	78.5	A	1.0	ug/L	5.00	50.2	566	10-267		
Total Xylenes	19.6		2.0	ug/L	15.0	ND	131	10-184		
Naphthalene	4.90	S	5.0	ug/L	5.00	5.02	NR	10-346		
2-Methylnaphthalene	1.98	S	5.0	ug/L	5.00	1.67	6.16	10-217		
1-Methylnaphthalene	ND	S	5.0	ug/L	5.00	ND		10-173		
<i>Surrogate: Dibromofluoromethane</i>			18.6	ug/L	20.0		93.0	22.9-220		
<i>Surrogate: 1,2-Dichloroethane-d4</i>			10.4	ug/L	20.0		52.2	32.2-196		
<i>Surrogate: Toluene-d8</i>			23.6	ug/L	20.0		118	47.3-146		
<i>Surrogate: 4-Bromofluorobenzene</i>			19.3	ug/L	20.0		96.4	38.4-136		
<b>Matrix Spike Dup (BYD0002-MSD1)</b>		<b>Parent: L24C123-03</b>			Prepared & Analyzed: 4/1/2024					
Methyl tert-Butyl Ether (MTBE)	6.96	R1	5.0	ug/L	5.00	ND	139	10-240	90.4	35
Benzene	204		1.0	ug/L	5.00	199	96.1	10-188	15.9	35
1,2-Dichloroethane (EDC)	4.90	R1	1.0	ug/L	5.00	ND	97.9	38.2-189	53.9	35
Toluene	8.64		2.0	ug/L	5.00	ND	173	10-251	7.65	35
1,2-Dibromoethane (EDB)	5.89	R1	2.0	ug/L	5.00	ND	118	41.8-160	56.4	35
Ethylbenzene	54.8	R1	1.0	ug/L	5.00	50.2	91.0	10-267	35.6	35
Total Xylenes	12.5	R1	2.0	ug/L	15.0	ND	83.1	10-184	44.5	35
Naphthalene	10.1	R1	5.0	ug/L	5.00	5.02	102	10-346	69.4	35
2-Methylnaphthalene	7.72		5.0	ug/L	5.00	ND	154	10-217		35
1-Methylnaphthalene	6.86	R1	5.0	ug/L	5.00	ND	137	10-173		35
<i>Surrogate: Dibromofluoromethane</i>			23.7	ug/L	20.0		119	22.9-220		
<i>Surrogate: 1,2-Dichloroethane-d4</i>			20.0	ug/L	20.0		100	32.2-196		
<i>Surrogate: Toluene-d8</i>			29.7	ug/L	20.0		149	47.3-146		
<i>Surrogate: 4-Bromofluorobenzene</i>			22.5	ug/L	20.0		113	38.4-136		
<b>Blank (BYD0010-BLK1)</b>		Prepared & Analyzed: 4/2/2024								
Methyl tert-Butyl Ether (MTBE)	ND		5.0	ug/L						
Benzene	ND		1.0	ug/L						
1,2-Dichloroethane (EDC)	ND		1.0	ug/L						
Toluene	ND		2.0	ug/L						
1,2-Dibromoethane (EDB) (SIM)	ND		0.010	ug/L						



# Libby Environmental, Inc.

Montrose Environmental Group, Inc.  
4150 B Place NW, Suite 106  
Auburn, WA 98001

**Project:** Springfield (Spr)  
**Project Manager:** Laura Skow

**City/State:** Springfield, OR  
**Work Order:** L24C123  
**Reported:** 04/08/2024 13:20

## Quality Control (Continued)

### Volatile Organic Compounds by EPA Method 8260D (Continued)

Analyte	Result	Qual	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Blank (BYD0010-BLK1)</b>										
					Prepared & Analyzed: 4/2/2024					
Ethylbenzene	ND		1.0	ug/L						
Total Xylenes	ND		2.0	ug/L						
Naphthalene	ND		5.0	ug/L						
2-Methylnaphthalene	ND		5.0	ug/L						
1-Methylnaphthalene	ND		5.0	ug/L						
Surrogate: Dibromofluoromethane			28.0	ug/L	20.0		140	22.9-220		
Surrogate: 1,2-Dichloroethane-d4			27.2	ug/L	20.0		136	32.2-196		
Surrogate: Toluene-d8			20.8	ug/L	20.0		104	47.3-146		
Surrogate: 4-Bromofluorobenzene			19.7	ug/L	20.0		98.4	38.4-136		
<b>LCS (BYD0010-BS1)</b>										
					Prepared & Analyzed: 4/2/2024					
Methyl tert-Butyl Ether (MTBE)	7.29		5.0	ug/L	5.00		146	17.2-189		
Benzene	6.43		1.0	ug/L	5.00		129	56.1-138		
1,2-Dichloroethane (EDC)	5.70		1.0	ug/L	5.00		114	39.6-177		
Toluene	6.51		2.0	ug/L	5.00		130	54-132		
1,2-Dibromoethane (EDB) (SIM)	5.88		0.010	ug/L	5.00		118	21.9-165		
Ethylbenzene	3.90		1.0	ug/L	5.00		78.0	53.8-127		
Total Xylenes	11.1		2.0	ug/L	15.0		74.0	37.5-127		
Naphthalene	5.44		5.0	ug/L	5.00		109	10-186		
2-Methylnaphthalene	6.59		5.0	ug/L	5.00		132	13.2-160		
1-Methylnaphthalene	9.03		5.0	ug/L	5.00		181	10-181		
Surrogate: Dibromofluoromethane			24.2	ug/L	20.0		121	22.9-220		
Surrogate: 1,2-Dichloroethane-d4			24.0	ug/L	20.0		120	32.2-196		
Surrogate: Toluene-d8			25.4	ug/L	20.0		127	47.3-146		
Surrogate: 4-Bromofluorobenzene			16.5	ug/L	20.0		82.4	38.4-136		
<b>Duplicate (BYD0010-DUP1)</b>										
					Parent: L24C123-12RE1					
					Prepared & Analyzed: 4/2/2024					
Methyl tert-Butyl Ether (MTBE)	ND		5.0	ug/L		ND				35
Benzene	ND		1.0	ug/L		ND				35
1,2-Dichloroethane (EDC)	ND		1.0	ug/L		ND				35
Toluene	ND		2.0	ug/L		ND				35
1,2-Dibromoethane (EDB) (SIM)	ND		0.010	ug/L		ND				35
Ethylbenzene	ND		1.0	ug/L		ND				35
Total Xylenes	ND		2.0	ug/L		ND				35
Naphthalene	ND		5.0	ug/L		ND				35
2-Methylnaphthalene	ND		5.0	ug/L		ND				35
1-Methylnaphthalene	ND		5.0	ug/L		ND				35
Surrogate: Dibromofluoromethane			23.2	ug/L	20.0		116	22.9-220		
Surrogate: 1,2-Dichloroethane-d4			21.7	ug/L	20.0		109	32.2-196		
Surrogate: Toluene-d8			18.5	ug/L	20.0		92.6	47.3-146		
Surrogate: 4-Bromofluorobenzene			18.5	ug/L	20.0		92.4	38.4-136		



# Libby Environmental, Inc.

Montrose Environmental Group, Inc.  
4150 B Place NW, Suite 106  
Auburn, WA 98001

**Project:** Springfield (Spr)

**Project Manager:** Laura Skow

**City/State:** Springfield, OR

**Work Order:** L24C123

**Reported:** 04/08/2024 13:20

## Quality Control (Continued)

### Volatile Organic Compounds by EPA Method 8260D (Continued)

Analyte	Result	Qual	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Matrix Spike (BYD0010-MS1)</b>		<b>Parent: L24C123-12RE1</b>			Prepared & Analyzed: 4/2/2024					
Methyl tert-Butyl Ether (MTBE)	2.82		2.0	ug/L	5.00	ND	56.4	10-240		
Benzene	5.87		1.0	ug/L	5.00	ND	117	10-188		
1,2-Dichloroethane (EDC)	3.38		1.0	ug/L	5.00	ND	67.5	38.2-189		
Toluene	7.46		2.0	ug/L	5.00	ND	149	10-251		
1,2-Dibromoethane (EDB) (SIM)	2.92		0.010	ug/L	5.00	ND	58.5	23.7-168		
Ethylbenzene	5.08		1.0	ug/L	5.00	ND	102	10-267		
Total Xylenes	13.6		2.0	ug/L	15.0	ND	91.0	10-184		
Naphthalene	0.757		5.0	ug/L	5.00	ND	15.1	10-346		
2-Methylnaphthalene	0.796		5.0	ug/L	5.00	ND	15.9	10-217		
1-Methylnaphthalene	1.20		5.0	ug/L	5.00	ND	24.0	10-173		
<i>Surrogate: Dibromofluoromethane</i>			24.7	ug/L	20.0		124	22.9-220		
<i>Surrogate: 1,2-Dichloroethane-d4</i>			16.0	ug/L	20.0		80.2	32.2-196		
<i>Surrogate: Toluene-d8</i>			23.5	ug/L	20.0		118	47.3-146		
<i>Surrogate: 4-Bromofluorobenzene</i>			19.3	ug/L	20.0		96.6	38.4-136		
<b>Matrix Spike Dup (BYD0010-MSD1)</b>		<b>Parent: L24C123-12RE1</b>			Prepared & Analyzed: 4/2/2024					
Methyl tert-Butyl Ether (MTBE)	5.30	R1	5.0	ug/L	5.00	ND	106	10-240	61.1	35
Benzene	5.75		1.0	ug/L	5.00	ND	115	10-188	2.10	35
1,2-Dichloroethane (EDC)	5.02	R1	1.0	ug/L	5.00	ND	100	38.2-189	39.2	35
Toluene	5.75		2.0	ug/L	5.00	ND	115	10-251	26.0	35
1,2-Dibromoethane (EDB) (SIM)	4.77	R1	0.010	ug/L	5.00	ND	95.4	23.7-168	48.0	35
Ethylbenzene	3.72		1.0	ug/L	5.00	ND	74.3	10-267	30.9	35
Total Xylenes	9.62		2.0	ug/L	15.0	ND	64.1	10-184	34.6	35
Naphthalene	2.10		5.0	ug/L	5.00	ND	42.0	10-346		35
2-Methylnaphthalene	2.63		5.0	ug/L	5.00	ND	52.6	10-217		35
1-Methylnaphthalene	3.98		5.0	ug/L	5.00	ND	79.6	10-173		35
<i>Surrogate: Dibromofluoromethane</i>			25.4	ug/L	20.0		127	22.9-220		
<i>Surrogate: 1,2-Dichloroethane-d4</i>			23.7	ug/L	20.0		118	32.2-196		
<i>Surrogate: Toluene-d8</i>			21.5	ug/L	20.0		107	47.3-146		
<i>Surrogate: 4-Bromofluorobenzene</i>			23.6	ug/L	20.0		118	38.4-136		



# Libby Environmental, Inc.

Montrose Environmental Group, Inc.  
4150 B Place NW, Suite 106  
Auburn, WA 98001

**Project:** Springfield (Spr)  
**Project Manager:** Laura Skow

**City/State:** Springfield, OR  
**Work Order:** L24C123  
**Reported:** 04/08/2024 13:20

## Quality Control (Continued)

### Gasoline by Method NWTPH-Gx

Analyte	Result	Qual	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch: BYD0002 - VOA</b>										
<b>Blank (BYD0002-BLK1)</b>										
Gasoline	ND		100	ug/L						
Surrogate: Toluene-d8			27.4	ug/L	20.0		137	47.3-146		
Prepared & Analyzed: 4/1/2024										
<b>Duplicate (BYD0002-DUP1)</b>										
Gasoline	927		100	ug/L		947			2.18	35
Surrogate: Toluene-d8			24.8	ug/L	20.0		124	47.3-146		
Parent: L24C123-03 Prepared & Analyzed: 4/1/2024										
<b>Duplicate (BYD0002-DUP2)</b>										
Gasoline	ND		100	ug/L		ND				35
Surrogate: Toluene-d8			21.4	ug/L	20.0		107	47.3-146		
Parent: L24C123-13 Prepared & Analyzed: 4/1/2024										
<b>Blank (BYD0010-BLK1)</b>										
Gasoline	ND		100	ug/L						
Surrogate: Toluene-d8			20.8	ug/L	20.0		104	47.3-146		
Prepared & Analyzed: 4/2/2024										
<b>Duplicate (BYD0010-DUP1)</b>										
Gasoline	ND		100	ug/L		ND				35
Surrogate: Toluene-d8			18.5	ug/L	20.0		92.6	47.3-146		
Parent: L24C123-12RE1 Prepared & Analyzed: 4/2/2024										

# Libby Environmental, Inc.

3322 South Bay Road NE

Olympia, WA 98506

Phone: (360) 352-2110

FAX: (360) 352-4154

Email: libbyenv@gmail.com

Springfield (Spr) Project

Montrose Environmental Group, Inc.

Libby Work Order # L24C123

Date Received 3/29/2024

Time Received 12:30 PM

Received By KD

## Sample Receipt Checklist

### Chain of Custody

1. Is the Chain of Custody is complete?  Yes  No
2. How was the sample delivered?  Hand Delivered  Picked Up  Shipped

### Log In

3. Cooler or Shipping Container is present.  Yes  No  N/A
4. Cooler or Shipping Container is in good condition.  Yes  No  N/A
5. Cooler or Shipping Container has Custody Seals present.  Yes  No  N/A
6. Was an attempt made to cool the samples?  Yes  No  N/A
7. Temperature of cooler (0°C to 8°C recommended) 0.2 °C
8. Temperature of sample(s) (0°C to 8°C recommended) 7.1 °C
9. Did all containers arrive in good condition (unbroken)?  Yes  No
10. Is it clear what analyses were requested?  Yes  No
11. Did container labels match Chain of Custody?  Yes  No
12. Are matrices correctly identified on Chain of Custody?  Yes  No
13. Are correct containers used for the analysis indicated?  Yes  No
14. Is there sufficient sample volume for indicated analysis?  Yes  No
15. Were all containers properly preserved per each analysis?  Yes  No
16. Were VOA vials collected correctly (no headspace)?  Yes  No  N/A
17. Were all holding times able to be met?  Yes  No

### Discrepancies/ Notes

18. Was client notified of all discrepancies?  Yes  No  N/A

Person Notified: \_\_\_\_\_

Date: \_\_\_\_\_

By Whom: \_\_\_\_\_

Via: \_\_\_\_\_

Regarding: \_\_\_\_\_

19. Comments. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

April 8, 2024

Sherry Chilcutt, Project Manager  
Libby Environmental  
3322 South Bay Rd NE  
Olympia, WA 98506

Dear Ms Chilcutt:

Included are the results from the testing of material submitted on April 2, 2024 from the Springfield (Spr), F&BI 404024 project. There are 16 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl  
Project Manager

Enclosures  
LBY0408R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on April 2, 2024 by Friedman & Bruya, Inc. from the Libby Environmental Springfield (Spr), F&BI 404024 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Libby Environmental</u>
404024 -01	MW-1
404024 -02	MW-2
404024 -03	MW-3
404024 -04	MW-4
404024 -05	MW-7
404024 -06	MW-8
404024 -07	MW-9
404024 -08	MW-10
404024 -09	MW-11
404024 -10	EW-2R
404024 -11	EW-4
404024 -12	Dup-1

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-1	Client:	Libby Environmental
Date Received:	04/02/24	Project:	Springfield (Spr), F&BI 404024
Date Extracted:	04/02/24	Lab ID:	404024-01
Date Analyzed:	04/02/24	Data File:	404024-01.138
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Lead	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-2	Client:	Libby Environmental
Date Received:	04/02/24	Project:	Springfield (Spr), F&BI 404024
Date Extracted:	04/02/24	Lab ID:	404024-02
Date Analyzed:	04/03/24	Data File:	404024-02.039
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Lead	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-3	Client:	Libby Environmental
Date Received:	04/02/24	Project:	Springfield (Spr), F&BI 404024
Date Extracted:	04/02/24	Lab ID:	404024-03
Date Analyzed:	04/03/24	Data File:	404024-03.040
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Lead	<1
------	----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-4	Client:	Libby Environmental
Date Received:	04/02/24	Project:	Springfield (Spr), F&BI 404024
Date Extracted:	04/02/24	Lab ID:	404024-04
Date Analyzed:	04/03/24	Data File:	404024-04.041
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Lead	<1
------	----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-7	Client:	Libby Environmental
Date Received:	04/02/24	Project:	Springfield (Spr), F&BI 404024
Date Extracted:	04/02/24	Lab ID:	404024-05
Date Analyzed:	04/03/24	Data File:	404024-05.042
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Lead	<1
------	----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-8	Client:	Libby Environmental
Date Received:	04/02/24	Project:	Springfield (Spr), F&BI 404024
Date Extracted:	04/02/24	Lab ID:	404024-06
Date Analyzed:	04/03/24	Data File:	404024-06.043
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Lead	<1
------	----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-9	Client:	Libby Environmental
Date Received:	04/02/24	Project:	Springfield (Spr), F&BI 404024
Date Extracted:	04/02/24	Lab ID:	404024-07
Date Analyzed:	04/03/24	Data File:	404024-07.044
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Lead	<1
------	----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-10	Client:	Libby Environmental
Date Received:	04/02/24	Project:	Springfield (Spr), F&BI 404024
Date Extracted:	04/02/24	Lab ID:	404024-08
Date Analyzed:	04/03/24	Data File:	404024-08.055
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Lead	<1
------	----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-11	Client:	Libby Environmental
Date Received:	04/02/24	Project:	Springfield (Spr), F&BI 404024
Date Extracted:	04/02/24	Lab ID:	404024-09
Date Analyzed:	04/03/24	Data File:	404024-09.056
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Lead	<1
------	----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	EW-2R	Client:	Libby Environmental
Date Received:	04/02/24	Project:	Springfield (Spr), F&BI 404024
Date Extracted:	04/02/24	Lab ID:	404024-10
Date Analyzed:	04/03/24	Data File:	404024-10.057
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Lead	<1
------	----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	EW-4	Client:	Libby Environmental
Date Received:	04/02/24	Project:	Springfield (Spr), F&BI 404024
Date Extracted:	04/02/24	Lab ID:	404024-11
Date Analyzed:	04/03/24	Data File:	404024-11.180
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Lead	<1
------	----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Dup-1	Client:	Libby Environmental
Date Received:	04/02/24	Project:	Springfield (Spr), F&BI 404024
Date Extracted:	04/02/24	Lab ID:	404024-12
Date Analyzed:	04/03/24	Data File:	404024-12.181
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Lead	<1
------	----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Libby Environmental
Date Received:	Not Applicable	Project:	Springfield (Spr), F&BI 404024
Date Extracted:	04/02/24	Lab ID:	I4-265 mb
Date Analyzed:	04/02/24	Data File:	I4-265 mb.114
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Lead	<1
------	----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/08/24

Date Received: 04/02/24

Project: Springfield (Spr), F&BI 404024

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 404024-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	83	83	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	95	80-120

**Data Qualifiers & Definitions**

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.
- c - The presence of the analyte may be due to carryover from previous sample injections.
- cf - The sample was centrifuged prior to analysis.
- d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.
- dv - Insufficient sample volume was available to achieve normal reporting limits.
- f - The sample was laboratory filtered prior to analysis.
- fb - The analyte was detected in the method blank.
- fc - The analyte is a common laboratory and field contaminant.
- hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.
- hs - Headspace was present in the container used for analysis.
- ht - The analysis was performed outside the method or client-specified holding time requirement.
- ip - Recovery fell outside of control limits due to sample matrix effects.
- j - The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.
- J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.
- jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.
- js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- k - The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.
- lc - The presence of the analyte is likely due to laboratory contamination.
- L - The reported concentration was generated from a library search.
- nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.
- pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.
- ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.
- vo - The value reported fell outside the control limits established for this analyte.
- x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.



# Libby Environmental, Inc.

3322 South Bay Road NE • Olympia, WA 98506-2957

**SUBCONTRACT  
ORDER  
L24C123**

404024

04/02/24 DJ JB

**Sending Laboratory:**

Libby Environmental, Inc.  
3322 South Bay Road NE  
Olympia, WA 98506  
Phone: 360-352-2110  
Fax: 360-352-4154

Project Manager: Sherry Chilcutt  
LibbyEnv@gmail.com

**Subcontracted Laboratory:**

Friedman & Bruya, Inc.  
5500 4th Avenue S  
Seattle, WA 98108  
Phone: (206) 285-8282  
Fax:

**Requested Turnaround (TAT)** Std

**Project:** Springfield (Spr)

Analysis	Comments	Total Pb on all Samples
<b>Client Sample ID: MW-1</b> <i>Water</i> <b>Sampled: 03/28/2024 12:04</b> Metals SUB Pb Containers Supplied:		Lab ID: L24C123-01 <u>01</u>
<b>Client Sample ID: MW-2</b> <i>Water</i> <b>Sampled: 03/27/2024 14:33</b> Metals SUB Pb Containers Supplied:		Lab ID: L24C123-02 <u>02</u>
<b>Client Sample ID: MW-3</b> <i>Water</i> <b>Sampled: 03/27/2024 16:06</b> Metals SUB Pb Containers Supplied:		Lab ID: L24C123-03 <u>03</u>
<b>Client Sample ID: MW-4</b> <i>Water</i> <b>Sampled: 03/27/2024 12:32</b> Metals SUB Pb Containers Supplied:		Lab ID: L24C123-04 <u>04</u>
<b>Client Sample ID: MW-7</b> <i>Water</i> <b>Sampled: 03/27/2024 09:45</b> Metals SUB Pb Containers Supplied:		Lab ID: L24C123-05 <u>05</u>
<b>Client Sample ID: MW-8</b> <i>Water</i> <b>Sampled: 03/27/2024 11:04</b> Metals SUB Pb Containers Supplied:		Lab ID: L24C123-06 <u>06</u>

Samples received at 2 °C

Released By [Signature]

4-1-24  
Date

[Signature]  
Received By

04/02/24  
Date



# Libby Environmental, Inc.

3322 South Bay Road NE • Olympia, WA 98506-2957

**SUBCONTRACT  
ORDER  
L24C123**

(Continued)

404024

04/02/24

Δ3 J3

**Project:** Springfield (Spr)

Analysis	Comments	Lab ID
<b>Client Sample ID: MW-9</b> <i>Water Sampled: 03/27/2024 11:46</i> Metals SUB Pb <i>Containers Supplied:</i>		07      Lab ID: L24C123-07
<b>Client Sample ID: MW-10</b> <i>Water Sampled: 03/27/2024 10:20</i> Metals SUB Pb <i>Containers Supplied:</i>		08      Lab ID: L24C123-08
<b>Client Sample ID: MW-11</b> <i>Water Sampled: 03/27/2024 13:45</i> Metals SUB Pb <i>Containers Supplied:</i>		09      Lab ID: L24C123-09
<b>Client Sample ID: EW-2R</b> <i>Water Sampled: 03/28/2024 11:25</i> Metals SUB Pb <i>Containers Supplied:</i>		10      Lab ID: L24C123-10
<b>Client Sample ID: EW-4</b> <i>Water Sampled: 03/28/2024 10:40</i> Metals SUB Pb <i>Containers Supplied:</i>		11      Lab ID: L24C123-11
<b>Client Sample ID: Dup-1</b> <i>Water Sampled: 03/27/2024 00:00</i> Metals SUB Pb <i>Containers Supplied:</i>		12      Lab ID: L24C123-15

Samples received at 2 °C

Released By [Signature]

Date 4-1-24

Received By [Signature]

Date 04/02/24

**APPENDIX D**

**Groundwater Monitoring Field Forms**

### WELL GAUGING DATA FORM

Site Name: Springfield Location: 5720 Main St, Springfield, OR  
 Project No: 5468 Date: 27-28/Mar/24  
 Technician: Matt Engel

Well ID	Time	Well Dia (inch)	Sheen / Odor	Depth to Product (feet)	Thickness of Product (feet)	Depth to Water (feet)	Total Well Depth (feet below TOC) <sup>1</sup>	Date of Sample	Time of Sample
MW-1	1138	4"	Neither	-	-	11.07	24.32	28/Mar	1204
MW-2	1402	4"	-	-	-	11.23	24.93	27/Mar	1433
MW-3	1555	4"	-	-	-	10.92	26.48	27/Mar	1606
MW-4	1211	4"	-	-	-	9.80	24.72	27/Mar	1232
MW-5	1318	4"	Both	-	-	9.00	22.56	-	-
MW-6	1300	4"	Both	10.30	0.01	10.31	24.11	-	-
MW-7	0925	4"	-	-	-	11.62	24.94	27/Mar	0945
MW-8	1056 <sup>10:55</sup> <sub>ME</sub>	4"	-	-	-	10.58	17.92	27/Mar	1104
MW-9	1130	4"	-	-	-	9.88	17.23	27/Mar	1146
MW-10	0959 <sub>ME</sub>	4"	-	-	-	11.24	17.79	27/Mar	1020
MW-11	09513/6	2"	-	-	-	11.12	19.91	27/Mar	1345
EW-1R	1242	4"	Both	10.43	0.01	10.44	23.01	-	-
EW-2R	1057	4"	-	-	-	10.65	22.79 <sup>ME</sup>	28/Mar	1125
EW-4	1015	4"	-	-	-	11.20	22.84	28/Mar	1040
OBS-NW	1351	4"	-	-	-	11.22	16.13	-	-
OBS-SW	1345	4"	-	-	-	10.16	13.45	-	-
OBS-NE	1335	4"	-	-	-	11.32	14.93	-	-
OBS-SE	1340	4"	-	-	-	10.94	14.82	-	-

**Notes:**

EB-1 taken @ 0910, 27/Mar  
 EB-2 taken @ 1616, 27/Mar  
 DUP-1 taken @ 1150, 27/Mar, Well MW-9  
 All dissolved iron readings are approximate.

N - No  
 Y - Yes  
 NA - not applicable  
 NM - not measured  
 TOC - top of casing  
 mg/L: milligrams per Liter









## LOW-FLOW GROUNDWATER SAMPLING LOG

Project Name: Springfield  
 Project Number: 5468  
 Date: 27/Mar/24  
 ES Personnel: Matt Engel

Well Number: MW-4  
 Equipment: VSI, product meter  
 Sample ID/Time: 1232  
 Contractor: -

Well Diameter: 4"      Casing Material: PVC  
 Reference: Top of Casing      Before      After  
    ME 9.80

Depth to Water (ft)	<del>10.00</del>	<u>9.61</u>
Depth of Well (ft)	<u>24.72</u>	NA
Water Column Height (ft)	<u>14.92</u>	<u>14.91</u>
Calculated Drawdown (ft)	NA	<u>0.01</u>
Depth to Top of Screen	<u>5'</u>	
Screen Length (ft)	<u>20'</u>	
Pump depth (ft)	<u>12'</u>	

System Volume<sup>(a)</sup> (ml) = bladder + discharge tubing  
 Volume of bladder pump (ml): -  
 Volume of flow through cell (ml): -  
 Radius of discharge tubing (ft): -  
 Length of discharge tubing (ft): -  
 System Volume (ml): -  
 Total Volume Purged (ml): 2,600  
 Total No. of SV Purged: -

Notes/Calcs: (a) flow cell disconnected before sample collection  
 1ft of tubing = 10ml

### WATER QUALITY INDICATOR PARAMETERS

Time	Volume (ml)	Water Level (ft)	Pumping Rate (ml)	DO (mg/L)	ORP (mV)	Conductivity (µs/cm)	pH	Temp (°C)	Turbidity (NTU)	Color
1213	-	9.93	-	3.24	-9.0	418.6	7.00	13.6	4.38	6/r
1216	750	9.90	250	2.29	-22.4	417.1	7.05	13.3	5.57	-
1219	650	9.89	217	2.28	-67.3	421.3	7.07	13.7	4.42	-
1222	600	9.86	200	2.24	-89.8	421.6	7.08	13.7	7.15	-
1225	600	9.86	200	2.22	-110.5	423.0	7.10	13.7	4.22	-
Stability:				± 0.2 mg/L	± 20 mV	± 3-5%	± 0.2 units	± 0.2 units	± 10%	

Notes: (weather, well and well box conditions, etc...)  
 \_\_\_\_\_  
 \_\_\_\_\_  
 Dissolved Iron (Fe<sup>+2</sup>) = ~ 0.0

















### LPH Removal Field Sheet

Project No.: 5469	Springfield
Sampler: Matt Engel	Gauging Date: 28/Mar/24
Well ID: E-W-1R	Well Diameter (in): 4"
Total Well Depth (ft): 23.01	Depth to Water (ft): 10.44
Depth to Free Product: 10.43	Thickness of Free Product (ft): 0.01
to: 10.44	Equipment: Product Meter

Purge Method: In-well skimmer, disposable bailers	
Sampling Method: —	Other: —

Purge Start Time: 1240      Flow Rate: —      Pump Depth (ft): —

Time	DTP (feet btoc)	DTW	Water Removed	LPH Removed	
1240	10.43	10.44	2.00	Sheen, ~0.01 gal	
Did well dewater?: No			Amount of H2O actually evacuated: 2.0 gal		
Sampling Time: —			Sampling Date: 28/Mar/24		
Sample ID: —			Laboratory: —		
Analyzed for: —					
Equipment Blank ID: —			Duplicate ID: —		
Other Information:  —					

LPH Removal Field Sheet

Project No.: 3468	Springfield
Sampler: Matt Engel	Gauging Date: 28/Mar/24
Well ID: MW-6	Well Diameter (in): 4"
Total Well Depth (ft): 24.11	Depth to Water (ft): 10.31
Depth to Free Product: 10.30	Thickness of Free Product (ft): 0.01
to: 10.31	Equipment: Product Meter

Purge Method: In-well skimmer, disposable bailer
Sampling Method: — Other: —

Purge Start Time: 1255 Flow Rate: — Pump Depth (ft): —

Time	DTP (feet btoc)	DTW	Water Removed	LPH Removed
1300	10.30	10.31	1.8 gal	0.05 gal

Did well dewater?: No	Amount of H2O actually evacuated: 1.45 gal
Sampling Time: —	Sampling Date: 28/Mar/24
Sample ID: —	Laboratory: —
Analyzed for: —	Duplicate ID: —
Equipment Blank ID: —	
Other information: —	

LPH Removal Field Sheet

Project No.: 5468	Springfield
Sampler: Matt Engel	Gauging Date: 28/Mar/24
Well ID: MW-5	Well Diameter (in): 4"
Total Well Depth (ft): 22.58	Depth to Water (ft): 9.00
Depth to Free Product: -	Thickness of Free Product (ft): Sheen
to: -	Equipment: Product meter

Purge Method: In-well skimmer	Other: -
Sampling Method: -	

Purge Start Time: 1314      Flow Rate: -      Pump Depth (ft): -

Time	DTP (feet btoc)	DTW	Water Removed	LPH Removed	
1314	-	9.00	2.1 gal	Sheen, ~0.01 gal	

*(Large empty area for notes or observations)*

Did well dewater?: No	Amount of H2O actually evacuated: 2.1 gal
Sampling Time: -	Sampling Date: 28/Mar/24
Sample ID: -	Laboratory: -
Analyzed for: -	
Equipment Blank ID: -	Duplicate ID: -
Other Information: -	

**DRUM LOG**

Site Name/No.: Springfield Project No.: 5468  
 Site Address.: 5720 Main St, Springfield, OR

STATUS OF DRUM(S) UPON ARRIVAL				
Date:	<u>27/Mar/24</u>			
Number of Drums empty:	<u>0</u>			
Number of drums 1/4 full:	<u>1</u>			
Number of drums 1/2 full:	<u>0</u>			
Number of drums 3/4 full:	<u>0</u>			
Total drums onsite:	<u>2</u>			
Are the drums property labeled?	<u>Yes</u>			
Drum ID and contents:	<u>Purge water, LPH</u>			
If any drums are partially or totally filled, what is the first used date?	<u>1 Totally filled June, 2023</u>			

-If free product is added to a drum, the drum must contain at least 20 gallons of water.  
 -If drum contains free-product, it MUST be steel and appropriately labeled (haz-waste sticker)

STATUS OF DRUM(S) UPON DEPARTURE				
Date:	<u>28/Mar/24</u>			
Number of Drums empty:	<u>0</u>			
Number of drums 1/4 full:	<u>0</u>			
Number of drums 1/2 full:	<u>1</u>			
Number of drums 3/4 full:	<u>0</u>			
Total drums onsite:	<u>2</u>			
Are the drums property labeled?	<u>Yes</u>			
Drum ID and contents:	<u>Purge water, LPH</u>			
If any drums are partially or totally filled, what is the first used date?	<u>1 Totally filled June, 2023</u>			

**LOCATION OF DRUMS**  
North side of station near dumpsters.

FINAL STATUS				
Number of new drum(s) left onsite this event:	<u>0</u>			
Date of inspection:	<u>28/Mar/24</u>			
Drums labeled properly?:	<u>Yes</u>			
Technician's initials:	<u>ME</u>			

## WELLHEAD INSPECTION FORM

PN: 5468 Date: 27-28/Mar/24 Page: 1 of 1  
 Site: Springfield Client: United Pacific  
 Technician: Matt Engel

Well ID	Well inspected - No corrective action required	Cap non-functional	Lock non-functional	Bolts missing (list quantity)	Tabs stripped (list quantity)	Tabs broken (list quantity)	Annular seal incomplete	Apron damaged	Rim/lid broken	Trip hazard	Below grade	Other (explain in notes)	Well not inspected (explain in notes)	NOTES - please note if cap or lock is replaced, if there are access issues associated with repairs, if traffic control is required, if stand pipe is damaged, or any other details not covered by checklist
MW-1	✓													
MW-2	X			1										
MW-3	X													Flooded
MW-4	✓													
MW-5	✓													
MW-6	✓													
MW-7	X			1										
MW-8	✓													
MW-9	X													Flooded
MW-10	✓			2										
MW-11	X			1										Flooded
EW-1R	✓													
EW-2R	X													Flooded
EW-4	✓													
All Obs	✓													



# Chain of Custody Record

**Libby Environmental, Inc.**

3322 South Bay Road NE  
Olympia, WA 98506

Date: 28/Mar/24 Page: 1 of 1

Client: Montrose Environmental Service (MES)

Address: 1631 E Saint Andrew Place

City: Santa Ana State: CA Zip: 92705

Phone: 714-743-7855 Fax: -

Client Project # PO-061674

Project Manager: Laurca Skow  
Project Name: Springfield (SP)  
Location: 5720 Main St City, State: Springfield, OR  
Collector: Matt Engel Date of Collection: 27-28/Mar/24  
Email: lskow@montrose-env.com

Sample Number	Depth	Time	Sample Type	Container Type	Analytes											Field Notes			
					VOC 8260 (MTC)	PCE & Daughter Prod.	NMTPH-Gx	BTEX (8260) / (8021)	NMTPH-HCID	PGB 8082	MTC 5 Metals	RCRA 8 Metals	c PAH 8270	PAH 8270	Semi Vol 8270		Lead		
1 MW-1	28/Mar	1204	GW	40 L															Date of sample at depth column
2 MW-2	27/Mar	1433																	
3 MW-3	27/Mar	1606																	
4 MW-4	27/Mar	1232																	
5 MW-7	27/Mar	0945																	
6 MW-8	27/Mar	1104																	
7 MW-9	27/Mar	1146																	
8 MW-10	27/Mar	1020																	
9 MW-11	27/Mar	1345																	
10 EW-2R	28/Mar	1125																	
11 EW-4	28/Mar	1040																	
12 EB-1	27/Mar	0910																	
13 EB-2	27/Mar	1616																	
14 TB-1	-	-																	
15 Dup-1	-	-																	
16																			
17																			

Relinquished by: *[Signature]* Date / Time: 29/Mar/24

Received by: *[Signature]* Date / Time: 1730

Good Condition?  Y  N

Cooler Temp. °C

Sample Temp. °C

Total Number of Containers

Remarks:

## **APPENDIX E**

### **Montrose Groundwater Sampling Field Procedures**

## **MONITORING WELL SAMPLING PROTOCOLS**

The groundwater sampling procedures used by Montrose Environmental (Montrose) are designed to comply with local regulatory guidance and reflect the current professional standards and practices employed in the industry. A description of the groundwater sampling procedures is provided below.

### **Well Gauging**

Initial site activities include determination of well locations based on a current site map. The area around each well is inspected to ensure that it is free of debris that could potentially fall into the well. A clean plastic trash bag or a piece of visqueen plastic sheeting is placed adjacent to the well to stage sampling equipment and supplies. Indications of well or well box damage are noted on appropriate field forms.

Prior to sampling, the construction details of each groundwater monitoring well to be sampled are reviewed to establish their respective depths and the length and placement of their screened intervals.

When the well is opened, the Technician will immediately measure the concentration of volatile organic vapors in the upper portion of the well casing with a photo-ionization detector (PID) calibrated to hexane. This measurement will guide the selection of respiratory protection equipment for sampling (as dictated by Montrose's Health and Safety Plan) at that particular well. Historical air monitoring data should also be referred to when selecting appropriate respiratory protection.

Prior to purging or sampling, initial static water levels are measured and recorded for all site wells. Depth to groundwater measurements accurate to 0.01 feet are obtained with an electronic sounding instrument that can also distinguish between liquid phase hydrocarbon (LPH) and water. The depths to LPH (if present), to water, and to the bottom of the well are measured from the top of the well casing (surveyors mark or notch if present). These measurements and the approximate thickness of potential LPH are recorded on the Fluid Level Measurement Form. Field forms are included in the Groundwater Monitoring Report as an Appendix.

As the measuring device is removed, it is thoroughly washed with a Liqui-nox/ water mixture and rinsed with distilled water. The tape is wiped dry with a paper towel as it is re-wound.

Note, wells that are found to contain LPH are not purged or sampled.

### **Traditional Well Purging**

If purging is required, depth to groundwater measurements and well construction details are used to calculate the volume of water within each well casing.



During purging, the water quality parameters consisting of temperature, pH, conductivity, and turbidity are monitored as each well volume is removed. In some cases, additional water quality parameters, such as dissolved oxygen (DO) and oxidation-reduction potential (ORP), are also measured during purging. Purging continues until these parameters vary less than 10 percent from the previous reading, three well volumes are removed, or 80 percent of the well volume has been removed with no significant well recharge. Groundwater samples are collected without additional purging if the volume of groundwater in a well does not recover to at least 80 percent of its initial pre-purge measurement within two hours.

Depth to groundwater measurements, purge volumes, and water quality parameters obtained as each well is purged are recorded on Groundwater Monitoring Field Forms.

Instruments used for groundwater parameter measurements are calibrated daily in accordance with the manufacturer's instructions.

Purge water is generally collected in labeled 55-gallon, DOT-approved drums for disposal. Drums may be left on site in a secure location for disposal by others, or transported to a collection location for eventual transfer to a licensed treatment or recycling facility. In some cases, purge water is collected directly from the site by a licensed vacuum truck company, or treated on site by an active remediation system.

#### **Low Flow, Minimal Drawdown Sampling**

**For non-LNAPL (floating product) sites:** This procedure is designed to assist the user in taking representative groundwater samples from groundwater monitoring wells. The groundwater samples will be collected using low-flow (minimal drawdown) purging and sampling methods and is based upon U.S. EPA, Ground Water Issue, Publication #EPA/540/S-95/504, April 1996.

The field sampler's objective is to purge and sample the well so that the water that is discharged from the pump, and subsequently collected, is representative of the formation water from the aquifer's identified zone of interest.

1. Calibrate all field instruments at the start of each day's deployment per the instrument manufacturer's instruction. Record calibration data on the appropriate field calibration documentation form.
2. Begin sampling at the least contaminated and preferably upgradient well(s). Make notes describing the well condition, personnel, weather, location, etc.



3. Use only new, dedicated and/or clean (phosphate-free detergent, rinse and triple rinsed) equipment and sampling supplies. The water level meter, low-flow pump, discharge tubing and/or bailer will either be new or decontaminated before well gauging and sampling. Note - anything placed into a monitoring well must be CLEANED and DECONTAMINATED beforehand.
4. Measure the depth to water from the surveyed reference mark on the wellhead and record the measurement on the gauging and sampling sheet. Lock the water level meter in place so that the level can be monitored during purging and sampling. When placing the probe in the well, take precautions to not disturb or agitate the water. Where compounds of interest are known to concentrate near the top or the bottom the screen zone, locate the pump intake or end of tubing in the upper one-third or lower one-third of the interval, respectively.
5. Connect the compressed air source's airline to the pump controller's "AIR IN" connection (if utilizing a gas-engine operated generator, locate the generator at least 25 feet downwind from the wellhead). If using a peristaltic pump located at the surface, connect the flexible tubing to the pump drive head.
6. Connect the pump controller "AIR OUT" air-line to the bladder pump's air supply fitting at the wellhead (if using an electric pump, connect to generator's electric panel). If using a peristaltic pump, connect downhole tubing to flexible tubing in pump drive head.
7. Connect the pump discharge line to the in-line flow cell's "IN" fitting. If electric, same as above. If using a peristaltic pump, connect the discharge tubing to the "IN" fitting of the flow cell.
8. Connect the flow cell's "OUT" line and secure to drain the purge water into the purge water collection container.
9. Turn on or start the air supply to the pump. Set the pump controller settings to the documented settings for the specific well. Confirm the flow rate is equal to the well's established optimum flow rate, not to exceed 1 liter (1,000 ml) per minute. Modify as necessary and document any required modification. If electric, document MHz pump frequency for optimum flow rate.
10. Monitor the water level and confirm that the water level drawdown has stabilized within the well's allowable limits. Minimal drawdown is to be achieved which is less than 1/3-foot.



11. After a single pump-system's volume (bladder volume + discharge tubing volume, or for peristaltic pump downhole tubing volume + flexible tubing volume) has been adequately purged, read and record water quality field measurements every three to five minutes until all parameters have stabilized within their allowable ranges for at least three consecutive measurements. When stabilization has been achieved, sample collection may begin.
12. Disconnect the flow cell and its tubing from the pump line before collecting samples. Decrease the pump (MHz) rate to 100 millimeters per minute or less by lowering the controller's air pressure setting or MHz pump frequency prior to collecting samples for volatiles. If using a peristaltic pump, cut the discharge tubing between the pump head drive and the "IN" fitting on the flow cell. Place the samples in a cooler with enough ice to keep them at four degrees Celsius.
13. Once samples for volatiles have been collected, re-established pump flow rate to the original purge flow rate by inputting the documented controller settings for the well without the In-Line Flow Cell connected and collect remaining samples.
14. When all sample containers have been filled, make a final measurement of the well's Static Water Level and record the measurement on the gauging and sampling sheet.
15. Measure and record total purge volume collected. Consolidate generated purge water.
16. Remove and decontaminate the In-Line Flow Cell with phosphate-free detergent and triple rinse. If using a peristaltic pump, disconnect flexible tubing portion from the pump drive head. If dedicating the downhole tubing to the well, place tubing in the well in such a way that it will be easily retrievable during the next sampling event.
17. Disconnect the controller air supply to the pump. Disconnect electric cables to generator.
18. Secure the wellhead cover and secure with its lock. Move equipment to next well to be sampled.

### **Groundwater Sampling**

After wells are purged, or not purged, according to agency-approved instructions or guidelines, groundwater samples are collected for laboratory analysis.



Groundwater samples will be collected from each well directly from the discharge tubing, of which the intake end is located within the screened interval. Groundwater samples should NOT be passed through the low-flow cell, or through any groundwater quality measuring device prior to collection. Groundwater brought to the surface is conveyed into appropriate laboratory prepared containers for each required analysis.

After filling, sample containers are immediately capped. Particular care is given to containers for volatile organic analysis (VOAs), which require filling to zero headspace and fitting with Teflon-sealed caps.

Each sample container is labeled with the project number (or site ID), well designation, sample date, and the samplers initials, and then immediately sealed in a zip lock bag and placed in a pre-chilled, insulated chest with ice. Samples remain chilled prior to and during transport to a state-certified laboratory for analysis. Sample container description and requested analyses are entered onto a chain-of-custody form to provide instruction for the laboratory. The chain-of-custody form accompanies the samples during transportation to provide a continuous record of possession from the point of collection to the laboratory. If a freight or overnight carrier transports the samples, the carrier is noted on the form along with the package tracking number.

For wells that are connected to a treatment system, samples are taken from the sample ports of actively pumping remediation wells.

#### **Sequence of Gauging, Purging, and Sampling**

The sequence in which monitoring activities are conducted is determined on a site-specific basis. In general, wells are gauged beginning with the least-affected well and ending with the well that has the highest contaminant concentration based on previous analytical results. After gauging is completed, wells are purged and/or sampled in the order of least-affected to most-affected wells.

#### **Field QA/QC Procedures**

A trip blank field sample is used to ensure that sample collection and handling procedures do not introduce contaminants into the groundwater samples. The trip blank is prepared by filling sample containers in the field with de-ionized water. The sample containers are labeled as "Trip Blank," placed in the cooler with other groundwater samples, and transported to the laboratory for analysis.

#### **Silica Gel Cleanup of Groundwater Samples**

Unless clearly specified by the project manager and subsequently noted on the chain-of-custody, groundwater samples that are to be analyzed for diesel and heavy oil using Methods NWTPH-Dx/Ox will not be 'cleaned-up' using silica gel or any other agents.

If samples that are to be analyzed for TPH-Dx/Ox are subjected to silica gel cleanup



procedures, that fact will be noted on the chain-of-custody, the analytical report and in the groundwater monitoring report.

### **Decontamination**

To reduce the potential for cross-contamination between wells, strict isolation and decontamination procedures are observed.

Portable pumps are not used in wells with LPH. Technicians wear nitrile gloves during all gauging, purging and sampling activities. Gloves are changed between wells and more often if warranted. Any equipment that may come in contact with fluids is either dedicated to a particular well, decontaminated prior to each use, or discarded after a single use. Decontamination consists of a four-stage decontamination process: a phosphate-free detergent (Liqui-nox) wash, a double potable-water rinse, and a final deionized water rinse.

### **Exceptions**

Additional tasks or non-standard procedures that may be requested or required for a particular site are documented on the appropriate field notes/forms.

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**APPENDIX F**

**Bill of Lading**

