

# June 2024

## Groundwater Monitoring Report

**North Central Petroleum Spill**

**SR 17 Near MP 123**

**Bridgeport, WA 98813**

**Facility Site No.: 25378742, Cleanup Site No.: 2088**

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**August 2, 2024**

**WCEC Project No. 2403-0544**

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Environmental



Emergency Response



Industrial Services

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## 1.0 Introduction

This report documents the June 2024 groundwater monitoring event completed for the North Central Petroleum Spill located at mile post (MP) 122.6 of State Route (SR) Highway 17 near Bridgeport, WA. The Washington Department of Ecology (Ecology) requested additional investigation to define the extent of soil and groundwater impacts north of the highway as a required condition of a No Further Action (NFA) determination for the site [Ecology, 2018]. Remedial investigation activities conducted in 2021 and 2023 documented residual impacts to soil and groundwater that exceeded Model Toxics Control Act (MTCA) Method A cleanup levels (CULs) at the spill source on the north side of SR 17 [WCEC, 2021], [WCEC, 2023]. A PetroFix™ injection was proposed as an in-situ treatment for the identified source area impacts with the goal of reducing groundwater concentrations to below Method A CULs at all compliance monitoring points [WCEC, 2024]. The June 2024 groundwater monitoring was completed to collect additional pre-injection data, as outlined in the *April 2024 PetroFix™ Injection Work Plan* submitted to Ecology on April 12, 2024.

### 1.1 Site Location

The site is located in a rural area of Douglas County, Washington where the primary land use is agricultural. The spill occurred adjacent to SR 17 approximately 14 miles east of Bridgeport, WA and 2.7 miles west of Leahy Junction at MP 122.6. The approximate geographic coordinates are 47.926169, -119.447942. The Public Land Survey System (PLSS) description for the site is the SW/4, NW/4, Section 16, and the SE/4, NE/4, Section 17, Township 28 North, Range 27 East. An intermittent stream (East Foster Creek) is located south of the spill site at a distance of approximately 300 feet. Depth to first shallow groundwater varies from approximately 1 to 7 feet below ground surface (bgs) depending on seasonal fluctuations [WCEC, 2015]. The groundwater flow direction is generally to the west-northwest. Subsurface soil primarily consists of silt and silty sand with minor amounts of clay and gravel.

### 1.2 Site History

Approximately 6,900 gallons of unleaded gasoline were released at the site as the result of a petroleum transport trailer vehicle accident that occurred on December 1, 1994. Excavation of contaminated soil was conducted by LMH Environmental (LMH) in December 1994 at locations north and south of the highway [LMH, 1995]. The excavations were restricted laterally by the highway embankment and vertically by the presence of shallow groundwater. Approximately 770 cubic yards of contaminated soil was removed from the excavations. Soil samples were collected from the pit bottom and sidewalls of the excavations at the completion of excavation activities. The analytical results from these excavation soil samples indicated that

gasoline constituents remained underneath the highway right-of-way (ROW) and to the north of the highway at concentrations exceeding applicable Model Toxics Control Act (MTCA) Method A cleanup levels (CULs).

Two sumps (North Sump and South Sump) were installed in the excavations during backfilling to provide a means for future sampling of groundwater in the excavation backfill [Figure 2]. The sumps were constructed of slotted 4-foot diameter pre-cast concrete manholes bedded in oversized gravel [LMH, 1995]. On the north side of the highway, a layer of oversized gravel was also placed along the entire length of the excavation floor within the highway right-of-way to a depth of approximately 1 foot above the water table to facilitate total fluids recovery from the north excavation through the North Sump as a potential remedial method.

Four groundwater monitoring wells (MP1-MP4) were installed in September 1996 as part of a soil/groundwater investigation to assess constituent concentrations in source area and downgradient locations, primarily south of the highway [Summit, 1997]. Groundwater samples were obtained from 13 borehole locations during the September 1996 investigation, with maximum concentrations of benzene registered at nearly 5,000 µg/L and TPH-G over 50,000 µg/L. Groundwater monitoring of permanent wells MP1 through MP4 was conducted on at least an annual basis from 1997 to 2014. Groundwater concentrations in samples collected from all four monitoring wells were below the applicable Method A CULs for all constituents of concern (COCs) for four consecutive quarters in 2014/15 [WCEC, 2015].

In response to Ecology's request for further investigation in the source area north of the highway, WCEC supervised the installation of six soil boreholes (SB1-SB6) and three temporary wells (SB2, SB3, and SB5) on June 2, 2021 [WCEC, 2021]. Two soil samples were obtained from each of the soil boreholes based on the results of field screening for hydrocarbon impacts. Groundwater samples were collected from the three temporary wells and the North Sump. Samples were submitted for laboratory analysis of WTPH-Gas, BTEX, and MTBE. Exceedances of Method A CULs for soil and groundwater were recorded at SB2, SB3, SB5, and the North Sump [Tables 4 and 5].

Based on the results from the June 2021 soil boring investigation, four groundwater monitoring wells (MW1-MW4) were installed in the source area north of the highway on July 11, 2023 to delineate the extent and magnitude of source area groundwater impacts. An additional six soil boreholes (SB7-SB12) were advanced north of the highway ROW fence on Washington Department of Natural Resources (DNR) property to assess residual petroleum concentrations in this area [WCEC, 2023]. Soil samples were obtained from the soil boreholes and monitoring well borings depending on the results of field screening for hydrocarbon impacts. Soil and groundwater samples were submitted for laboratory analysis of WTPH-Gas, BTEX, and MTBE. According to the analytical results from boreholes SB7 through SB12, soil concentrations in the excavation area north of the ROW fence on the DNR property are below Method A CULs for all constituents of concern (COCs) [Table 4, Figure 4]. Method A CULs for groundwater were exceeded in samples from monitoring well MW3 [Table 2], coinciding with the location of soil borehole SB3.

### **1.3 Scope of Work**

The following scope of work was completed to further define the extent and magnitude of petroleum impacts at the spill source north of the highway:

- Conducting a groundwater monitoring event during high groundwater conditions in June 2024. Groundwater samples were submitted to Pace for analysis of NWTPH-Gx, EPA 8260B (BTEX and MTBE), EPA 300.0 (Sulfate), and EPA 353.2 (Nitrate + Nitrite).
- Preparation and submittal of a Groundwater Monitoring Report within 60 days of receipt of laboratory analytical data. Newly obtained data will also be uploaded into the Environmental Information Management (EIM) system database according to Ecology's requirements.

## **2.0 Groundwater Monitoring**

### **2.1 Groundwater Monitoring Procedures**

Groundwater sampling of monitoring wells MW1-MW4 was performed on June 4, 2024. Well sampling was conducted according to WCEC standard sampling procedures using a low flow peristaltic pump for purging and sample collection. Groundwater parameters for pH, dissolved oxygen, conductivity, salinity, temperature, oxidation-reduction potential, and turbidity were obtained using a multi-parameter YSI field meter with a flow through cell attached to the peristaltic pump. Groundwater sampling field data sheets are contained in Appendix B.

Monitoring wells were purged until all groundwater parameters stabilized. Groundwater samples were collected in method-specific laboratory containers, packed on ice, and delivered under chain of custody to Pace in Minneapolis, Minnesota. Pace was instructed to analyze the groundwater samples for WTPH-Gx, BTEX, and MTBE via EPA 8260B. The groundwater samples were also analyzed for the biodegradation indicators sulfate (EPA 300.0) and nitrate (EPA 353.2) to assess microbial activity in the source area.

### **2.2 Groundwater Analytical Results**

Groundwater analytical results from the June 2024 monitoring event are summarized in the following paragraphs and in Tables 2 and 3. Method A CUL exceedances are displayed on Figure 5. The complete laboratory analytical results package is contained in Appendix A.

Groundwater sampled from monitoring wells MW1, MW2, and MW4 was below the Method A CULs for all constituents of concern.

Groundwater sampled from monitoring well MW3 contained benzene (28.9 µg/L) at a concentration exceeding the Method A CULs.

### **2.3 Groundwater Flow Direction and Gradient**

The depth to static water level in the monitoring wells was measured during the groundwater monitoring event using an electronic water level indicator accurate to 0.01 feet. Depth to water measurements varied from 1.83 feet bgs at MW3 to 7.30 feet bgs at MW1. Groundwater elevations were calculated using the established well survey data and the current depth to water measurements. Cumulative groundwater elevation data is presented in Table 1. A potentiometric surface map displaying the data collected during the

## June 2024 Groundwater Monitoring Report

North Central Petroleum Spill

Bridgeport, WA

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June 2024 monitoring event is included as Figure 3. The calculated groundwater flow direction was to the west-northwest under a hydraulic gradient of 0.002. This flow direction generally follows the anticipated flow direction based on local surface topography and the drainage direction of East Foster Creek.

## 3.0 Discussion and Recommendations

### 3.1 Field Work Summary

Groundwater monitoring activities were completed on June 4, 2024, including the collection of depth to water measurements and groundwater samples from monitoring wells MW1-MW4. Groundwater samples were submitted for laboratory analysis of WTPH-Gas, BTEX, MTBE, sulfate, and nitrate. The June 2024 monitoring event was conducted during seasonal high groundwater conditions.

### 3.2 Discussion of Results

Based on the results of the June 2021 and July 2023 soil boring investigations and subsequent groundwater sampling events, soil and groundwater concentrations in the source area north of the highway exceed Method A CULs. The greatest constituent concentrations in soil were encountered at a depth of 6 feet bgs in the SB3 borehole, with a WTPH-Gas concentration of 2,030 mg/kg and a benzene concentration of 0.956 mg/kg [Table 4, Figure 4]. Similarly, groundwater concentrations in the SB3 temporary well were elevated with a WTPH-Gas result of 12,300 µg/L and a benzene result of 77.5 µg/L [Table 5]. Monitoring well MW3 was installed at the SB3 borehole location and also currently exceeds Method A CULs for benzene in groundwater [Table 2, Figure 5]. The highest benzene concentration in groundwater was found in the North Sump sample from June 2021, with a result of 198 µg/L [Table 2]. MTBE was not detected above the laboratory MRLs in any of the soil or groundwater samples obtained during the June 2021 and July 2023 soil boring investigations and groundwater sampling events. Based on the analytical results from boreholes SB7 through SB12, soil concentrations in the excavation area north of the ROW fence are below Method A CULs for all constituents of concern (COCs) [Table 4, Figure 4].

In downgradient locations, the last detection of a COC at the site above Method A CULs was benzene at monitoring well MP2 in September 2012 [Table 2]. MTBE was first detected in downgradient well MP4 during the September 2004 sampling event. MTBE is the most soluble and readily mobilized constituent in gasoline. Samples from monitoring well MP4 contained MTBE at concentrations above the laboratory MRLs during the June 2015 and September 2015 monitoring events, however, the last exceedance of the Method A CUL for MTBE in MP4 occurred in September 2007. Groundwater sampled from all of the downgradient wells (MP1-MP4) was below the Method A CULs for all COCs for four consecutive quarterly monitoring events from December 2014 to June 2015. Sampling of the downgradient monitoring wells MP1 through MP4 has subsequently been discontinued with the approval of Ecology.

The cumulative analytical dataset indicates that natural attenuation processes at the site have been effective in reducing downgradient dissolved constituent concentrations to levels below Method A CULs. However,



natural attenuation alone has not sufficiently diminished COC concentrations in the source area north of the highway. An active remedial strategy will likely be necessary in the source area to augment natural attenuation processes and further reduce COC concentrations to below CULs. Analysis of natural attenuation parameters collected during the groundwater monitoring events indicate that dissolved oxygen and nitrate are depleted within the footprint of the plume when compared to background conditions as represented by upgradient monitoring well MW1 [Table 3]. The depletion of these terminal electron acceptors, in addition to the corresponding negative ORP values recorded, provides evidence that anaerobic degradation processes are occurring. This site-specific data suggests that a remedial strategy including application of additional terminal electron acceptors for microbial respiration may be beneficial for stimulating further anaerobic biodegradation.

### **3.3 Recommendations**

The recent soil boring investigations and groundwater sampling events have provided sufficient data to delineate the extent and magnitude of residual source area contamination in both soil and groundwater. Impacts are primarily limited to the area north of the highway and south of the ROW fence, with the highest groundwater concentrations found in the vicinity of the North Sump and MW3/SB3. WCEC recommends completing a remedial injection in this area using PetroFix™ colloidal activated carbon (CAC) manufactured by Regenesis. PetroFix is a dual function CAC consisting of a water-based colloidal suspension of micron-scale activated carbon mixed with an electron acceptor blend. It is designed for in-situ treatment of petroleum hydrocarbons through carbon adsorption followed by microbial biodegradation.

The goal of the proposed PetroFix injection is to reduce groundwater concentrations to below Method A CULs at all compliance monitoring points. At that point, WCEC recommends pursuing an NFA determination for the site through an environmental covenant with WSDOT that acknowledges any remaining soil contamination in combination with the institutional control provided by the highway. The June 2024 groundwater monitoring was completed to collect additional pre-injection data, as outlined in the *April 2024 PetroFix™ Injection Work Plan* submitted to Ecology on April 12, 2024 [WCEC, 2024]. WCEC will move ahead with the PetroFix injection pending comments from Ecology, including a formal opinion review.

## 4.0 References

**LMH Environmental.** (LMH, 1995). *Report of Gasoline Spill*. March 25, 1995.

**Summit Envirosolutions.** (Summit, 1996). *Proposal for Land Application of Remediated Soil*. October 31, 1996.

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## Figures

Figure 1: Site Location

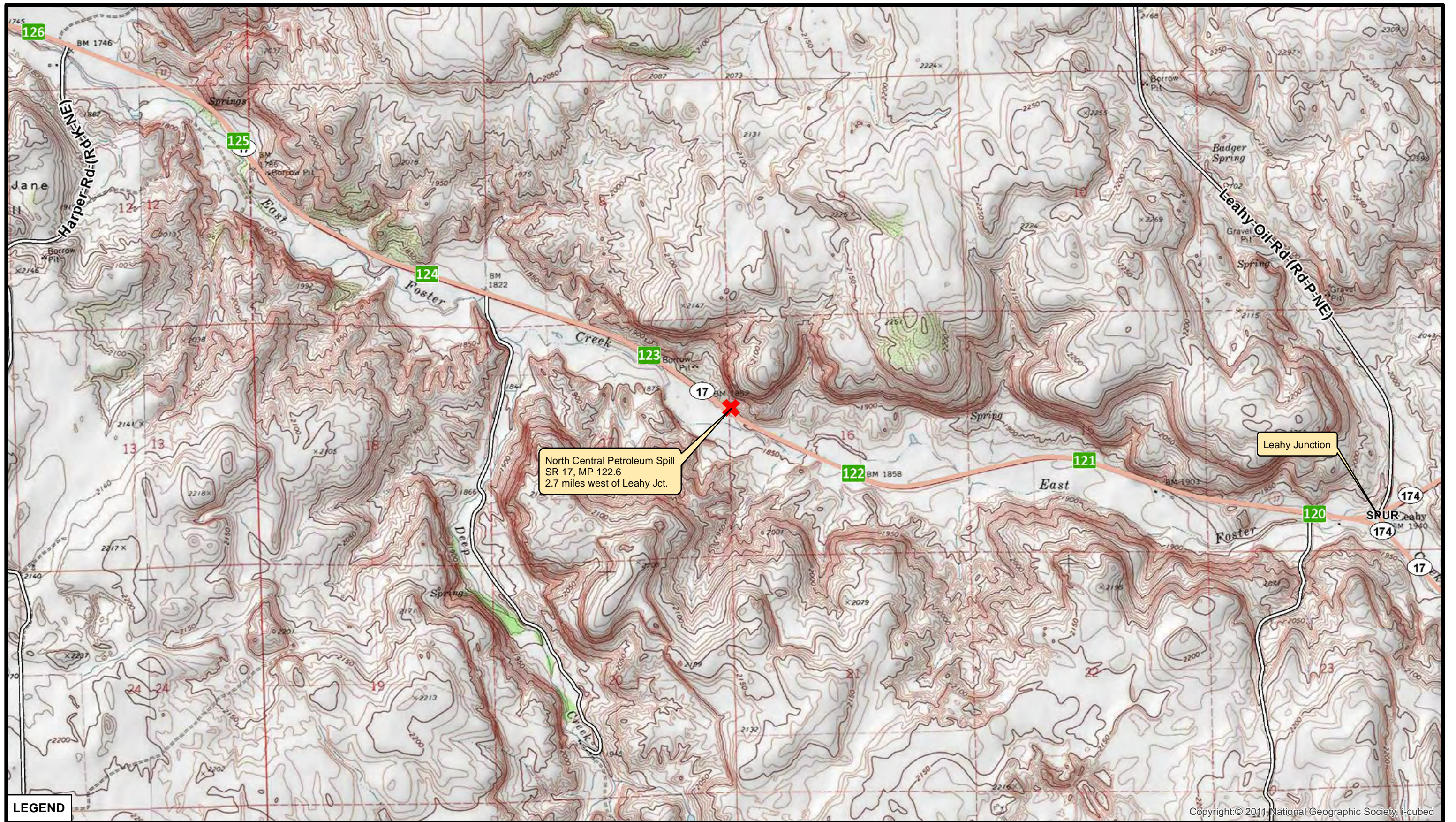
Figure 2: Site Details

Figure 3: Potentiometric Surface 6-4-24

Figure 4: 2D Contour Map – Soil WTPH-Gas >200 mg/kg

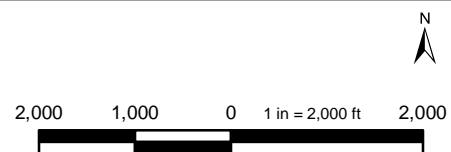
Figure 5: Groundwater Cleanup Level Exceedances – June 2024





LEGEND

✗ Site Location



Site Location

North Central Petroleum Spill  
SR 17 Near MP 123  
Bridgeport, WA

PROJECT NUMBER: 99-2946-90

IMAGE SOURCE: ESRI BASEMAPS

DRAWN BY: MM  
DATE: 01/06/20  
SCALE: 1:24,000

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FIGURE 1

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**LEGEND**

-  Monitoring Well
-  Sump
-  Property Boundary (Approximate)
-  North Excavation - 1994

**Site Details**

North Central Petroleum Spill  
SR 17 Near MP 123  
Bridgeport, WA

DRAWN BY: MM

DATE: 09/11/23

SCALE: 1:360

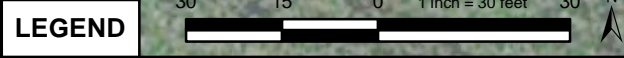
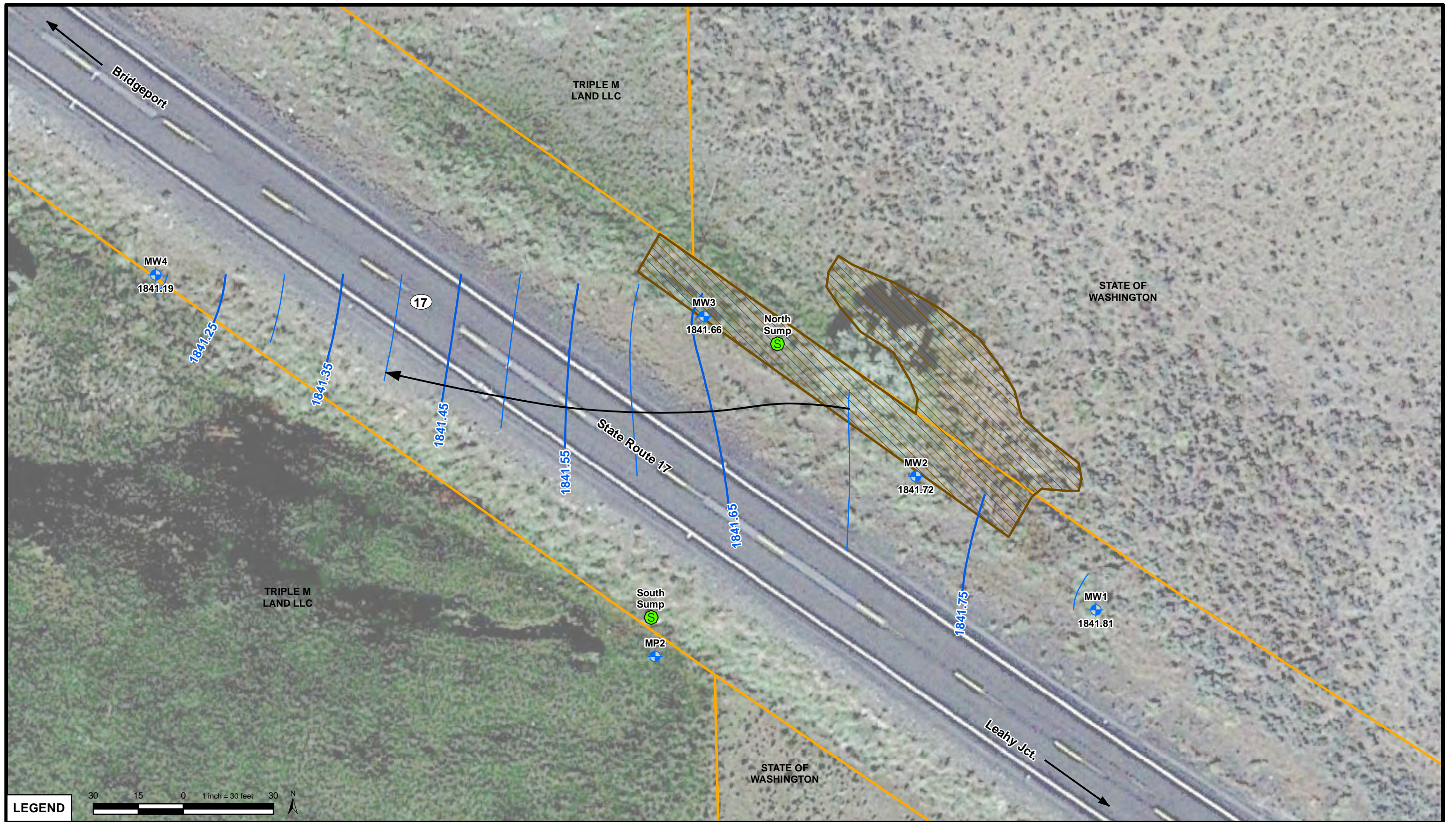
PROJECT NUMBER: 99-2946-90

IMAGE SOURCE: ESRI BASEMAPS



**FIGURE 2**





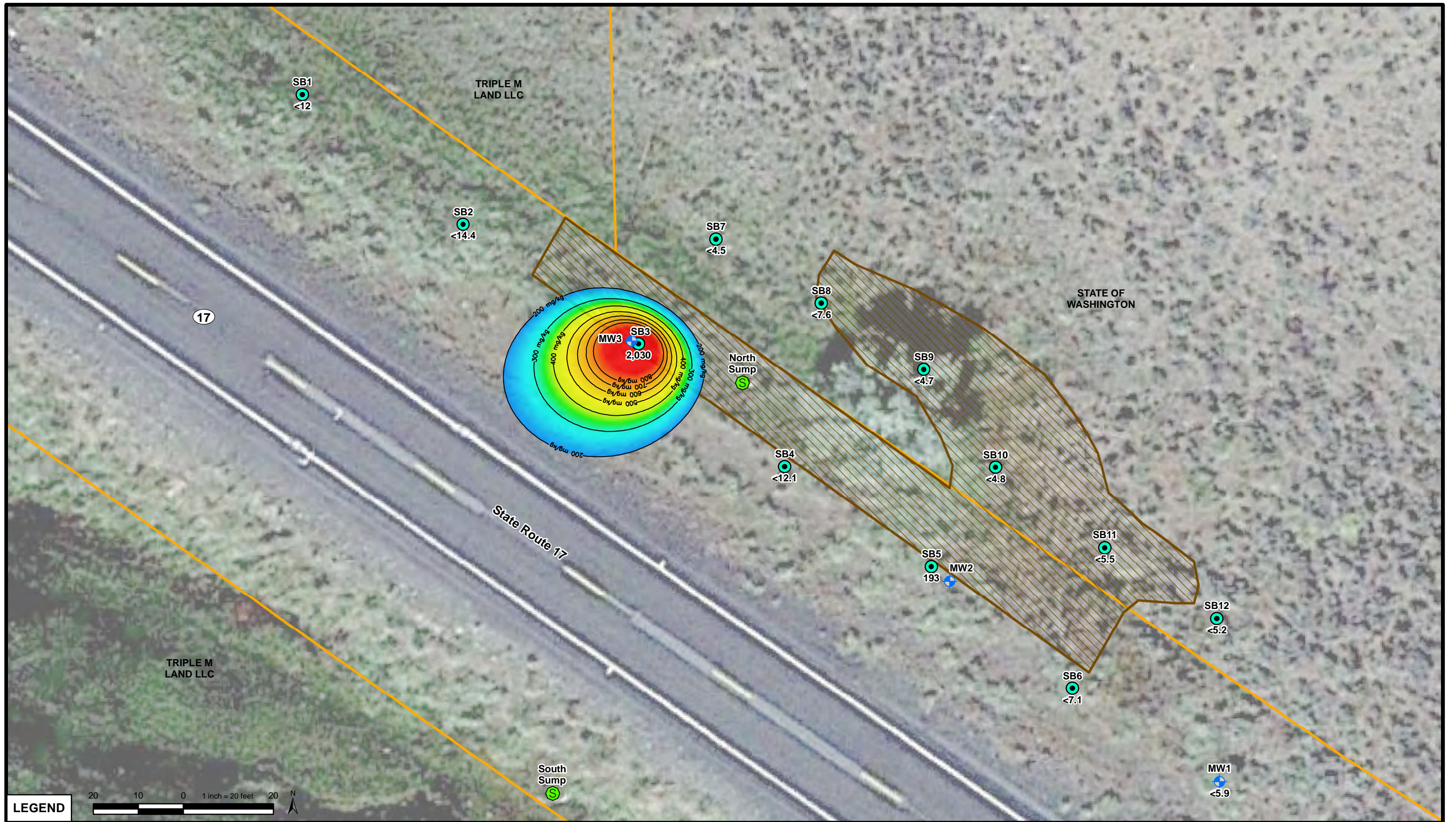
Monitoring Well	North Excavation - 1994
Sump	Groundwater Elevation Contour (ft)
Property Boundary (Approximate)	

## Potentiometric Surface 6-4-24

North Central Petroleum Spill SR 17 Near MP 123 Bridgeport, WA		DRAWN BY: MM
		DATE: 7/9/24
		SCALE: 1:360
PROJECT NUMBER: 99-2946-90	IMAGE SOURCE: ESRI BASEMAPS	

**FIGURE 3**





**LEGEND**

- Monitoring Well
- Sump
- Property Boundary (Approximate)
- North Excavation - 1994
- Soil Borehole

**2D Contour Map  
Soil WTPH-Gas >200 mg/kg**

North Central Petroleum Spill SR 17 Near MP 123 Bridgeport, WA		DRAWN BY: MM
		DATE: 07/09/24
		SCALE: 1:240
PROJECT NUMBER: 99-2946-90		IMAGE SOURCE: ESRI BASEMAPS




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**FIGURE 4**





LEGEND

-  Monitoring Well
-  Sump
-  Property Boundary (Approximate)

-  North Excavation - 1994
-  Groundwater Cleanup Level Exceedance

MTCA Method A Groundwater (ug/L)	
W: WTPH-Gas	800
B: Benzene	5
T: Toluene	1,000
E: Ethylbenzene	700
X: Xylenes	1,000

Groundwater  
Cleanup Level Exceedances  
June 2024

North Central Petroleum Spill  
SR 17 Near MP 123  
Bridgeport, WA

PROJECT NUMBER: 99-2946-90

IMAGE SOURCE: ESRI BASEMAPS

DRAWN BY: MM

DATE: 07/09/24

SCALE: 1:360

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FIGURE 5



## Tables

Table 1: Groundwater Elevation Data

Table 2: Groundwater Analytical Results – WTPH-Gas, BTEX, MTBE

Table 3: Groundwater Analytical Results – Natural Attenuation Parameters

Table 4: Soil Borehole Analytical Results – WTPH-Gas, BTEX, MTBE

Table 5: Soil Borehole Groundwater Analytical Results – WTPH-Gas, BTEX, MTBE

**TABLE 1****Groundwater Elevation Data****North Central Petroleum, Inc., Gasoline Spill, Bridgeport, WA**

Monitor Point	Sample Date	Top of Casing Elevation	Depth to Groundwater	Groundwater Elevation
<b>MW1</b>				
	07/12/23	1849.11	8.10	1841.01
	09/26/23	1849.11	8.91	1840.20
	06/04/24	1849.11	7.30	1841.81
<b>MW2</b>				
	07/12/23	1845.61	4.68	1840.93
	09/26/23	1845.61	5.70	1839.91
	06/04/24	1845.61	3.89	1841.72
<b>MW3</b>				
	07/12/23	1843.49	2.64	1840.85
	09/26/23	1843.49	3.66	1839.83
	06/04/24	1843.49	1.83	1841.66
<b>MW4</b>				
	07/12/23	1843.11	2.90	1840.21
	09/26/23	1843.11	3.68	1839.43
	06/04/24	1843.11	1.92	1841.19

All measurements in feet (ft).

99-2946-90

**TABLE 1** Continued (Page 2 of 5 Pages)  
**Groundwater Elevation Data**  
**North Central Petroleum, Inc., Gasoline Spill, Bridgeport, WA**

Monitor Point	Sample Date	Top of Casing Elevation	Depth to Groundwater	Groundwater Elevation
<b>MP1</b>				
	09/10/96	101.38	2.71	98.67
	09/17/97	101.38	2.33	99.05
	03/24/98	101.38	1.32	100.06
	10/11/98	101.38	1.31	100.07
	03/28/99	101.38	0.94	100.44
	09/28/99	101.38	2.53	98.85
	03/10/00	101.38	2.22	99.16
	09/20/00	101.38	2.41	98.97
	03/14/01	101.38	1.91	99.47
	03/21/02	101.38	2.20	99.18
	09/10/02	101.38	5.40	95.98
	09/03/03	101.38	4.41	96.97
	09/02/04	101.38	4.41	96.97
	09/06/05	101.38	5.20	96.18
	09/13/06	101.38	4.94	96.44
	09/24/07	101.38	5.13	96.25
	09/03/08	101.38	5.36	96.02
	09/02/09	101.38	5.64	95.74
	09/07/10	101.38	5.41	95.97
	09/28/11	101.38	4.74	96.64
	09/12/12	101.38	5.61	95.77
	09/10/13	101.38	5.62	95.76
	09/10/14	101.38	6.88	94.50
	12/15/14	101.38	5.30	96.08
	03/18/15	101.38	2.76	98.62
	06/10/15	101.38	4.68	96.70
	09/02/15	101.38	6.77	94.61

All measurements in feet (ft).

99-2946-90

**TABLE 1** Continued (Page 3 of 5 Pages)  
**Groundwater Elevation Data**  
**North Central Petroleum, Inc., Gasoline Spill, Bridgeport, WA**

Monitor Point	Sample Date	Top of Casing Elevation	Depth to Groundwater	Groundwater Elevation
<b>MP2</b>				
	09/10/96	101.25	2.87	98.38
	09/17/97	101.25	2.22	99.03
	03/24/98	101.25	1.36	99.89
	10/11/98	101.25	1.23	100.02
	03/28/99	101.25	0.90	100.35
	09/28/99	101.25	2.50	98.75
	03/10/00	101.25	2.24	99.01
	09/20/00	101.25	2.63	98.62
	03/14/01	101.25	2.19	99.06
	08/28/01	101.25	5.05	96.20
	03/21/02	101.25	2.34	98.91
	09/10/02	101.25	5.42	95.83
	09/03/03	101.25	5.42	95.83
	09/02/04	101.25	3.75	97.50
	09/06/05	101.25	5.39	95.86
	09/13/06	101.25	4.87	96.38
	09/24/07	101.25	5.13	96.12
	09/03/08	101.25	5.49	95.76
	09/02/09	101.25	5.78	95.47
	09/07/10	101.25	5.56	95.69
	09/28/11	101.25	5.07	96.18
	09/12/12	101.25	5.87	95.38
	09/10/13	101.25	5.91	95.34
	09/10/14	101.25	6.53	94.72
	12/15/14	101.25	6.01	95.24
	03/18/15	101.25	3.71	97.54
	06/10/15	101.25	5.17	96.08
	09/02/15	101.25	6.97	94.28

All measurements in feet (ft).

99-2946-90

**TABLE 1** Continued (Page 4 of 5 Pages)  
**Groundwater Elevation Data**  
**North Central Petroleum, Inc., Gasoline Spill, Bridgeport, WA**

Monitor Point	Sample Date	Top of Casing Elevation	Depth to Groundwater	Groundwater Elevation
<b>MP3</b>				
	09/10/96	99.20	1.95	97.25
	09/17/97	99.20	1.09	98.11
	03/24/98	99.20	0.90	98.30
	10/11/98	99.20	1.28	97.92
	03/28/99	99.20	0.38	98.82
	09/28/99	99.20	1.90	97.30
	03/10/00	99.20	1.80	97.40
	09/20/00	99.20	2.11	97.09
	03/14/01	99.20	1.93	97.27
	08/28/01	99.20	5.04	94.16
	09/10/02	99.20	5.41	93.79
	09/03/03	99.20	5.52	93.68
	09/02/04	99.20	3.40	95.80
	09/06/05	99.20	5.33	93.87
	09/13/06	99.20	4.70	94.50
	09/24/07	99.20	4.96	94.24
	09/03/08	99.20	5.57	93.63
	09/02/09	99.20	5.90	93.30
	09/07/10	99.20	5.55	93.65
	09/28/11	99.20	4.80	94.40
	09/12/12	99.20	5.94	93.26
	09/10/13	99.20	5.89	93.31
	09/10/14	99.20	-	-
	12/15/14	99.20	5.02	94.18
	03/18/15	99.20	2.91	96.29
	06/10/15	99.20	5.03	94.17
	09/02/15	99.20	7.27	91.93

All measurements in feet (ft).

99-2946-90

(-) Well was dry.

**TABLE 1** Continued (Page 5 of 5 Pages)  
**Groundwater Elevation Data**  
**North Central Petroleum, Inc., Gasoline Spill, Bridgeport, WA**

Monitor Point	Sample Date	Top of Casing Elevation	Depth to Groundwater	Groundwater Elevation
<b>MP4</b>				
	09/10/96	98.10	1.79	96.31
	09/17/97	98.10	0.98	97.12
	03/24/98	98.10	0.77	97.33
	10/11/98	98.10	1.35	96.75
	03/28/99	98.10	0.65	97.45
	09/28/99	98.10	1.67	96.43
	03/10/00	98.10	1.86	96.24
	09/20/00	98.10	1.97	96.13
	03/14/01	98.10	1.92	96.18
	08/28/01	98.10	4.23	93.87
	03/21/02	98.10	1.50	96.60
	09/10/02	98.10	4.70	93.40
	09/03/03	98.10	4.95	93.15
	09/02/04	98.10	5.55	92.55
	09/06/05	98.10	4.98	93.12
	09/13/06	98.10	3.76	94.34
	09/24/07	98.10	5.04	93.06
	09/03/08	98.10	4.56	93.54
	09/02/09	98.10	5.29	92.81
	09/07/10	98.10	4.15	93.95
	09/28/11	98.10	3.08	95.02
	09/12/12	98.10	4.60	93.50
	09/10/13	98.10	4.79	93.31
	09/10/14	98.10	6.40	91.70
	12/15/14	98.10	2.64	95.46
	03/18/15	98.10	1.04	97.06
	06/10/15	98.10	3.43	94.67
	09/02/15	98.10	6.05	92.05

All measurements in feet (ft).

99-2946-90

**TABLE 2**
**Groundwater Analytical Results - WTPH-Gas, BTEX, MTBE**  
**North Central Petroleum, Inc., Gasoline Spill, Bridgeport, WA**

Monitor Point	Sample Date	WTPH-Gas (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)
<b>MW1</b>							
	07/12/23	<100	<1	3	<1	<3	<1
	09/26/23	<100	<1	<1	<1	<3	<1
	06/04/24	<100	<1	<1	<1	<3	<1
<b>MW2</b>							
	07/12/23	<100	<1	6.4	<1	<3	<1
	09/26/23	<100	<1	<1	<1	<3	<1
	06/04/24	<100	<1	<1	<1	<3	<1
<b>MW3</b>							
	07/12/23	<b>3,550</b>	<b>79.8</b>	10.4	128	263	<1
	09/26/23	<b>3,720</b>	<b>27.2</b>	1.3	216	1.3	<1
	06/04/24	641	<b>28.9</b>	<1	46.5	16	<1
<b>MW4</b>							
	07/12/23	<100	<1	10.2	<1	<3	<1
	09/26/23	<100	<1	<1	<1	<3	<1
	06/04/24	<100	<1	<1	<1	<3	<1
<b>North Sump</b>							
	12/10/94	<b>191,000</b>	<b>42,500</b>	<b>48,000</b>	<b>4,700</b>	<b>28,000</b>	-
	03/28/95	<b>98,000</b>	<b>16,000</b>	<b>21,000</b>	<b>1,300</b>	<b>8,300</b>	-
	08/14/95	<b>240,000</b>	<b>25,000</b>	<b>43,000</b>	<b>2,800</b>	<b>24,000</b>	-
	06/02/21	<b>2,470</b>	<b>198</b>	226	10.4	49.9	<2
Clean Up Level		800	5	1,000	700	1,000	20

**Bold** indicates that the constituent exceeds the MTCA Method A cleanup level.

99-2946-90

(-) Sample not analyzed for constituent.

**TABLE 2** Continued (Page 2 of 5 Pages)  
**Groundwater Analytical Results - WTPH-Gas, BTEX, MTBE**  
**North Central Petroleum, Inc., Gasoline Spill, Bridgeport, WA**

Monitor Point	Sample Date	WTPH-Gas (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)
<b>MP1</b>							
	09/10/96	<50	<0.5	<0.5	<0.5	<1	-
	09/17/97	<50	<0.5	<0.5	<0.5	<1	-
	03/24/98	<50	<0.5	<0.5	<0.5	<1	-
	10/11/98	<50	<0.5	<0.5	<0.5	<1	-
	03/28/99	<50	<0.5	<0.5	<0.5	<1	-
	09/28/99	<50	<0.5	<0.5	<0.5	<1	-
	03/10/00	<50	<0.5	<0.5	<0.5	<1	-
	09/20/00	<b>4,470</b>	<b>3,390</b>	<100	146	418	-
	03/14/01	<50	0.613	<0.5	<0.5	<1	-
	03/21/02	<100	<0.5	<2	<1	<1.5	-
	09/10/02	<100	<0.5	<2	<1	<1.5	-
	09/03/03	<100	<0.5	<2	<1	<1.5	<5
	09/02/04	<100	<0.5	<2	<1	<1.5	<5
	09/06/05	<100	<0.5	<2	<1	<1.5	<5
	09/13/06	<100	<0.5	<2	<1	<1.5	<5
	09/24/07	<100	<0.5	<2	<1	<1.5	<5
	09/03/08	<100	<0.5	<2	<1	<1.5	<5
	09/02/09	<100	<0.2	<1	<1	<1	<1
	09/07/10	<100	<0.2	<1	<1	<3	<1
	09/28/11	159	<1	<1	<1	<3	<1
	09/12/12	<50	<1	<1	<1	<3	<1
	09/10/13	<100	<1	<1	<1	<3	<1
	09/10/14	<100	<1	<1	<1	<3	<1
	12/15/14	<100	<1	<1	<1	<3	<1
	03/18/15	<100	<1	<1	<1	<3	<1
	06/10/15	<100	<1	<1	<1	<3	<1
	09/02/15	<100	<1	<1	<1	<3	<1
Clean Up Level		800	5	1,000	700	1,000	20

**Bold** indicates that the constituent exceeds the MTCA Method A cleanup level.

99-2946-90

(-) Sample not analyzed for constituent.



**TABLE 2** Continued (Page 3 of 5 Pages)  
**Groundwater Analytical Results - WTPH-Gas, BTEX, MTBE**  
**North Central Petroleum, Inc., Gasoline Spill, Bridgeport, WA**

Monitor Point	Sample Date	WTPH-Gas (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)
<b>MP2</b>							
	09/10/96	<b>1,800</b>	<b>8.52</b>	147	49.4	283	-
	09/17/97	<b>1,990</b>	<b>47</b>	106	33.7	332	-
	03/24/98	757	<b>5.24</b>	31.1	27.8	94.2	-
	10/11/98	<b>1,080</b>	<b>30.6</b>	43.3	29.2	115	-
	03/28/99	<b>4,270</b>	<b>38</b>	77.9	185	539	-
	09/28/99	<b>11,200</b>	<b>3,540</b>	78.2	397	<b>1,120</b>	-
	03/10/00	<b>7,890</b>	<b>&lt;68</b>	65.8	299	900	-
	09/20/00	<b>9,120</b>	<b>3,780</b>	<b>&lt;53</b>	178	520	-
	03/14/01	<b>6,760</b>	<b>&lt;19.8</b>	8.18	188	539	-
	08/28/01	<b>5,450</b>	<b>1,620</b>	19.8	18	36.9	-
	03/21/02	<b>2,840</b>	<b>71.5</b>	<b>&lt;2</b>	41	90.5	-
	09/10/02	<b>10,700</b>	<b>4,140</b>	58.1	289	763	-
	09/03/03	<b>7,160</b>	<b>3,060</b>	33.5	196	389	<b>67</b>
	09/02/04	<b>5,200</b>	<b>2,100</b>	20.3	227	94.2	<b>45.5</b>
	09/06/05	<b>1,670</b>	<b>354</b>	7.94	10.3	58	17.2
	09/13/06	<b>3,370</b>	<b>1,030</b>	<b>&lt;20</b>	283	90.9	<b>61.7</b>
	09/24/07	<b>1,960</b>	<b>484</b>	8.99	348	11.6	<b>41.2</b>
	09/03/08	<b>&lt;1,000</b>	<b>205</b>	<b>&lt;20</b>	220	<b>&lt;15</b>	<b>&lt;10</b>
	09/02/09	597	<b>38.7</b>	<b>&lt;10</b>	99.4	<b>&lt;10</b>	<b>&lt;10</b>
	09/07/10	<b>&lt;100</b>	<b>11.4</b>	<b>&lt;1</b>	5.95	<b>&lt;3</b>	<b>&lt;1</b>
	09/28/11	<b>&lt;50</b>	<b>17.3</b>	<b>&lt;1</b>	4.1	<b>&lt;3</b>	<b>&lt;1</b>
	09/12/12	54.2	<b>11.8</b>	<b>&lt;1</b>	3.9	<b>&lt;3</b>	<b>&lt;1</b>
	09/10/13	<b>&lt;100</b>	1.6	<b>&lt;1</b>	<b>&lt;1</b>	<b>&lt;3</b>	<b>&lt;1</b>
	09/10/14	*	*	*	*	*	*
	12/15/14	<b>&lt;100</b>	<b>&lt;1</b>	<b>&lt;1</b>	<b>&lt;1</b>	<b>&lt;3</b>	<b>&lt;1</b>
	03/18/15	<b>&lt;100</b>	<b>&lt;1</b>	<b>&lt;1</b>	<b>&lt;1</b>	<b>&lt;3</b>	<b>&lt;1</b>
	06/10/15	<b>&lt;100</b>	<b>&lt;1</b>	<b>&lt;1</b>	<b>&lt;1</b>	<b>&lt;3</b>	<b>&lt;1</b>
	09/02/15	*	*	*	*	*	*
Clean Up Level		800	5	1,000	700	1,000	20

**Bold** indicates that the constituent exceeds the MTCA Method A cleanup level.

99-2946-90

(\*) Insufficient water for sample collection.

(-) Sample not analyzed for constituent.

**TABLE 2** Continued (Page 4 of 5 Pages)  
**Groundwater Analytical Results - WTPH-Gas, BTEX, MTBE**  
**North Central Petroleum, Inc., Gasoline Spill, Bridgeport, WA**

Monitor Point	Sample Date	WTPH-Gas (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)
<b>MP3</b>							
	09/10/96	<50	<b>31.4</b>	0.586	<0.5	<1	-
	09/17/97	<50	<0.5	<0.5	<0.5	<1	-
	03/24/98	<50	<0.5	<0.5	<0.5	<1	-
	10/11/98	<50	<0.5	<0.5	<0.5	<1	-
	03/28/99	<50	<0.5	<0.5	<0.5	<1	-
	09/28/99	<50	<0.5	<0.5	<0.5	<1	-
	03/10/00	<50	<0.5	<0.5	<0.5	<1	-
	09/20/00	<50	<0.5	0.561	<0.5	1.17	-
	03/14/01	50.8	<0.5	<0.5	<0.5	<0.5	-
	08/28/01	<50	<0.5	<0.5	<0.5	<1	-
	09/10/02	<100	2.71	<2	<1	<1.5	-
	09/03/03	106	<0.5	<2	<1	<1.5	<5
	09/02/04	<100	<0.5	<2	<1	<1.5	<5
	09/06/05	<100	1.16	<2	<1	<1.5	<5
	09/13/06	<100	0.872	<2	<1	<1.5	<5
	09/24/07	<100	<0.5	<2	<1	<1.5	<5
	09/03/08	<100	<0.5	<2	<1	<1.5	<5
	09/02/09	<100	<0.2	<1	<1	<1	<1
	09/07/10	<100	<0.2	<1	<1	<3	<1
	09/28/11	<50	<1	<1	<1	<3	<1
	09/12/12	<50	<1	<1	<1	<3	<1
	09/10/13	<100	<1	<1	<1	<3	<1
	09/10/14	*	*	*	*	*	*
	12/15/14	<100	<1	<1	<1	<3	<1
	03/18/15	<100	<1	<1	<1	<3	<1
	06/10/15	<100	<1	<1	<1	<3	<1
	09/02/15	<100	<1	<1	<1	<3	<1
<b>Clean Up Level</b>		800	5	1,000	700	1,000	20

**Bold** indicates that the constituent exceeds the MTCA Method A cleanup level.

99-2946-90

(\*) Insufficient water for sample collection.

(-) Sample not analyzed for constituent.

**TABLE 2** Continued (Page 5 of 5 Pages)  
**Groundwater Analytical Results - WTPH-Gas, BTEX, MTBE**  
**North Central Petroleum, Inc., Gasoline Spill, Bridgeport, WA**

Monitor Point	Sample Date	WTPH-Gas (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)
<b>MP4</b>							
	09/10/96	<50	<0.5	<0.5	<0.5	<1	-
	09/17/97	<50	<0.5	<0.5	<0.5	<1	-
	03/24/98	<50	<0.5	<0.5	<0.5	<1	-
	10/11/98	<50	<0.5	<0.5	<0.5	<1	-
	03/28/99	<50	<0.5	<0.5	<0.5	<1	-
	09/28/99	<50	<0.5	<0.5	<0.5	<1	-
	03/10/00	<50	<0.5	<0.5	<0.5	<1	-
	09/20/00	<50	<0.5	<0.5	<0.5	<1	-
	03/14/01	<50	<0.5	<0.5	<0.5	<1	-
	08/28/01	<50	<0.5	<0.5	<0.5	<1	-
	03/21/02	<100	<0.5	<2	<1	<1.5	-
	09/10/02	<100	0.855	<2	<1	<1.5	-
	09/03/03	<100	<0.5	<2	<1	<1.5	<5
	09/02/04	<100	<0.5	<2	<1	<0.5	<b>29.7</b>
	09/06/05	<100	<0.5	<2	<1	<1.5	<b>39.4</b>
	09/13/06	<100	<0.5	<2	<1	<1.5	<b>36</b>
	09/24/07	<100	<0.5	<2	<1	<1.5	<b>24.6</b>
	09/03/08	<100	<0.5	<2	<1	<1.5	10.2
	09/02/09	<100	<0.2	<1	<1	<1	14.2
	09/07/10	<100	<0.2	<1	<1	<3	10.8
	09/28/11	<50	<1	<1	<1	<3	6.3
	09/12/12	<50	<1	<1	<1	<3	4.7
	09/10/13	<100	<1	<1	<1	<3	3.1
	09/10/14	<100	<1	<1	<1	<3	3.9
	12/15/14	<100	<1	<1	<1	<3	<1
	03/18/15	<100	<1	<1	<1	<3	<1
	06/10/15	<100	<1	<1	<1	<3	1.2
	09/02/15	<100	<1	<1	<1	<3	2.4
Clean Up Level		800	5	1,000	700	1,000	20

**Bold** indicates that the constituent exceeds the MTCA Method A cleanup level.

99-2946-90

(-) Sample not analyzed for constituent.

**TABLE 3**

**Groundwater Analytical Results - Natural Attenuation Parameters**  
**North Central Petroleum, Inc., Gasoline Spill, Bridgeport, WA**

Monitor Point	Sample Date	Lab Analysis		Field Parameters	
		Sulfate (mg/L)	Nitrate/Nitrite (mg/L)	Dissolved Oxygen (mg/L)	ORP (mV)
MW1					
	07/12/23	104	0.35	4.46	51.4
	09/26/23	-	-	-	-
	06/04/24	116	<0.1	2.39	62.5
MW2					
	07/12/23	118	<0.1	2.94	-88.6
	09/26/23	84	<0.1	1.44	-124.3
	06/04/24	75.8	<0.1	1.43	-121.1
MW3					
	07/12/23	135	<0.1	1.26	-102.3
	09/26/23	64.7	<0.1	1.03	-127.5
	06/04/24	104	<0.1	1.29	-112.8
MW4					
	07/12/23	96.3	<0.1	3.12	-75.9
	09/26/23	101	<0.1	0.97	-111.3
	06/04/24	99.9	<0.1	1.30	-123.8

(-) Sample not analyzed for constituent.

99-2946-90

**TABLE 3** Continued (Page 2 of 5 Pages)  
**Groundwater Analytical Results - Natural Attenuation Parameters**  
**North Central Petroleum, Inc., Gasoline Spill, Bridgeport, WA**

Monitor Point	Sample Date	Lab Analysis		Field Parameters	
		Sulfate (mg/L)	Nitrate/Nitrite (mg/L)	Dissolved Oxygen (mg/L)	pH
MP1					
	09/17/97	-	<0.01	1.20	7.28
	03/24/98	-	<0.1	1.19	7.35
	10/11/98	-	0.283	9.55	7.84
	03/28/99	-	0.278	10.90	8.55
	09/28/99	-	0.246	11.80	8.68
	03/10/00	70.1	<0.01	0.76	7.10
	09/20/00	2.67	<0.01	0.26	7.22
	03/14/01	75.5	<0.01	4.11	6.98
	03/21/02	97.6	<0.01	0.57	7.55
	09/10/02	101	<0.02	0.25	7.68
	09/03/03	103	0.012	4.10	6.90
	09/02/04	112	4.47	1.82	7.76
	09/06/05	-	-	2.14	7.83
	09/13/06	-	-	0.95	7.52
	09/24/07	-	-	1.45	7.96
	09/03/08	-	-	3.10	7.78
	09/02/09	-	-	1.44	9.44
	09/07/10	-	-	3.50	7.81
	09/28/11	-	-	1.62	7.88
	09/12/12	-	-	-	-
	09/10/13	-	-	0.75	6.90
	09/10/14	-	-	1.63	7.31
	12/15/14	-	-	0.59	7.59
	03/18/15	-	-	1.18	6.90
	06/10/15	-	-	0.97	7.15
	09/02/15	-	-	0.40	7.44

(-) Sample not analyzed for constituent.

99-2946-90

**TABLE 3** Continued (Page 3 of 5 Pages)  
**Groundwater Analytical Results - Natural Attenuation Parameters**  
**North Central Petroleum, Inc., Gasoline Spill, Bridgeport, WA**

Monitor Point	Sample Date	Lab Analysis		Field Parameters	
		Sulfate (mg/L)	Nitrate/Nitrite (mg/L)	Dissolved Oxygen (mg/L)	pH
MP2					
	09/17/97	-	1.73	1.31	7.38
	03/24/98	-	<0.1	2.58	7.39
	10/11/98	-	0.342	5.15	7.51
	03/28/99	-	<0.01	1.45	7.50
	09/28/99	-	0.252	<1.00	7.46
	03/10/00	70.2	0.0439	0.60	6.98
	09/20/00	3.39	0.0108	0.16	6.51
	03/14/01	143	<0.01	4.03	6.93
	08/28/01	6.08	35.5	1.27	7.28
	03/21/02	71.5	<0.01	0.57	7.53
	09/10/02	31.1	<0.02	0.11	7.40
	09/03/03	7.07	0.193	9.95	6.97
	09/02/04	9.03	4.5	1.55	7.32
	09/06/05	-	-	1.33	7.91
	09/13/06	-	-	1.38	7.53
	09/24/07	-	-	0.54	8.12
	09/03/08	-	-	1.98	8.18
	09/02/09	-	-	0.61	9.52
	09/07/10	-	-	0.96	7.19
	09/28/11	-	-	1.38	7.75
	09/12/12	-	-	-	-
	09/10/13	-	-	0.37	3.60
	09/10/14	-	-	-	-
	12/15/14	-	-	2.06	8.07
	03/18/15	-	-	3.18	7.31
	06/10/15	-	-	0.80	7.02
	09/02/15	-	-	-	-

(-) Sample not analyzed for constituent.

99-2946-90

**TABLE 3** Continued (Page 4 of 5 Pages)  
**Groundwater Analytical Results - Natural Attenuation Parameters**  
**North Central Petroleum, Inc., Gasoline Spill, Bridgeport, WA**

Monitor Point	Sample Date	Lab Analysis		Field Parameters	
		Sulfate (mg/L)	Nitrate/Nitrite (mg/L)	Dissolved Oxygen (mg/L)	pH
MP3					
	09/17/97	-	<0.01	1.85	7.39
	03/24/98	-	<0.1	3.99	7.76
	10/11/98	-	<0.1	5.10	7.63
	03/28/99	-	<0.01	1.40	7.46
	09/28/99	-	0.0546	<1.00	7.39
	03/10/00	69.7	0.0284	0.72	7.43
	09/20/00	80.1	<0.01	0.25	7.22
	03/14/01	61.8	13.1	4.65	7.09
	08/28/01	68.6	12.3	1.12	7.34
	09/10/02	70	<0.02	1.08	7.61
	09/03/03	49.1	0.0182	5.98	6.71
	09/02/04	86.5	4.43	1.24	7.89
	09/06/05	-	-	1.61	7.58
	09/13/06	-	-	2.96	7.39
	09/24/07	-	-	7.31	8.00
	09/03/08	-	-	3.64	7.47
	09/02/09	-	-	7.99	9.45
	09/07/10	-	-	6.93	7.18
	09/28/11	-	-	11.30	6.61
	09/12/12	-	-	-	-
	09/10/13	-	-	0.55	5.30
	09/10/14	-	-	-	-
	12/15/14	-	-	1.81	7.37
	03/18/15	-	-	1.81	6.49
	06/10/15	-	-	1.10	6.42
	09/02/15	-	-	-	-

(-) Sample not analyzed for constituent.

99-2946-90

**TABLE 3** Continued (Page 5 of 5 Pages)  
**Groundwater Analytical Results - Natural Attenuation Parameters**  
**North Central Petroleum, Inc., Gasoline Spill, Bridgeport, WA**

Monitor Point	Sample Date	Lab Analysis		Field Parameters	
		Sulfate (mg/L)	Nitrate/Nitrite (mg/L)	Dissolved Oxygen (mg/L)	pH
MP4					
	09/17/97	-	<0.01	1.55	6.92
	03/24/98	-	0.1	3.54	7.41
	10/11/98	-	<0.1	9.63	7.20
	03/28/99	-	0.594	1.05	7.33
	09/28/99	-	0.01	1.53	7.25
	03/10/00	71.8	0.0266	0.79	7.48
	09/20/00	113	<0.01	0.37	7.25
	03/14/01	129	25.3	4.47	7.11
	08/28/01	143	51.8	0.37	7.02
	03/21/02	140	<0.01	0.58	7.39
	09/10/02	132	<0.02	1.23	7.40
	09/03/03	134	0.446	6.71	6.40
	09/02/04	79.5	4.5	1.37	7.63
	09/06/05	-	-	1.56	7.43
	09/13/06	-	-	1.75	7.21
	09/24/07	-	-	7.85	7.91
	09/03/08	-	-	6.32	7.72
	09/02/09	-	-	2.73	10.35
	09/07/10	-	-	1.65	6.97
	09/28/11	-	-	1.01	7.76
	09/12/12	-	-	2.58	6.92
	09/10/13	-	-	0.41	3.60
	09/10/14	-	-	2.99	6.62
	12/15/14	-	-	1.79	7.22
	03/18/15	-	-	1.02	6.57
	06/10/15	-	-	1.25	7.03
	09/02/15	-	-	0.56	6.48

(-) Sample not analyzed for constituent.

99-2946-90



**TABLE 4**
**Soil Borehole Analytical Results - WTPH-Gas, BTEX, MTBE**  
**North Central Petroleum, Inc., Gasoline Spill, Bridgeport, WA**

Sample Location	Sample Depth (ft)	Sample Date	WTPH-Gas (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)
<b>SB1</b>								
	3	06/02/21	<9.3	<0.0373	<0.0932	<0.0932	<0.279	<0.0932
	6	06/02/21	<12	<0.0435	<0.109	<0.109	<0.326	<0.109
<b>SB2</b>								
	3	06/02/21	<8.7	<b>0.053</b>	<0.0809	<0.0809	<0.243	<0.0809
	6	06/02/21	<14.4	<0.061	<0.153	<0.153	<0.458	<0.153
<b>SB3 (MW3)</b>								
	4	06/02/21	<b>878</b>	<b>0.218</b>	1.27	<b>10.5</b>	<b>65</b>	<0.0743
	6	06/02/21	<b>2,030</b>	<b>0.956</b>	<b>22.2</b>	<b>89.6</b>	<b>597</b>	<0.0794
<b>SB4</b>								
	3	06/02/21	<8.3	<0.0308	<0.0771	<0.0771	<0.231	<0.0771
	6	06/02/21	<12.1	<0.0365	<0.0912	<0.0912	<0.274	<0.0912
<b>SB5 (MW2)</b>								
	3	06/02/21	<7	<0.0243	<0.0608	<0.0608	<0.182	<0.0608
	7	06/02/21	<b>193</b>	<0.0487	<0.122	<0.122	<0.365	<0.122
<b>SB6</b>								
	3	06/02/21	<6.2	<0.0265	<0.0663	<0.0663	<0.199	<0.0663
	6	06/02/21	<7.1	<0.0281	<0.0702	<0.0702	<0.210	<0.0702
<b>SB7</b>								
	3	07/11/23	<4.5	<0.0221	<0.0552	<0.0552	<0.166	<0.0552
<b>SB8</b>								
	4	07/11/23	<7.6	<0.0208	<0.052	<0.052	<0.156	<0.052
	7	07/11/23	10.5	<0.0159	<0.0397	<0.0397	<0.119	<0.0397
<b>SB9</b>								
	4	07/11/23	<4.7	<0.0184	<0.046	<0.046	<0.138	<0.046
<b>SB10</b>								
	4	07/11/23	<4.8	<0.0171	<0.0428	<0.0428	<0.128	<0.0428
<b>SB11</b>								
	4	07/11/23	<5.5	<0.0201	<0.0504	<0.0504	<0.151	<0.0504
<b>SB12</b>								
	8	07/11/23	<5.2	<0.0209	<0.0521	<0.0521	<0.156	<0.0521
<b>MW1</b>								
	5	07/11/23	<5.9	<0.0226	<0.0565	<0.0565	<0.169	<0.0565
	8	07/11/23	<4.5	<0.0184	<0.046	<0.046	<0.138	<0.046
<b>MW4</b>								
	5	07/11/23	<4.7	<0.020	<0.0499	<0.0499	<0.150	<0.0499
<b>Clean Up Level</b>			30	0.03	7	6	9	0.1

**Bold** indicates that the constituent exceeds the MTCA Method A cleanup level.

99-2946-90

**TABLE 5****Soil Borehole Groundwater Analytical Results - WTPH-Gas, BTEX, MTBE****North Central Petroleum, Inc., Gasoline Spill, Bridgeport, WA**

Sample Location	Sample Date	WTPH-Gas (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)
<b>SB2</b>							
	06/02/21	<100	<b>49.1</b>	<1	<1	<3	<1
<b>SB3</b>							
	06/02/21	<b>12,300</b>	<b>77.5</b>	254	<b>766</b>	<b>3,530</b>	<1
<b>SB5</b>							
	06/02/21	<b>6,230</b>	<1	<1	<1	<3	<1
<b>Clean Up Level</b>		800	5	1,000	700	1,000	20

**Bold** indicates that the constituent exceeds the MTCA Method A cleanup level.

99-2946-90

## **Appendix A**

### Laboratory Analytical Report



June 19, 2024

Myles Morris  
WCEC (Montana)  
1030 South Ave. W  
Missoula, MT 59801

RE: Project: 2403-0544 2946 Bridgeport  
Pace Project No.: 10695389

Dear Myles Morris:

Enclosed are the analytical results for sample(s) received by the laboratory on June 06, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Minneapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "JENNI GROSS".

Jennifer Gross  
jennifer.gross@pacelabs.com  
(612)607-1700  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 2403-0544 2946 Bridgeport

Pace Project No.: 10695389

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**Pace Analytical Services, LLC - Minneapolis MN**

1700 Elm Street SE, Minneapolis, MN 55414

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

DoD Certification via A2LA #: 2926.01

EPA Region 8 Tribal Water Systems+Wyoming DW  
Certification #: via MN 027-053-137

Florida Certification #: E87605

Georgia Certification #: 959

GMP+ Certification #: GMP050884

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

ISO/IEC 17025 Certification via A2LA #: 2926.01

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: AI-03086

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064

Maryland Certification #: 322

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Approval: via MN 027-053-137

Minnesota Petrofund Registration #: 1240

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081

New Jersey Certification #: MN002

New York Certification #: 11647

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification (A2LA) #: R-036

North Dakota Certification (MN) #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification (1700) #: CL101

Oklahoma Certification #: 9507

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification #: MN00064

South Carolina Certification #: 74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Vermont Certification #: VT-027053137

Virginia Certification #: 460163

Washington Certification #: C486

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification via A2LA #: 2926.01

USDA Permit #: P330-19-00208

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## SAMPLE SUMMARY

Project: 2403-0544 2946 Bridgeport

Pace Project No.: 10695389

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10695389001	MW1	Water	06/04/24 08:15	06/06/24 08:50
10695389002	MW2	Water	06/04/24 09:05	06/06/24 08:50
10695389003	MW3	Water	06/04/24 10:00	06/06/24 08:50
10695389004	MW4	Water	06/04/24 11:05	06/06/24 08:50
10695389005	Trip Blank	Water	06/04/24 00:00	06/06/24 08:50

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## SAMPLE ANALYTE COUNT

Project: 2403-0544 2946 Bridgeport

Pace Project No.: 10695389

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10695389001	MW1	NWTPH-Gx	TM2	2	PASI-M
		EPA 8260D	PAB	8	PASI-M
		EPA 300.0	JFP	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10695389002	MW2	NWTPH-Gx	TM2	2	PASI-M
		EPA 8260D	PAB	8	PASI-M
		EPA 300.0	JFP	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10695389003	MW3	NWTPH-Gx	TM2	2	PASI-M
		EPA 8260D	LPM	8	PASI-M
		EPA 300.0	JFP	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10695389004	MW4	NWTPH-Gx	TM2	2	PASI-M
		EPA 8260D	PAB	8	PASI-M
		EPA 300.0	JFP	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10695389005	Trip Blank	NWTPH-Gx	TM2	2	PASI-M
		EPA 8260D	PAB	8	PASI-M

PASI-M = Pace Analytical Services - Minneapolis

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## ANALYTICAL RESULTS

Project: 2403-0544 2946 Bridgeport

Pace Project No.: 10695389

Sample: MW1		Lab ID: 10695389001		Collected: 06/04/24 08:15		Received: 06/06/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx Pace Analytical Services - Minneapolis							
TPH as Gas	ND	ug/L	100	1		06/07/24 06:35			
Surrogates									
a,a,a-Trifluorotoluene (S)	99	%.	50-150	1		06/07/24 06:35	98-08-8		
8260D MSV UST		Analytical Method: EPA 8260D Pace Analytical Services - Minneapolis							
Benzene	ND	ug/L	1.0	1		06/08/24 01:45	71-43-2		
Ethylbenzene	ND	ug/L	1.0	1		06/08/24 01:45	100-41-4		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/08/24 01:45	1634-04-4		
Toluene	ND	ug/L	1.0	1		06/08/24 01:45	108-88-3		
Xylene (Total)	ND	ug/L	3.0	1		06/08/24 01:45	1330-20-7		
Surrogates									
1,2-Dichlorobenzene-d4 (S)	101	%.	75-125	1		06/08/24 01:45	2199-69-1		
4-Bromofluorobenzene (S)	100	%.	75-125	1		06/08/24 01:45	460-00-4		
Toluene-d8 (S)	103	%.	75-125	1		06/08/24 01:45	2037-26-5		
300.0 IC Anions		Analytical Method: EPA 300.0 Pace Analytical Services - Minneapolis							
Sulfate	116	mg/L	6.0	5		06/16/24 20:53	14808-79-8		
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2 Pace Analytical Services - Minneapolis							
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	1		06/13/24 12:33			

Sample: MW2		Lab ID: 10695389002		Collected: 06/04/24 09:05		Received: 06/06/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx Pace Analytical Services - Minneapolis							
TPH as Gas	ND	ug/L	100	1		06/07/24 06:55			
Surrogates									
a,a,a-Trifluorotoluene (S)	98	%.	50-150	1		06/07/24 06:55	98-08-8		
8260D MSV UST		Analytical Method: EPA 8260D Pace Analytical Services - Minneapolis							
Benzene	ND	ug/L	1.0	1		06/08/24 02:01	71-43-2		
Ethylbenzene	ND	ug/L	1.0	1		06/08/24 02:01	100-41-4		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/08/24 02:01	1634-04-4		
Toluene	ND	ug/L	1.0	1		06/08/24 02:01	108-88-3		
Xylene (Total)	ND	ug/L	3.0	1		06/08/24 02:01	1330-20-7		
Surrogates									
1,2-Dichlorobenzene-d4 (S)	100	%.	75-125	1		06/08/24 02:01	2199-69-1		
4-Bromofluorobenzene (S)	94	%.	75-125	1		06/08/24 02:01	460-00-4		
Toluene-d8 (S)	107	%.	75-125	1		06/08/24 02:01	2037-26-5		

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## ANALYTICAL RESULTS

Project: 2403-0544 2946 Bridgeport

Pace Project No.: 10695389

Sample: MW2		Lab ID: 10695389002		Collected: 06/04/24 09:05		Received: 06/06/24 08:50		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions		Analytical Method: EPA 300.0 Pace Analytical Services - Minneapolis							
Sulfate	75.8	mg/L	1.2	1		06/15/24 13:47	14808-79-8		
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2 Pace Analytical Services - Minneapolis							
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	1		06/13/24 12:34			

Sample: MW3		Lab ID: 10695389003	Collected: 06/04/24 10:00	Received: 06/06/24 08:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx Pace Analytical Services - Minneapolis						
TPH as Gas	641	ug/L	100	1		06/07/24 07:14		
Surrogates								
a,a,a-Trifluorotoluene (S)	97	%.	50-150	1		06/07/24 07:14	98-08-8	
8260D MSV UST		Analytical Method: EPA 8260D Pace Analytical Services - Minneapolis						
Benzene	28.9	ug/L	1.0	1		06/12/24 22:14	71-43-2	
Ethylbenzene	46.5	ug/L	1.0	1		06/12/24 22:14	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/12/24 22:14	1634-04-4	
Toluene	ND	ug/L	1.0	1		06/12/24 22:14	108-88-3	
Xylene (Total)	16.0	ug/L	3.0	1		06/12/24 22:14	1330-20-7	
Surrogates								
1,2-Dichlorobenzene-d4 (S)	96	%.	75-125	1		06/12/24 22:14	2199-69-1	
4-Bromofluorobenzene (S)	98	%.	75-125	1		06/12/24 22:14	460-00-4	
Toluene-d8 (S)	101	%.	75-125	1		06/12/24 22:14	2037-26-5	
300.0 IC Anions		Analytical Method: EPA 300.0 Pace Analytical Services - Minneapolis						
Sulfate	104	mg/L	6.0	5		06/16/24 21:30	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2 Pace Analytical Services - Minneapolis						
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	1		06/13/24 12:35		

Sample: MW4		Lab ID: 10695389004		Collected: 06/04/24 11:05		Received: 06/06/24 08:50		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx Pace Analytical Services - Minneapolis							
TPH as Gas	ND	ug/L	100	1		06/07/24 07:53			

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## ANALYTICAL RESULTS

Project: 2403-0544 2946 Bridgeport

Pace Project No.: 10695389

Sample: MW4		Lab ID: 10695389004		Collected: 06/04/24 11:05		Received: 06/06/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx Pace Analytical Services - Minneapolis							
Surrogates									
a,a,a-Trifluorotoluene (S)	99	%.	50-150	1		06/07/24 07:53	98-08-8		
8260D MSV UST		Analytical Method: EPA 8260D Pace Analytical Services - Minneapolis							
Benzene	ND	ug/L	1.0	1		06/08/24 02:18	71-43-2		
Ethylbenzene	ND	ug/L	1.0	1		06/08/24 02:18	100-41-4		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/08/24 02:18	1634-04-4		
Toluene	ND	ug/L	1.0	1		06/08/24 02:18	108-88-3		
Xylene (Total)	ND	ug/L	3.0	1		06/08/24 02:18	1330-20-7		
Surrogates									
1,2-Dichlorobenzene-d4 (S)	100	%.	75-125	1		06/08/24 02:18	2199-69-1		
4-Bromofluorobenzene (S)	97	%.	75-125	1		06/08/24 02:18	460-00-4		
Toluene-d8 (S)	109	%.	75-125	1		06/08/24 02:18	2037-26-5		
300.0 IC Anions		Analytical Method: EPA 300.0 Pace Analytical Services - Minneapolis							
Sulfate	99.9	mg/L	6.0	5		06/16/24 21:48	14808-79-8		
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2 Pace Analytical Services - Minneapolis							
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	1		06/13/24 12:36			

Sample: Trip Blank		Lab ID: 10695389005	Collected: 06/04/24 00:00		Received: 06/06/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx Pace Analytical Services - Minneapolis						
TPH as Gas	ND	ug/L	100	1		06/07/24 08:12		
Surrogates								
a,a,a-Trifluorotoluene (S)	99	%.	50-150	1		06/07/24 08:12	98-08-8	
8260D MSV UST		Analytical Method: EPA 8260D Pace Analytical Services - Minneapolis						
Benzene	ND	ug/L	1.0	1		06/08/24 01:11	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/08/24 01:11	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/08/24 01:11	1634-04-4	
Toluene	ND	ug/L	1.0	1		06/08/24 01:11	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		06/08/24 01:11	1330-20-7	
Surrogates								
1,2-Dichlorobenzene-d4 (S)	102	%.	75-125	1		06/08/24 01:11	2199-69-1	
4-Bromofluorobenzene (S)	100	%.	75-125	1		06/08/24 01:11	460-00-4	
Toluene-d8 (S)	109	%.	75-125	1		06/08/24 01:11	2037-26-5	

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## QUALITY CONTROL DATA

Project: 2403-0544 2946 Bridgeport

Pace Project No.: 10695389

QC Batch:	949960	Analysis Method:	NWTPH-Gx
QC Batch Method:	NWTPH-Gx	Analysis Description:	NWTPH-Gx Water
		Laboratory:	Pace Analytical Services - Minneapolis

Associated Lab Samples: 10695389001, 10695389002, 10695389003, 10695389004, 10695389005

METHOD BLANK: 4968489 Matrix: Water

Associated Lab Samples: 10695389001, 10695389002, 10695389003, 10695389004, 10695389005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	06/07/24 06:16	
a,a,a-Trifluorotoluene (S)	%.	99	50-150	06/07/24 06:16	

LABORATORY CONTROL SAMPLE &amp; LCSD: 4968491

4968492

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	831	838	83	84	66-125	1	20	
a,a,a-Trifluorotoluene (S)	%.				98	98	50-150			

SAMPLE DUPLICATE: 4968493

Parameter	Units	10695389003 Result	Dup Result	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	641	646	1	30	
a,a,a-Trifluorotoluene (S)	%.	97	98			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: 2403-0544 2946 Bridgeport

Pace Project No.: 10695389

QC Batch:	950125	Analysis Method:	EPA 8260D
QC Batch Method:	EPA 8260D	Analysis Description:	8260D MSV UST-WATER
		Laboratory:	Pace Analytical Services - Minneapolis

Associated Lab Samples: 10695389001, 10695389002, 10695389004, 10695389005

METHOD BLANK: 4969266 Matrix: Water

Associated Lab Samples: 10695389001, 10695389002, 10695389004, 10695389005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	06/08/24 00:55	
Ethylbenzene	ug/L	ND	1.0	06/08/24 00:55	
Methyl-tert-butyl ether	ug/L	ND	1.0	06/08/24 00:55	
Toluene	ug/L	ND	1.0	06/08/24 00:55	
Xylene (Total)	ug/L	ND	3.0	06/08/24 00:55	
1,2-Dichlorobenzene-d4 (S)	%	101	75-125	06/08/24 00:55	
4-Bromofluorobenzene (S)	%	99	75-125	06/08/24 00:55	
Toluene-d8 (S)	%	107	75-125	06/08/24 00:55	

LABORATORY CONTROL SAMPLE &amp; LCSD: 4969267

4969268

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	ug/L	20	20.1	19.1	100	96	75-125	5	20	
Ethylbenzene	ug/L	20	20.1	18.8	100	94	75-125	6	20	
Methyl-tert-butyl ether	ug/L	20	17.5	16.9	88	84	75-125	4	20	
Toluene	ug/L	20	20.3	18.4	102	92	75-125	10	20	
Xylene (Total)	ug/L	60	59.7	59.3	100	99	75-125	1	20	
1,2-Dichlorobenzene-d4 (S)	%				97	101	75-125			
4-Bromofluorobenzene (S)	%				94	98	75-125			
Toluene-d8 (S)	%				103	99	75-125			

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## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: 2403-0544 2946 Bridgeport

Pace Project No.: 10695389

QC Batch: 950991

Analysis Method: EPA 8260D

QC Batch Method: EPA 8260D

Analysis Description: 8260D MSV UST-WATER

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10695389003

METHOD BLANK: 4973435

Matrix: Water

Associated Lab Samples: 10695389003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	06/12/24 22:00	
Ethylbenzene	ug/L	ND	1.0	06/12/24 22:00	
Methyl-tert-butyl ether	ug/L	ND	1.0	06/12/24 22:00	
Toluene	ug/L	ND	1.0	06/12/24 22:00	
Xylene (Total)	ug/L	ND	3.0	06/12/24 22:00	
1,2-Dichlorobenzene-d4 (S)	%	95	75-125	06/12/24 22:00	
4-Bromofluorobenzene (S)	%	101	75-125	06/12/24 22:00	
Toluene-d8 (S)	%	107	75-125	06/12/24 22:00	

LABORATORY CONTROL SAMPLE &amp; LCSD: 4973436

4973437

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	ug/L	20	19.0	18.1	95	91	75-125	5	20	
Ethylbenzene	ug/L	20	19.1	18.3	96	92	75-125	4	20	
Methyl-tert-butyl ether	ug/L	20	19.4	18.4	97	92	75-125	5	20	
Toluene	ug/L	20	17.8	17.1	89	86	75-125	4	20	
Xylene (Total)	ug/L	60	57.4	54.9	96	92	75-125	4	20	
1,2-Dichlorobenzene-d4 (S)	%				97	97	75-125			
4-Bromofluorobenzene (S)	%				97	98	75-125			
Toluene-d8 (S)	%				96	97	75-125			

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## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: 2403-0544 2946 Bridgeport

Pace Project No.: 10695389

QC Batch: 951460

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Laboratory:

Pace Analytical Services - Minneapolis

Associated Lab Samples: 10695389001, 10695389002, 10695389003, 10695389004

METHOD BLANK: 4976067

Matrix: Water

Associated Lab Samples: 10695389001, 10695389002, 10695389003, 10695389004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.2	06/15/24 06:02	

LABORATORY CONTROL SAMPLE: 4976068

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	50	51.0	102	90-110	

MATRIX SPIKE &amp; MATRIX SPIKE DUPLICATE: 4976069 4976070

Parameter	Units	10695346001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	61.3	50	50	105	105	87	88	80-120	1	20	

MATRIX SPIKE &amp; MATRIX SPIKE DUPLICATE: 4976071 4976072

Parameter	Units	10695346002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	92.3	50	50	133	133	82	80	80-120	1	20	

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## QUALITY CONTROL DATA

Project: 2403-0544 2946 Bridgeport

Pace Project No.: 10695389

QC Batch: 951094

Analysis Method: EPA 353.2

QC Batch Method: EPA 353.2

Analysis Description: 353.2 Nitrate + Nitrite, preserved

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10695389001, 10695389002, 10695389003, 10695389004

METHOD BLANK: 4974220

Matrix: Water

Associated Lab Samples: 10695389001, 10695389002, 10695389003, 10695389004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	06/13/24 12:22	

LABORATORY CONTROL SAMPLE: 4974221

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	1.0	105	90-110	

MATRIX SPIKE &amp; MATRIX SPIKE DUPLICATE: 4974222 4974223

Parameter	Units	10695346001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	2.6	1	1	3.6	3.6	98	94	90-110	1	20	

MATRIX SPIKE &amp; MATRIX SPIKE DUPLICATE: 4974224 4974225

Parameter	Units	10695576001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.061J	1	1	1.2	1.2	110	109	90-110	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

## REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: 2403-0544 2946 Bridgeport

Pace Project No.: 10695389

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### BATCH QUALIFIERS

Batch: 949960

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 950125

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 950991

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 2403-0544 2946 Bridgeport

Pace Project No.: 10695389

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10695389001	MW1	NWTPH-Gx	949960		
10695389002	MW2	NWTPH-Gx	949960		
10695389003	MW3	NWTPH-Gx	949960		
10695389004	MW4	NWTPH-Gx	949960		
10695389005	Trip Blank	NWTPH-Gx	949960		
10695389001	MW1	EPA 8260D	950125		
10695389002	MW2	EPA 8260D	950125		
10695389003	MW3	EPA 8260D	950991		
10695389004	MW4	EPA 8260D	950125		
10695389005	Trip Blank	EPA 8260D	950125		
10695389001	MW1	EPA 300.0	951460		
10695389002	MW2	EPA 300.0	951460		
10695389003	MW3	EPA 300.0	951460		
10695389004	MW4	EPA 300.0	951460		
10695389001	MW1	EPA 353.2	951094		
10695389002	MW2	EPA 353.2	951094		
10695389003	MW3	EPA 353.2	951094		
10695389004	MW4	EPA 353.2	951094		

## REPORT OF LABORATORY ANALYSIS

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Location Requested (City/State):

Pace Analytical Minnesota  
1700 Elm Street, Suite 200  
Minneapolis, MN 55414

Company Name:

WCEC

Street Address:

1030 South Ave. W,  
Missoula, MT 59801

Customer Project #:

2403-0544

Project Name:

2946 Bridgeport

Site Collection Info/Facility ID (as applicable):

60169

Time Zone Collected:

[ ] AK [ ] PT [ ] MT [ ] CT [ ] ET

Data Deliverables:

Regulatory Program (DW, RCRA, etc.) as applicable:

Reportable [ ] Yes [ ] No

[ ] Level II [ ] Level III [ ] Level IV

[ ] EQUIS

Rush (Pre-approval required):

[ ] Same Day [ ] 1 Day [ ] 2 Day [ ] 3 Day [ ] Other

Date Results Requested:

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis:

\* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Surface Water (SW), Sediment (SED), Sludge (SL), Leachate (LL), Biosolid (BS), Other (OT)

Customer Sample ID

Matrix \*

Composite Start

Collected or Composite End

# Cont.

Res. Chlorine

Results

Units

MW1

WT

6/4/24 8:15

8:15

X

X

X

001

MW2

WT

9:05

9:05

X

X

X

002

MW3

WT

10:00

10:00

X

X

X

003

MW4

WT

11:05

11:05

X

X

X

004

Trip Blank

WT

X

X

X

005

300.0 Sulfate

353.2 Nitrate + Nitrite

8260D BTEX+MTBE

NWTPH-GX

Use Only

Table #:

Profile / Template:

31206

Prelog / Bottle Ord. ID:

EZ 3113179

Sample Comment

Proj. Mgr:  
Jennifer Gross  
Account / Client ID:  
Table #:  
Profile / Template:  
31206  
Prelog / Bottle Ord. ID:  
EZ 3113179

Preservation non-conformance identified for

sample.

Customer Sample ID

Matrix \*

Composite Start

Collected or Composite End

# Cont.

Res. Chlorine

Results

Units

MW1

WT

6/4/24 8:15

8:15

X

X

X

001

MW2

WT

9:05

9:05

X

X

X

002

MW3

WT

10:00

10:00

X

X

X

003

MW4

WT

11:05

11:05

X

X

X

004

Trip Blank

WT

X

X

X

005

Additional Instructions from Pace\*:

Customer Remarks / Special Conditions / Possible Hazards:

Obs. Temp. (°C)

4.2

Corrected Temp. (°C)

3.9

On Ice:

Y

Tracking Number:

Delivered by: [ ] In-Person [ ] Courier

[ ] FedEx [ ] UPS [ ] Other

Page: 1 of 1

ENV-FRM-CORQ-0019\_v02\_110123 ©

## ENV-FRM-MIN4-0150 v17\_Sample Condition Upon Receipt

CLIENT NAME: WCEC PROJECT #: WO# : 10695389COURIER: ☐ Client ☐ Commercial ☒ FedEx ☐ Pace  
☐ Speedee ☐ UPS ☐ USPS

PM: JMG

Due Date: 06/20/24

CLIENT: WCEC WA

TRACKING NUMBER: 7151 6115 3757 ☐ See Exceptions form  
ENV-FRM-MIN4-0142Custody Seal on Cooler/Box Present: ☐ YES ☒ NO Seals Intact: ☐ YES ☒ NO Biological Tissue Frozen: ☐ YES ☐ NO ☒ N/APacking Material: ☒ Bubble Bags ☐ Bubble Wrap ☐ None ☐ Other Temp Blank: ☒ YES ☐ NO Type of Ice: ☐ Blue ☐ Dry ☒ WetThermometer: ☐ T1 (0461) ☐ T2 (0436) ☒ T3 (0459) ☐ T4 (0402) ☐ T5 (0178) ☐ T6 (0235)  
☐ T7 (0042) ☐ T8 (0775) ☐ T9 (0727) ☐ 01339252 (1710)☒ Melted ☐ None

Did Samples Originate in West Virginia: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Were All Container Temps taken: <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A
Correction Factor: <u>-0.3</u> Cooler Temp Read w/Temp Blank: <u>42</u> °C	Average Corrected Temp (no Temp Blank Only): _____ °C
Cooler Temp Corrected w/Temp Blank: <u>3.9</u> °C	<input type="checkbox"/> See Exceptions Form ENV-FRM-MIN4-0142 <input type="checkbox"/> 1 Container
NOTE: Temp should be above freezing to 6°C.	

USDA Regulated Soil: <input checked="" type="checkbox"/> N/A - Water Sample/Other (describe): _____	Initials & Date of Person Examining Contents: <u>CRL 6/8/24</u>
Did Samples originate from one of the following states (check maps) - AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA: <input type="checkbox"/> YES <input type="checkbox"/> NO	Did samples originate from a foreign source (international, including Hawaii and Puerto Rico): <input type="checkbox"/> YES <input type="checkbox"/> NO
NOTE: If YES to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.	

LOCATION (check one): <input type="checkbox"/> DULUTH <input checked="" type="checkbox"/> MINNEAPOLIS <input type="checkbox"/> VIRGINIA	YES	NO	N/A	COMMENT(S)												
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.												
Chain of Custody Relinquished?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.												
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.												
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. If Fecal: <input type="checkbox"/> <8 hrs <input type="checkbox"/> >8 hr, <24 hr <input type="checkbox"/> No												
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. <input type="checkbox"/> BOD / cBOD <input type="checkbox"/> Fecal coliform <input type="checkbox"/> Hex Chrom <input type="checkbox"/> HPC <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Ortho Phos <input type="checkbox"/> Total coliform/E. coli <input type="checkbox"/> Other: _____												
Rush Turn Around Time Requested?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.												
Sufficient Sample Volume?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.												
Correct Containers Used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.												
- Pace Containers Used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.												
Containers Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10. Is sediment visible in the dissolved container: <input type="checkbox"/> YES <input type="checkbox"/> NO												
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	11. If NO, write ID/Date/Time of container below: <input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142												
Is sufficient information available to reconcile the samples to the COC? NOTE: If ID/Date/Time don't match fill out section 11. Matrix: <input type="checkbox"/> Oil <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Water <input type="checkbox"/> Other	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12. Sample #: <u>001-004</u> <input type="checkbox"/> HNO <sub>3</sub> <input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> <input type="checkbox"/> NaOH <input type="checkbox"/> Zinc Acetate Positive for Residual Chlorine: <input type="checkbox"/> YES <input type="checkbox"/> NO												
All containers needing acid/base preservation have been checked? All containers needing preservation are found to be in compliance with EPA recommendation? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> < 2 pH, NaOH > 9 Sulfide, NaOH > 10 Cyanide) Exceptions: VOA, Coliform, TOC/DOC, Oil & Grease, DRO/8015 (water) and Dioxins/PFAS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<table border="1"><thead><tr><th colspan="4">pH Paper Lot #</th></tr><tr><th>Residual Chlorine</th><th>0-6 Roll</th><th>0-6 Strip</th><th>0-14 Strip</th></tr></thead><tbody><tr><td></td><td><u>213923</u></td><td></td><td></td></tr></tbody></table> <input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142	pH Paper Lot #				Residual Chlorine	0-6 Roll	0-6 Strip	0-14 Strip		<u>213923</u>		
pH Paper Lot #																
Residual Chlorine	0-6 Roll	0-6 Strip	0-14 Strip													
	<u>213923</u>															
NOTE: If adding preservation to the container, verify with the PM first. Clients may require adding preservative to the field and equipment blanks when this occurs.																
Headspace in Methyl Mercury Container?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.												
Extra labels present on soil VOA or WIDRO containers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	14.												
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0140												
Trip Blanks Present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15.												
Trip Blank Custody Seals Present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pace Trip Blank Lot # (if purchased): <u>467817</u>												

## CLIENT NOTIFICATION / RESOLUTION

FIELD DATA REQUIRED: ☐ YES ☐ NO

Person Contacted: \_\_\_\_\_ Date &amp; Time: \_\_\_\_\_

Comments / Resolution: \_\_\_\_\_

Project Manager Review: [Signature]

Date: 6/6/24

NOTE: When there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEQ Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled By: [Signature] Line: (3)

## **Appendix B**

### Groundwater Sampling Field Data Sheets

# Groundwater Sampling Field Data Sheet



Project Number: 2946  
 Name: NLP Bridgeport  
 Address: \_\_\_\_\_

Well Identification: MW-1 Field Team: mm Date: 6/4/24

## Well Information:

Well Diameter (in.) 2  
 Depth to Bottom (ft.) 10  
 Initial Depth to Water (ft.) 7.30  
 Length of Water Column (ft.) \_\_\_\_\_  
 1 Casing Volumes (L) \_\_\_\_\_  
 3 Casing Volumes (L) \_\_\_\_\_

Screen interval \_\_\_\_\_  
 Midsection saturated zone \_\_\_\_\_  
 Free Product? ☐ Yes ☐ No  
 Depth to FP (ft.) \_\_\_\_\_  
 Thickness (ft.) \_\_\_\_\_  
 Volume (L) \_\_\_\_\_

## Purge Information:

Set depth of pump inlet: \_\_\_\_\_  
 Pumping Method: ☐ Bladder Pump ☒ Peristaltic Pump  
☐ Submersible Pump ☐ Other: \_\_\_\_\_  
 Historic well purge rate: \_\_\_\_\_ Volume Purged: \_\_\_\_\_  
 Bladder control-Discharge time: \_\_\_\_\_ Fill time: \_\_\_\_\_  
 Peristaltic control-pump setting: \_\_\_\_\_

Time	DTW	Liters	Conductivity	pH	Salinity	DO (mg/L)	DO%	Temperature	ORP	Turbidity
7:45										
7:50	8.20	0.5	1910	7.40	0.98	2.58	22.5	9.7	117.0	28.92
8:00	8.50	1	1845	7.30	0.94	2.14	19.0	9.7	95.4	28.95
8:10	8.58	1.5	1807	7.32	0.92	2.39	21.0	9.7	62.5	27.41

## Parameters Immediately Prior to Sample Collection:

Sample Time	DTW	Total L	Conductivity	pH	Salinity	DO (mg/L)	DO%	Temperature	ORP	Turbidity
8:15										

## Well Condition:

Monument Condition: ☐ Good ☐ Moderate ☐ Poor ☐ Replacement Necessary\* ☐ Bolts Missing (Number needed: \_\_\_\_\_)

Casing Condition: ☐ Good ☐ Moderate ☐ Poor ☐ Replacement Necessary\*

Photo taken: ☐ Yes ☐ No

\*If replacement is recommended, add notes below and take picture for file.

## Comments / Exceptions:

well drew down quickly slowed purging and collected sample

## Well Casing Volume per Foot of Depth

Diameter of Casing or Hole (in.)	Volume (L)	Volume (gal.)
1	0.155	0.041
2	0.617	0.163
4	2.472	0.653

## Water Quality Indicator Parameter Stabilization Range

pH	± 0.1 units
Specific Conductance	± 3%
Dissolved Oxygen - ± 10% or 3 consecutive reading <0.5 mg/L	± 10%
Oxidation Reduction Potential (ORP)	± 10 millivolts
Turbidity - 3 reading <5 (NTU) or 10% if reading >5 (NTU)	± 10%

Measurements should be recorded every 3 to 5 minutes, and stabilization is considered achieved when three consecutive readings are within the ranges in table above.

Turbidity is considered stable when three consecutive readings are within 10% for values greater than 5 NTU and if three turbidity values are less than 5 NTU.

Dissolved oxygen (DO) is considered stable when three consecutive readings are within 10% for values greater than 0.5 mg/L or if three consecutive readings are less than 0.5 mg/L.

If parameters do not stabilize during pumping one of the following should be selected: (1) Purge the well for a minimum of four hours prior to sampling if the static water level was stable prior to pumping; (2) three well volumes from the well prior to sampling; (3) Contact project manager and/ or DEQ case manager to determine if purging should be discontinued and sample should not be collected.



# Groundwater Sampling Field Data Sheet



Project Number: 2946  
 Name: NCP Bridgeport  
 Address: \_\_\_\_\_

Well Identification: MW-2 Field Team: mm Date: 6/4/24

## Well Information:

Well Diameter (in.) 2  
 Depth to Bottom (ft.) 10  
 Initial Depth to Water (ft.) 3.89  
 Length of Water Column (ft.) \_\_\_\_\_  
 1 Casing Volumes (L) \_\_\_\_\_  
 3 Casing Volumes (L) \_\_\_\_\_

Screen interval \_\_\_\_\_  
 Midsection saturated zone \_\_\_\_\_  
 Free Product? ☐ Yes ☐ No  
 Depth to FP (ft.) \_\_\_\_\_  
 Thickness (ft.) \_\_\_\_\_  
 Volume (L) \_\_\_\_\_

## Purge Information:

Set depth of pump inlet: \_\_\_\_\_  
 Pumping Method: ☐ Bladder Pump ☒ Peristaltic Pump  
☐ Submersible Pump ☐ Other: \_\_\_\_\_  
 Historic well purge rate: \_\_\_\_\_ Volume Purged: \_\_\_\_\_  
 Bladder control-Discharge time: \_\_\_\_\_ Fill time: \_\_\_\_\_  
 Peristaltic control-pump setting: \_\_\_\_\_

Time	DTW	Liters	Conductivity	pH	Salinity	DO (mg/L)	DO%	Temperature	ORP	Turbidity
8:30										
8:40	4.76	1	1543	7.29	0.78	1.59	13.9	9.3	-126.6	27.82
8:50	4.94	2	1539	7.29	0.78	1.48	13.0	9.5	-119.0	26.54
9:00	4.99	3	1536	7.30	0.78	1.45	12.8	9.6	-121.1	26.72
	8									

## Parameters Immediately Prior to Sample Collection:

Sample Time	DTW	Total L	Conductivity	pH	Salinity	DO (mg/L)	DO%	Temperature	ORP	Turbidity
9:05	5.02	3.5	1536	7.30	0.78	1.43	12.6	9.7	-121.1	26.95

## Well Condition:

Monument Condition: ☐ Good ☐ Moderate ☐ Poor ☐ Replacement Necessary\* ☐ Bolts Missing (Number needed: \_\_\_\_\_)

Casing Condition: ☐ Good ☐ Moderate ☐ Poor ☐ Replacement Necessary\*

Photo taken: ☐ Yes ☐ No

\*If replacement is recommended, add notes below and take picture for file.

## Comments / Exceptions:

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## Well Casing Volume per Foot of Depth

Diameter of Casing or Hole (in.)	Volume (L)	Volume (gal.)
1	0.155	0.041
2	0.617	0.163
4	2.472	0.653

## Water Quality Indicator Parameter Stabilization Range

pH	± 0.1 units
Specific Conductance	± 3%
Dissolved Oxygen - ± 10% or 3 consecutive reading <0.5 mg/L	± 10%
Oxidation Reduction Potential (ORP)	± 10 millivolts
Turbidity - 3 reading <5 (NTU) or 10% if reading >5 (NTU)	± 10%

Measurements should be recorded every 3 to 5 minutes, and stabilization is considered achieved when three consecutive readings are within the ranges in table above.

Turbidity is considered stable when three consecutive readings are within 10% for values greater than 5 NTU and if three turbidity values are less than 5 NTU.

Dissolved oxygen (DO) is considered stable when three consecutive readings are within 10% for values greater than 0.5 mg/L or if three consecutive readings are less than 0.5 mg/L.

If parameters do not stabilize during pumping one of the following should be selected: (1) Purge the well for a minimum of four hours prior to sampling if the static water level was stable prior to pumping; (2) Three well volumes from the well prior to sampling; (3) Contact project manager and/ or DEQ case manager to determine if purging should be discontinued and sample should not be collected.

## Groundwater Sampling Field Data Sheet



Project Number: 2946  
 Name: NCP Bridgeport  
 Address: \_\_\_\_\_

Well Identification: MW-3 Field Team: mm Date: 6/4/24

## Well Information:

Well Diameter (in.) 2  
 Depth to Bottom (ft.) 10  
 Initial Depth to Water (ft.) 1.83  
 Length of Water Column (ft.) \_\_\_\_\_  
 1 Casing Volumes (L) \_\_\_\_\_  
 3 Casing Volumes (L) \_\_\_\_\_

Screen interval \_\_\_\_\_  
 Midsection saturated zone \_\_\_\_\_  
 Free Product? ☐ Yes ☐ No  
 Depth to FP (ft.) \_\_\_\_\_  
 Thickness (ft.) \_\_\_\_\_  
 Volume (L) \_\_\_\_\_

## Purge Information:

Set depth of pump inlet: \_\_\_\_\_  
 Pumping Method: ☐ Bladder Pump ☒ Peristaltic Pump  
☐ Submersible Pump ☐ Other: \_\_\_\_\_  
 Historic well purge rate: \_\_\_\_\_ Volume Purged: \_\_\_\_\_  
 Bladder control-Discharge time: \_\_\_\_\_ Fill time: \_\_\_\_\_  
 Peristaltic control-pump setting: \_\_\_\_\_

Time	DTW	Liters	Conductivity	pH	Salinity	DO (mg/L)	DO%	Temperature	ORP	Turbidity
9:25										
9:35	1.93	1	1860	7.36	0.95	1.54	13.4	9.2	-102.4	26.01
9:45	1.94	2	1853	7.36	0.95	1.37	12.1	9.6	-108.8	25.93
9:55	1.94	3	1847	7.36	0.94	1.32	11.7	9.8	-111.4	25.92

## Parameters Immediately Prior to Sample Collection:

Sample Time	DTW	Total L	Conductivity	pH	Salinity	DO (mg/L)	DO%	Temperature	ORP	Turbidity
10:00	1.94	3.5	1815	7.36	0.93	1.29	11.5	10.0	-112.8	26.49

## Well Condition:

Monument Condition: ☐ Good ☐ Moderate ☐ Poor ☐ Replacement Necessary\* ☐ Bolts Missing (Number needed: \_\_\_\_\_)

Casing Condition: ☐ Good ☐ Moderate ☐ Poor ☐ Replacement Necessary\*

Photo taken: ☐ Yes ☐ No

\*If replacement is recommended, add notes below and take picture for file.

## Comments / Exceptions:

HC odor

## Well Casing Volume per Foot of Depth

Diameter of Casing or Hole (in.)	Volume (L)	Volume (gal.)
1	0.155	0.041
2	0.617	0.163
4	2.472	0.653

## Water Quality Indicator Parameter Stabilization Range

pH	± 0.1 units
Specific Conductance	± 3%
Dissolved Oxygen - ± 10% or 3 consecutive reading <0.5 mg/L	± 10%
Oxidation Reduction Potential (ORP)	± 10 millivolts
Turbidity - 3 reading <5 (NTU) or 10% if reading >5 (NTU)	± 10%

Measurements should be recorded every 3 to 5 minutes, and stabilization is considered achieved when three consecutive readings are within the ranges in table above.

Turbidity is considered stable when three consecutive readings are within 10% for values greater than 5 NTU and if three turbidity values are less than 5 NTU.

Dissolved oxygen (DO) is considered stable when three consecutive readings are within 10% for values greater than 0.5 mg/L or if three consecutive readings are less than 0.5 mg/L.

If parameters do not stabilize during pumping one of the following should be selected: (1) Purge the well for a minimum of four hours prior to sampling if the static water level was stable prior to pumping; (2) three well volumes from the well prior to sampling; (3) Contact project manager and/ or DEQ case manager to determine if purging should be discontinued and sample should not be collected.



# Groundwater Sampling Field Data Sheet



Project Number: 2946  
 Name: NCP Bridge Port  
 Address: \_\_\_\_\_

Well Identification: MW-4 Field Team: mm Date: 6/4/24

## Well Information:

Well Diameter (in.) 2  
 Depth to Bottom (ft.) 10  
 Initial Depth to Water (ft.) 1.92  
 Length of Water Column (ft.) \_\_\_\_\_  
 1 Casing Volumes (L) \_\_\_\_\_  
 3 Casing Volumes (L) \_\_\_\_\_

Screen interval \_\_\_\_\_  
 Midsection saturated zone \_\_\_\_\_  
 Free Product? ☐ Yes ☐ No  
 Depth to FP (ft.) \_\_\_\_\_  
 Thickness (ft.) \_\_\_\_\_  
 Volume (L) \_\_\_\_\_

## Purge Information:

Set depth of pump inlet: \_\_\_\_\_  
 Pumping Method: ☐ Bladder Pump ☒ Peristaltic Pump  
☐ Submersible Pump ☐ Other: \_\_\_\_\_  
 Historic well purge rate: \_\_\_\_\_ Volume Purged: \_\_\_\_\_  
 Bladder control-Discharge time: \_\_\_\_\_ Fill time: \_\_\_\_\_  
 Peristaltic control-pump setting: \_\_\_\_\_

Time	DTW	Liters	Conductivity	pH	Salinity	DO (mg/L)	DO%	Temperature	ORP	Turbidity
10:25										
10:35	2.18	1	1775	7.48	0.90	2.17	19.2	10.1	-108.7	57.36
10:45	2.21	2	1699	7.43	0.86	1.48	13.2	10.2	-120.6	33.28
10:55	2.25	3	1541	7.41	0.78	1.30	11.8	10.7	-123.8	34.93

## Parameters Immediately Prior to Sample Collection:

Sample Time	DTW	Total L	Conductivity	pH	Salinity	DO (mg/L)	DO%	Temperature	ORP	Turbidity
11:05	2.27	4	1536	7.41	0.78	1.30	11.7	10.7	-123.8	35.13

## Well Condition:

Monument Condition: ☐ Good ☐ Moderate ☐ Poor ☐ Replacement Necessary\* ☐ Bolts Missing (Number needed: \_\_\_\_\_)

Casing Condition: ☐ Good ☐ Moderate ☐ Poor ☐ Replacement Necessary\*

Photo taken: ☐ Yes ☐ No

\*If replacement is recommended, add notes below and take picture for file.

## Comments / Exceptions:

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## Well Casing Volume per Foot of Depth

Diameter of Casing or Hole (in.)	Volume (L)	Volume (gal.)
1	0.155	0.041
2	0.617	0.163
4	2.472	0.653

## Water Quality Indicator Parameter Stabilization Range

pH	± 0.1 units
Specific Conductance	± 3%
Dissolved Oxygen - ± 10% or 3 consecutive reading <0.5 mg/L	± 10%
Oxidation Reduction Potential (ORP)	± 10 millivolts
Turbidity - 3 reading <5 (NTU) or 10% if reading >5 (NTU)	± 10%

Measurements should be recorded every 3 to 5 minutes, and stabilization is considered achieved when three consecutive readings are within the ranges in table above.

Turbidity is considered stable when three consecutive readings are within 10% for values greater than 5 NTU and if three turbidity values are less than 5 NTU.

Dissolved oxygen (DO) is considered stable when three consecutive readings are within 10% for values greater than 0.5 mg/L or if three consecutive readings are less than 0.5 mg/L.

If parameters do not stabilize during pumping one of the following should be selected: (1) Purge the well for a minimum of four hours prior to sampling if the static water level was stable prior to pumping; (2) Three well volumes from the well prior to sampling; (3) Contact project manager and/or DEQ case manager to determine if purging should be discontinued and sample should not be collected.