

September 30, 2021

Kyle Parker Toxics Cleanup Program Department of Ecology – Central Regional Office 1250 W. Alder Street, Union Gap, WA 98903

Re: June 2021 Soil Boring Investigation Report for North Central Petroleum, Inc., Gasoline Spill, SR 17 Near MP 123, Bridgeport, WA, Facility Site# 25378742, Cleanup Site# 2088.

Dear Mr. Parker:

Enclosed for your review is the **June 2021 Soil Boring Investigation Report** for North Central Petroleum, Inc., Gasoline Spill, Bridgeport, Washington. The report includes recommendations for additional investigation and monitoring based on the findings of the 2021 soil boring investigation. WCEC is requesting a formal review and opinion from Ecology regarding the scope of the recommended additional investigation.

Please call or contact me via email me at <u>irolle@wcec.com</u>, if you have any questions or concerns. Thank you for your time and consideration of this report.

Sincerely,

my Each

Jim Rolle Regional Manager, WCEC

Enclosure

- cc: Don Michelson, North Central Petroleum; 27 Hahn Road, Omak, WA 98841
- ec: Kyle Parker, Department of Ecology; <u>kypa461@ecy.wa.gov</u> John Roach, Federated Insurance; <u>pcclaims@fedins.com</u>

# June 2021 Soil Boring Investigation Report

North Central Petroleum Spill SR 17 Near MP 123 Bridgeport, WA 98813 Facility Site No.: 25378742, Cleanup Site No.: 2088

### **Prepared for:**

Don Michelson 27 Hahn Rd. Omak, WA 98841

### **Prepared by:**

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September 30, 2021 WCEC Project No. 99-2946-90



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# **TABLE OF CONTENTS**

1.0	INTRODUCTION	1
1.1	Site Location	1
1.2	Site History	
1.3	Scope of Work	2
2.0	SOIL BORING INVESTIGATION	3
2.1	Investigation Overview	3
2.2	Soil and Groundwater Sampling Procedures	
2.3	Soil Analytical Results	4
2.4	Groundwater Analytical Results	5
3.0	DISCUSSION AND RECOMMENDATIONS	6
3.1	Field Work Summary	6
3.2	Discussion of Results	6
3.3	Data Gaps	7
3.4	Recommended Remedial Actions	8
	3.4.1 Soil Boring Investigation North of ROW Fence	
	3.4.2 Source Area Monitoring Well Installation	
	3.4.3 Semiannual Groundwater Monitoring	
	3.4.4 Proposed Schedule	
4.0	REFERENCES	

## Figures

Figure 1:	Site Location
Figure 2:	Site Details
Figure 3:	Borehole Locations
Figure 4:	Cleanup Level Exceedances
Figure 5:	Proposed Borehole and Monitoring Well Locations

### 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

Appendix A: Laboratory Analytical Report

Appendix B: Soil Boring Logs



### 1.0 Introduction

This report documents the June 2021 soil boring investigation 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]. Soil boring investigation activities were completed as outlined in the *Soil Boring Investigation Work Plan* submitted to Ecology on January 23, 2020.

### 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. 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 consists of a 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 MTCA Method A cleanup levels.

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 constituent concentrations from samples collected at all four monitoring wells were below the applicable MTCA Method A cleanup levels for four consecutive quarters in 2014/15 [WCEC, 2015].

### 1.3 Scope of Work

The following scope of work was completed to comply with Ecology's request for additional site investigation north of the highway:

- Advancement of six (6) direct push soil borings to define the extent and magnitude of potential soil and groundwater impacts north of the highway.
- Continuous soil screening and sampling at each borehole location. Soil samples were collected at discrete intervals and submitted to Pace Analytical Services (Pace) for analysis of NWTPH-Gx and EPA 8260B (BTEX and MTBE).
- Construction of temporary small diameter wells at three (3) of the borehole locations to enable groundwater sampling. Additionally, a groundwater sample was obtained from the North Sump. Groundwater samples were submitted to Pace for analysis of NWTPH-Gx and EPA 8260B (BTEX and MTBE).
- Preparation and submittal of a Soil Boring Investigation Report within 60 days of receipt of laboratory analytical data from soil and groundwater samples collected during the soil boring investigation. Newly obtained data were also uploaded into the Environmental Information Management (EIM) system database according to Ecology's requirements.



### 2.0 Soil Boring Investigation

### 2.1 Investigation Overview

A total of six direct push soil borings (SB-1 through SB-6) were completed on June 2, 2021, to further define the vertical and lateral extent of contamination in the source area north of the highway [Figure 3]. Anderson Environmental Contracting of Snohomish, WA was contracted to perform the soil boring activities. Soil borings were advanced to a total depth of 10 feet bgs using a limited access GeoProbe 7822 direct push rig that was track mounted. The macro-core soil sampling method was utilized to obtain soil samples at discrete depths from each borehole. At three of the borehole locations (SB-2, SB-3, and SB-5), temporary small diameter wells were constructed to enable groundwater sample collection.

Prior to initiating the investigation, WCEC submitted a Subterranean Monitoring Devices Permit application to the Washington State Department of Transportation (WSDOT) for working on the shoulder within the ROW. A utility locate was completed for identification of potential subsurface utilities in the investigation area. Adjacent property owner Allen Miller was contacted to gain access to private property for staging of vehicles and equipment outside of the ROW. Access to the investigation area from the highway was accomplished along a gradually sloping approach route in the barrow pit adjacent to the road.

At the completion of investigation activities, all boreholes and temporary wells were properly abandoned using chipped bentonite and resurfaced as appropriate to match the surrounding area. Any disturbances to the shoulder of the highway ROW were mitigated according to the WSDOT permit. Borehole locations were mapped relative to other site features using a survey grade GPS unit. Soil boring logs were recorded for each location detailing the lithology encountered, petroleum hydrocarbon observations, PID observations, and sampling locations [Appendix B].

### 2.2 Soil and Groundwater Sampling Procedures

The closed headspace photoionization detector (PID) method, visual, and olfactory observations were used to screen soils from each boring. Samples were collected at discrete intervals as appropriate from each soil boring, with a maximum of 2 samples per soil boring. Soil samples representing the saturated (i.e., groundwater interface) and unsaturated zones were collected from each borehole. Soil samples were placed in method-specific laboratory containers, packed on ice, and delivered under chain of custody to Pace Analytical Services Inc. (Pace), in Minneapolis, MN. Pace was instructed to analyze the samples for Total Petroleum Hydrocarbons as Gasoline (NWTPH-Gx), benzene, toluene, ethylbenzene, xylenes (BTEX), and methyl tert-butyl ether (MTBE) via EPA 8260B.



The temporary wells were installed through the macro-core probe rods advanced with a disposable tip to a target depth of 10 feet bgs. Temporary well construction consisted of ¾-inch PVC with a screened interval spanning the groundwater interface. Groundwater samples were extracted from the temporary wells through disposable polyethylene tubing connected to a low flow peristaltic pump. A groundwater sample was also obtained from the North Sump in the same manner. The groundwater samples were placed in method-specific laboratory containers, packed on ice, and shipped under chain of custody to Pace in Minneapolis, MN. Pace was instructed to analyze the samples for NWTPH-Gx, BTEX, and MTBE via EPA 8260B.

### 2.3 Soil Analytical Results

Soil analytical results from the soil borings are summarized in the following paragraphs and in Table 4. MTCA Method A cleanup level exceedances are displayed on Figure 4. The complete laboratory analytical results package is contained in Appendix A.

Soil borehole SB-1 did not exhibit any hydrocarbon impacts during field screening. The maximum PID measurement was 1.2 ppm at 3 feet bgs. Two soil samples were collected from the SB-1 boring at 3 feet and 6 feet bgs. Both the SB-1 3' and SB-1 6' samples were below the laboratory method reporting limits (MRLs) for all constituents of concern.

Soil borehole SB-2 did not exhibit any hydrocarbon impacts during field screening. The maximum PID measurement was 0.5 ppm at 3 feet bgs. Two soil samples were collected from the SB-2 boring at 3 feet and 6 feet bgs. Soil sample SB-2 3' contained benzene (0.053 mg/kg) at a concentration exceeding the laboratory MRLs and the MTCA Method A cleanup level. Soil sample SB-2 6' was below the laboratory MRLs for all constituents of concern.

Soil borehole SB-3 displayed hydrocarbon staining and odor underneath the excavation backfill beginning at approximately 4 feet bgs. The maximum PID measurement was 2,998 ppm at 6 feet bgs. Two soil samples were collected from the SB-3 boring at 4 feet and 6 feet bgs. Soil sample SB-3 4' contained WTPH-Gas (878 mg/kg), benzene (0.218 mg/kg), ethylbenzene (10.5 mg/kg), and total xylenes (65 mg/kg) at concentrations exceeding the MTCA Method A cleanup levels. Soil sample SB-3 6' contained WTPH-Gas (2,030 mg/kg), benzene (0.956 mg/kg), toluene (22.2 mg/kg), ethylbenzene (89.6 mg/kg), and total xylenes (597 mg/kg) at concentrations exceeding the MTCA Method A cleanup levels.

Soil borehole SB-4 did not exhibit any hydrocarbon impacts during field screening. The maximum PID measurement was 2.6 ppm at 3 feet bgs. Two soil samples were collected from the SB-4 boring at 3 feet and 6 feet bgs. Both the SB-4 3' and SB-4 6' samples were below the laboratory MRLs for all constituents of concern.



Soil borehole SB-5 contained slight hydrocarbon odor and staining at approximately 7 feet bgs. The maximum PID measurement was 120.1 ppm at 7 feet bgs. Two soil samples were collected from the SB-5 boring at 3 feet and 7 feet bgs. Soil sample SB-5 3' was below the laboratory MRLs for all constituents of concern. Soil sample SB-5 7' contained WTPH-Gas (193 mg/kg) at a concentration exceeding the laboratory MRLs and the MTCA Method A cleanup level.

Soil borehole SB-6 did not exhibit any hydrocarbon impacts during field screening. The maximum PID measurement was 2.8 ppm at 6 feet bgs. Two soil samples were collected from the SB-6 boring at 3 feet and 6 feet bgs. Both the SB-6 3' and SB-6 6' samples were below the laboratory MRLs for all constituents of concern.

### 2.4 Groundwater Analytical Results

Groundwater analytical results from the temporary wells constructed at soil borings SB-2, SB-3, and SB-5 are summarized in the following paragraphs and in Table 5. Cumulative groundwater analytical results for the North Sump location are listed in Table 2. MTCA Method A cleanup level exceedances are displayed on Figure 4. The complete laboratory analytical results package is contained in Appendix A.

Groundwater sampled from SB-2 contained benzene (49.1  $\mu$ g/L) at a concentration exceeding the MTCA Method A cleanup level.

Groundwater sampled from SB-3 contained WTPH-Gas (12,300  $\mu$ g/L), benzene (77.5  $\mu$ g/L), ethylbenzene (766  $\mu$ g/L), and total xylenes (3,530  $\mu$ g/L) at concentrations exceeding the MTCA Method A cleanup levels.

Groundwater sampled from SB-5 contained WTPH-Gas (6,230  $\mu$ g/L) at a concentration exceeding the MTCA Method A cleanup level.

Groundwater sampled from the North Sump contained WTPH-Gas (2,470  $\mu$ g/L) and benzene (198  $\mu$ g/L) at concentrations exceeding the MTCA Method A cleanup levels.



### 3.0 Discussion and Recommendations

### 3.1 Field Work Summary

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 (SB-1 through SB-6) and three temporary wells (SB-2, SB-3, and SB-5) on June 2, 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. The three temporary wells were properly abandoned at the end of the soil boring investigation activities.

### 3.2 Discussion of Results

Based on the results of the June 2021 soil boring investigation, soil and groundwater concentrations in the source area north of the highway exceed MTCA Method A cleanup levels [Figure 4]. The greatest constituent concentrations in soil were encountered at a depth of 6 feet bgs in the SB-3 borehole, with a WTPH-Gas concentration of 2,030 mg/kg and a benzene concentration of 0.956 mg/kg [Table 4]. Similarly, groundwater concentrations in the SB-3 temporary well were elevated with a WTPH-Gas result of 12,300  $\mu$ g/L and a benzene result of 77.5  $\mu$ g/L [Table 5]. The highest benzene concentration in groundwater was found in the North Sump sample, with a result of 198  $\mu$ g/L [Table 2]. MTBE was not detected above the laboratory MRLs in any of the soil or groundwater samples obtained during the June 2021 soil boring investigation.

In downgradient locations, the last detection of a COC at the site above MTCA Method A cleanup levels was benzene at monitoring well MP-2 in September 2012 [Table 2]. MTBE was first detected in downgradient well MP-4 during the September 2004 sampling event. MTBE is the most soluble and readily mobilized constituent in gasoline. Samples from monitoring well MP-4 contained MTBE at concentrations above the laboratory MRLs during the June 2015 and September 2015 monitoring events, however, the last exceedance of the MTCA Method A cleanup standard for MTBE in MP-4 occurred in September 2007. Groundwater sampled from all of the downgradient wells (MP-1 through MP-4) was below the MTCA Method A cleanup levels for all COCs for four consecutive quarterly monitoring events from December 2014 to June 2015. Sampling of the downgradient monitoring wells 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 MTCA Method A cleanup



levels. However, natural attenuation alone has not sufficiently diminished COC concentrations in the source area north of the highway based on the results from the June 2021 soil boring investigation. An active remedial strategy will be necessary in the source area to augment natural attenuation processes and further reduce COC concentrations to below cleanup levels. Additional data should be collected to eliminate data gaps and ensure that the appropriate remediation technology is selected base on site-specific conditions.

### 3.3 Data Gaps

The 1994 remedial excavation north of the highway was completed in two sections, south and north of the ROW fence [LMH, 1995]. The area on the south side of the ROW fence was excavated first and advanced vertically to the water table where product was evident pooling on the groundwater in the excavation pit. The second half of the excavation completed north of the fence was terminated prior to reaching groundwater to avoid contaminating backfill with product floating on the water table. All of the pit bottom samples collected from the excavation on both sides of the ROW fence exceeded the applicable cleanup levels for soil [LMH, 1995]. The June 2021 soil boring investigation found impacted soil underneath the excavation backfill on the south side of the ROW fence that still exceeds cleanup levels. Residual soil concentrations on the north side of the ROW fence remain unquantified and this data gap should be resolved by additional soil investigation north of the fence.

In addition to soil impacts, the June 2021 soil boring investigation confirmed that groundwater concentrations in the source area exceed cleanup levels. The current monitoring well network does not include any source area groundwater wells, which will be required for an NFA determination. Accordingly, additional groundwater monitoring wells should be installed in the source area and proximal upgradient and downgradient locations to eliminate this data gap by adequately defining the current extent and magnitude of the dissolved phase plume.

Sampling of the proposed source area monitoring wells should be conducted during high and low groundwater conditions to provide a more robust and current dataset. Historically, groundwater samples from the existing well network were analyzed for natural attenuation parameters such as the terminal electron acceptors sulfate and nitrate [Table 3]. Review of this historical data indicates that anaerobic biodegradation was occurring in downgradient locations resulting in the depletion of sulfate and nitrate. Future groundwater monitoring events should include the collection of samples from the proposed source area monitoring wells for analysis of biodegradation indicators, in addition to petroleum COCs WTPH-Gas, BTEX, and MTBE. This information will aid in selecting the appropriate remedial strategy for the source area based on site-specific data.



### 3.4 Recommended Remedial Actions

### 3.4.1 Soil Boring Investigation North of ROW Fence

WCEC recommends completing up to six (6) direct push soil borings to further define the vertical and lateral extent of contamination in the source area north of the highway ROW fence. Proposed borehole locations are displayed on Figure 5. Anderson Environmental Contracting of Snohomish, WA will be contracted to perform all soil boring activities. Soil borings will be advanced to a total depth of 10 feet bgs using a limited access GeoProbe 7822 direct push rig that is track mounted. The macro-core sampling method will be utilized to obtain discrete soil samples which accurately represent subsurface conditions beneath the site.

Prior to initiating the investigation, WCEC will obtain permission from the Washington Department of Natural Resources (DNR) to access their property north of the ROW fence. WCEC will also obtain the necessary permits from WSDOT for working on the shoulder within the highway ROW. A utility locate will be completed for identification of potential subsurface utilities in the investigation area. Adjacent private property owner Allen Miller will be contacted to gain access for staging of vehicles and equipment outside of the ROW. Access to the investigation area from the highway will be accomplished along a gradually sloping approach route in the barrow pit adjacent to the road. The ROW fence will be temporarily breached to allow the drill rig to traverse north of the fence onto DNR property.

The closed headspace PID method, visual, and olfactory observations will be used to screen soils from each boring. Samples will be collected at discrete intervals as appropriate from each soil boring, with a maximum of 2 samples per soil boring. If possible, soil samples representing the saturated (i.e., groundwater interface) and unsaturated zones will be collected from each borehole. Soil samples will be placed in method-specific laboratory containers, packed on ice, and delivered under chain of custody to Pace in Minneapolis, MN. Pace will be instructed to analyze the samples for NWTPH-Gx, BTEX, and MTBE via EPA 8260B.

At the completion of investigation activities, all boreholes will be properly abandoned using chipped bentonite and resurfaced as appropriate to match the surrounding area. Any disturbances to the shoulder of the highway ROW will be mitigated according to the WSDOT permit. The breach in the ROW fence will be repaired and disturbed areas on the DNR property will be reclaimed. Borehole locations will be mapped relative to other site features using a survey grade GPS unit.

### 3.4.2 Source Area Monitoring Well Installation

WCEC recommends installation of up to four (4) groundwater monitoring wells in the source area and proximal upgradient and downgradient locations to delineate the current extent and magnitude of the



dissolved phase plume. Potential monitoring well locations are displayed on Figure 5. A Washington licensed monitoring well constructor from Anderson Environmental Contracting will be contracted to install the monitoring wells in the same mobilization as the proposed soil borings north of the ROW fence. A limited access GeoProbe 7822 direct push rig that is track mounted will be utilized for the monitoring well installation.

The monitoring well borings will be advanced using 4.25-inch diameter hollow-stem auger tooling to a target depth of 10 feet bgs. Well construction will consist of 2-inch Sch. 40 PVC riser and 0.010 slot PVC screen. Each monitoring well will be completed with 7 feet of screen and a solid riser extending from the top of the screen to near ground surface. The well annulus will be filled with 10/20 silica sandpack from the bottom of the boring to 1 foot above the screened interval, with the remainder of the boring annulus consisting of a bentonite seal. Surface completions will be constructed of flushmount, 8.5-inch diameter steel monuments set in concrete and equipped with locking well caps.

The closed headspace PID method, visual, and olfactory observations will be used to screen soils from each monitoring well boring. Any soil cuttings exhibiting petroleum impacts will be containerized pending profiling and ultimate disposal at the Waste Management Graham Road Landfill in Medical Lake, WA. Soil samples will be collected at discrete intervals from any monitoring well that is not installed at a previous soil boring location, with a maximum of 2 soil samples per monitoring well. If possible, soil samples representing the saturated (i.e., groundwater interface) and unsaturated zones will be obtained. Soil samples will be placed in method-specific laboratory containers, packed on ice, and delivered under chain of custody to Pace in Minneapolis, MN. Pace will be instructed to analyze the samples for NWTPH-Gx, BTEX, and MTBE via EPA 8260B.

Immediately following installation, WCEC personnel will develop the monitoring wells using the surge and pump technique with an electric downhole pump capable of purging 3.5 gallons per minute (gpm) at a depth of 20 feet bgs. The horizontal locations and top of casing elevations of the monitoring wells will be surveyed according to Ecology requirements. WCEC will obtain horizontal coordinates for the monitoring wells using a Trimble Geo7X centimeter-grade GPS referenced to a temporary control point set in Washington State Plane North coordinates, NAD 83 horizontal datum. A survey of the vertical well casing elevations will be completed to Fourth Order accuracy using an auto-level transit with a measurement precision of 0.01 feet. Vertical elevations will be referenced to a temporary GPS-derived benchmark in the NAVD 88 vertical datum.

### 3.4.3 Semiannual Groundwater Monitoring

WCEC recommends semiannual groundwater monitoring of the newly installed monitoring wells following installation, development, and stabilization. Groundwater monitoring events will be scheduled to coincide with high and low groundwater conditions. Depth to water measurements will be recorded from the wells



during groundwater monitoring events to provide an accurate potentiometric surface plot, flow direction, and gradient.

Well sampling will be conducted according to WCEC standard sampling procedures using a low flow peristaltic pump for purging and sample collection. Groundwater quality parameter data (conductivity, pH, salinity, dissolved oxygen, temperature, ORP, and turbidity) will be acquired from the wells during purging using a multi-parameter water quality instrument equipped with a flow-through cell. Groundwater quality parameter, purge, and stabilization data for each well are recorded in the field using WCEC's Well Sampling Form. Groundwater sample collection from each well will be completed following stabilization of groundwater quality parameters.

Following purging, groundwater samples will be preserved with hydrochloric acid, placed on ice, and delivered under chain of custody to Pace in Minneapolis, MN. Pace will be instructed to analyze the groundwater samples for WTPH-Gx, BTEX, and MTBE via EPA 8260B. The groundwater samples will also be analyzed for the biodegradation indicators sulfate (EPA 300.0) and nitrate (EPA 353.2) to assess microbial activity in the source area.

### 3.4.4 Proposed Schedule and Reporting

WCEC recommends conducting the additional soil boring investigation and monitoring well installation activities in March 2022 when dry conditions are anticipated, and the ground should be firm for the drill rig. Semiannual groundwater monitoring will be conducted during high groundwater in June 2022 and low groundwater in September 2022.

Groundwater monitoring reports will be prepared and submitted to Ecology within 60 days of receipt of analytical results from each monitoring event. The June 2022 groundwater monitoring report will include the data and results of the March 2022 soil boring investigation and monitoring well installation. A thorough analysis of the cumulative data set for the site will be included in the September 2022 report in addition to an evaluation of remedial options to accelerate source area attenuation. WCEC will enter all of the newly obtained data into the EIM system database in accordance with Ecology's requirements.

WCEC will implement the above recommended actions pending a formal review and comments from Ecology.



### 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.

Summit Envirosolutions. (Summit, 1997). Groundwater Assessment Report. April 11, 1997.

**Washington State Department of Ecology.** (Ecology, 2013). *Model Toxics Control Act Cleanup Regulation, Chapter 173-340 WAC.* Revised 2013. Washington State Department of Ecology Toxics Cleanup Program, Publication No. 94-06.

**Washington State Department of Ecology.** (Ecology, 2018). *North Central Petroleum Spill VCP Further Action Opinion.* April 11, 2018.

**West Central Environmental Consultants.** (WCEC, 2015). *December through September 2015 Groundwater Monitoring Summary Report*. October 6, 2015.

**West Central Environmental Consultants.** (WCEC, 2020). *Soil Boring Investigation Work Plan.* January 23, 2020.



# Figures

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## Tables

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

Monitor	Sample	Top of Casing	Depth to	Groundwater
Point	Date	Elevation	Groundwater	Elevation
MP-1				
	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	1.32	100.00
	03/28/99	101.38	0.94	100.07
	00/28/00	101.38	2 53	08.85
	03/10/00	101.38	2.55	90.05
	09/20/00	101.38	2.22	99.10
	03/14/01	101.38	2.41	98.97
	03/14/01	101.38	2 20	99.47
	00/10/02	101.38	5.40	99.10
	09/10/02	101.38		95.96
	09/03/03	101.38	4.41	90.97
	09/02/04	101.38	4.41	96.97
	09/06/05	101.38	5.20	90.18
	09/13/06	101.38	4.94 5.12	90.44
	09/24/07	101.38	5.15	90.23
	09/03/08	101.38	5.30	90.02
	09/02/09	101.38	5.04	95.74
	09/07/10	101.38	5.41	95.97
	09/28/11	101.38	4./4	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
MP-2				
	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).

### **TABLE 1**Continued (Page 2 of 2 Pages)

### **Groundwater Elevation Data**

### North Central Petroleum, Inc., Gasoline Spill, Bridgeport, WA

Monitor Sample		Top of Casing	Depth to	Groundwater
Point	Date	Elevation	Groundwater	Elevation
MP-3				
	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
MP-4				
	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
	00/10/15	98.10	5.45	94.67
l l	09/02/15	98.10	6.05	92.05

All measurements in feet (ft).

# TABLE 2Groundwater Analytical Results - WTPH-Gas, BTEX, MTBENorth Central Petroleum, Inc., Gasoline Spill, Bridgeport, WA

Monitor	Sample	WTPH-Gas	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
Point	Date	$(\mu g/L)$	(µg/L)	(µg/L)	$(\mu g/L)$	(µg/L)	(µg/L)
MP-1							
	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	4,470	3,390	<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	5
	09/03/03	<100	<0.5	<2	<1	<1.5	<5
	09/02/04	<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
100 4	09/02/15	<100	<1	<1	<1	<3	<1
MP-2							
	09/10/96	1,800	8.52	147	49.4	283	-
	09/17/97	1,990	47	106	33.7	332	-
	03/24/98	1.090	5.24	31.1	27.8	94.2	-
	10/11/98	1,080	30.0	43.3	29.2	520	-
	00/28/00	11 200	3 540	78.2	307	1 120	-
	03/10/00	7 890	<u></u> <68	65.8	299	900	
	09/20/00	9,120	3,780	<53	178	520	-
	03/14/01	6.760	<19.8	8.18	188	539	-
	08/28/01	5,450	1,620	19.8	18	36.9	_
	03/21/02	2,840	71.5	<2	41	90.5	-
	09/10/02	10,700	4,140	58.1	289	763	-
	09/03/03	7,160	3,060	33.5	196	389	67
	09/02/04	5,200	2,100	20.3	227	94.2	45.5
	09/06/05	1,670	354	7.94	10.3	58	17.2
	09/13/06	3,370	1,030	<20	283	90.9	61.7
	09/24/07	1,960	484	8.99	348	11.6	41.2
	09/03/08	<1,000	205	<20	220	<15	<10
	09/02/09	597	38.7	<10	99.4 5.05	<10	<10
	09/07/10	<100	11.4	<1	5.95	<3	<1
	09/28/11	<30	11.5	<1	4.1	<3	<1
	09/10/13	<100	16	<1		<u> </u>	<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	*	*	*	*	*	*
Clean Up Le	vel	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 2Continued (Page 2 of 3 Pages)Groundwater Analytical Results - WTPH-Gas, BTEX, MTBENorth Central Petroleum, Inc., Gasoline Spill, Bridgeport, WA

Point         Ugg1.)         (µg1.)         (µg1.)         (µg1.)         (µg1.)         (µg1.)         (µg1.)           MP-3           09/1096 <s0< td="">         31.4         0.586         &lt;0.5         &lt;0.5</s0<>	Monitor	Sample	WTPH-Gas	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
MP-3         Number of the second	Point	Date	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	MP-3							
0017197                0032498         <00		09/10/96	<50	31.4	0.586	< 0.5	<1	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		09/17/97	<50	<0.5	<0.5	<0.5	<1	_
10/11/98         <00         <0.5         <0.5         <0.5         <1            09/28/99         <50		03/24/98	<50	<0.5	< 0.5	<0.5	<1	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		10/11/98	<50	< 0.5	< 0.5	< 0.5	<1	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		03/28/99	<50	< 0.5	< 0.5	< 0.5	<1	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		09/28/99	<50	< 0.5	< 0.5	< 0.5	<1	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		03/10/00	<50	< 0.5	< 0.5	< 0.5	<1	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		09/20/00	<50	<0.5	0.561	< 0.5	1.17	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		03/14/01	50.8	<0.5	< 0.5	< 0.5	< 0.5	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		08/28/01	<50	<0.5	< 0.5	< 0.5	<1	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		09/10/02	<100	2.71	<2	<1	<1.5	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		09/03/03	106	< 0.5	<2	<1	<1.5	<5
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		09/02/04	<100	< 0.5	<2	<1	<1.5	<5
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		09/06/05	<100	1.16	<2	<1	<1.5	<5
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		09/13/06	<100	0.872	<2	<1	<1.5	<5
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		09/24/07	<100	< 0.5	<2	<1	<1.5	<5
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		09/03/08	<100	< 0.5	<2	<1	<1.5	<5
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		09/02/09	<100	< 0.2	<1	<1	<1	<1
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		09/07/10	<100	< 0.2	<1	<1	<3	<1
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		09/28/11	<50	<1	<1	<1	<3	<1
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		09/12/12	<50	<1	<1	<1	<3	<1
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		09/10/13	<100	<1	<1	<1	<3	<1
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		09/10/14	*	*	*	*	*	*
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		12/15/14	<100	<1	<1	<1	<3	<1
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		03/18/15	<100	<1	<1	<1	<3	<1
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		06/10/15	<100	<1	<1	<1	<3	<1
MP-4 $09/10.96$ <50		09/02/15	<100	<1	<1	<1	<3	<1
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	MP-4							
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		09/10/96	<50	<0.5	< 0.5	< 0.5	<1	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		09/17/97	<50	<0.5	<0.5	<0.5	<1	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		03/24/98	<50	<0.5	<0.5	< 0.5	<1	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		10/11/98	<50	<0.5	<0.5	< 0.5	<1	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		03/28/99	<50	< 0.5	< 0.5	< 0.5	<1	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		09/28/99	<50	<0.5	<0.5	<0.5	<1	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		03/10/00	<50	<0.5	<0.5	<0.5	<1	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		09/20/00	<50	<0.5	<0.5	<0.5	<1	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		03/14/01	<50	<0.5	<0.5	<0.5	<1	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		08/28/01	<50	<0.5	<0.5	<0.5	<1	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		03/21/02	<100	<0.5	<2	<1	<1.5	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		09/10/02	<100	0.855	<2	<1	<1.5	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		09/03/03	<100	<0.5	<2	<1	<1.5	<>
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		09/02/04	<100	<0.5	<2	<1	<0.5	29.7
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		09/06/05	<100	<0.5	<2	<1	<1.5	39.4
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		09/13/00	<100	<0.5	<2	<1	<1.5	<u> </u>
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		09/24/07	<100	<0.5	<2	<1	<1.5	10.2
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		09/03/08	<100	<0.3	<2	<1	<1.5	10.2
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		09/02/09	<100	<0.2	<1	<1	<1	14.2
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		09/07/10	<100	<0.2	<1	<1	<3	6.2
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		09/20/11	<50	<1	<1	<1	< 3	0.5 4 7
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		09/12/12	<100	<u></u>	<1	<1	< <u>&gt;</u>	4./
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		09/10/13	<100	< <u> </u>	<1	<1 ~1	< <u></u>	3.1
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		12/15/14	<100	< <u> </u>	<1	<1 ~1	< <u></u>	J.7 ~1
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		03/18/15	<100	<u></u>	~1	~1	~	~1
Og/10/15         Close		06/10/15	<100	<1	<1	<1	~ ~	1 2
Clean Un Level 800 _5 1 000 _700 1 000 _ 20		09/02/15	<100	<1	<1	<1	~ ~	2.4
	Clean Un La	vel	- 200	5	1 000	700	1.000	

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 2Continued (Page 3 of 3 Pages)Groundwater Analytical Results - WTPH-Gas, BTEX, MTBENorth 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)
North Sump							
	12/10/94	191,000	42,500	48,000	4,700	28,000	-
	03/28/95	98,000	16,000	21,000	1,300	8,300	-
	08/14/95	240,000	25,000	43,000	2,800	24,000	-
	06/02/21	2,470	198	226	10.4	49.9	<2
Clean Up Le	evel	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 ParametersNorth Central Petroleum, Inc., Gasoline Spill, Bridgeport, WA

Monitor	Monitor Sample Lab Analysis		Field Parameters		
Point	Date	Sulfate	Nitrate/Nitrite	Dissolved	
Tomit	Duite	(mg/L)	(mg/L)	Oxygen (mg/L)	рН
MP-1					
	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
MP-2					
	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	/.19
	09/28/11	-	-	1.38	1.15
	09/12/12	-	-	-	-
	09/10/13	-	-	0.37	3.00
	12/15/14	-	-	-	- 8.07
	12/13/14	-	-	2.00	0.07
	05/18/13	-	-	3.18	7.02
	00/10/15	-	-	0.00	1.02

(-) Sample not analyzed for constituent.

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

Monitor	Sampla	Lab Analysis		Field Parameters		
Point	Date	Sulfate	Nitrate/Nitrite	Dissolved		
TOIIIt	Date	(mg/L)	(mg/L)	Oxygen (mg/L)	pH	
MP-3				· · · · · ·		
	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	7.13	
	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	-	-	-	-	
MP-4						
	00/17/07		<0.01	1 55	6.92	
	03/24/98		0.1	3.54	7.41	
	10/11/98		<u> </u>	9.63	7.41	
	03/28/99		0.59/	1.05	7.20	
	09/28/99		0.394	1.03	7.55	
	03/10/00	71.8	0.01	0.79	7.48	
	09/20/00	113	<0.0200	0.79	7.48	
	03/14/01	129	25.3	4.47	7.23	
	08/28/01	143	51.8	0.37	7.11	
	03/21/02	140	<0.01	0.58	7.02	
	09/10/02	132	<0.01	1.23	7.39	
	09/03/03	132	0.446	6.71	6 40	
	09/02/04	79.5	4 5	1.37	7.63	
	09/06/05	-		1.57	7.03	
	09/13/06			1.50	7.43	
	09/24/07			7.85	7.21	
	09/03/08	-	-	6.32	7.71	
	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	-		1.02	7.03	
	09/02/15	-	-	0.56	6 48	
				0.00	00	

(-) Sample not analyzed for constituent.

### 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)
SB-1	1 ( )		× 8 8/			× ° ° °,		
	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
SB-2								
	3	06/02/21	<8.7	0.053	< 0.0809	< 0.0809	< 0.243	< 0.0809
	6	06/02/21	<14.4	< 0.061	< 0.153	< 0.153	< 0.458	< 0.153
SB-3								
	4	06/02/21	878	0.218	1.27	10.5	65	< 0.0743
	6	06/02/21	2,030	0.956	22.2	89.6	597	< 0.0794
SB-4								
	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
SB-5								
	3	06/02/21	<7	< 0.0243	< 0.0608	< 0.0608	< 0.182	< 0.0608
	7	06/02/21	193	< 0.0487	< 0.122	< 0.122	< 0.365	< 0.122
SB-6								
	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
Clean Up l	Level		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)
SB-2							
	06/02/21	<100	49.1	<1	<1	<3	<1
SB-3							
	06/02/21	12,300	77.5	254	766	3,530	<1
SB-5							
	06/02/21	6,230	<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

## Appendix A

Laboratory Analytical Report





Pace Analytical Services, LLC 1700 Elm Street Minneapolis, MN 55414 (612)607-1700

June 30, 2021

Mr. Jim Rolle West Central Env. Consultants 1030 South Ave. W. Missoula, MT 59801

RE: Project: North Central Petroleum 2946 Pace Project No.: 10564129

Dear Mr. Rolle:

Enclosed are the analytical results for sample(s) received by the laboratory on June 08, 2021. 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,

ENNI (-ROSS

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

Enclosures





Pace Analytical Services, LLC 1700 Elm Street Minneapolis, MN 55414 (612)607-1700

#### CERTIFICATIONS

Project: North Central Petroleum 2946 Pace Project No.: 10564129

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

1700 Elm Street SE, Minneapolis, MN 55414 1800 Elm Street SE, Minneapolis, MN 55414--Satellite Air Lab A2LA Certification #: 2926.01\* 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 EPA Region 8 Tribal Water Systems+Wyoming DW Certification #: via MN 027-053-137 Florida Certification #: E87605\* Georgia Certification #: 959 Hawaii Certification #: MN00064 Idaho Certification #: MN00064 Illinois Certification #: 200011 Indiana Certification #: C-MN-01 Iowa Certification #: 368 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 #: R-036 Ohio DW Certification #: 41244 Ohio VAP Certification (1700) #: CL101 Ohio VAP Certification (1800) #: CL110\* 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 \*Please Note: Applicable air certifications are denoted with an asterisk (\*).



#### SAMPLE SUMMARY

#### Project: North Central Petroleum 2946

Pace Project No.: 10564129

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10564129001	SB-1 3'	Solid	06/02/21 12:25	06/08/21 08:50
10564129002	SB-1 6'	Solid	06/02/21 12:30	06/08/21 08:50
10564129003	SB-2 3'	Solid	06/02/21 12:40	06/08/21 08:50
10564129004	SB-2 6'	Solid	06/02/21 12:45	06/08/21 08:50
10564129005	SB-3 4'	Solid	06/02/21 13:05	06/08/21 08:50
10564129006	SB-3 6'	Solid	06/02/21 13:15	06/08/21 08:50
10564129007	SB-4 3'	Solid	06/02/21 13:50	06/08/21 08:50
10564129008	SB-4 6'	Solid	06/02/21 14:00	06/08/21 08:50
10564129009	SB-5 3'	Solid	06/02/21 14:10	06/08/21 08:50
10564129010	SB-5 7'	Solid	06/02/21 14:15	06/08/21 08:50
10564129011	SB-6 3'	Solid	06/02/21 14:25	06/08/21 08:50
10564129012	SB-6 6'	Solid	06/02/21 14:30	06/08/21 08:50
10564129013	SB-2	Water	06/02/21 15:00	06/08/21 08:50
10564129014	SB-3	Water	06/02/21 15:30	06/08/21 08:50
10564129015	SB-5	Water	06/02/21 15:15	06/08/21 08:50
10564129016	North Sump	Water	06/02/21 10:00	06/08/21 08:50
10564129017	Trip Blanks	Water	06/02/21 00:00	06/08/21 08:50
10564129018	Trip Blanks	Solid	06/02/21 00:00	06/08/21 08:50



### SAMPLE ANALYTE COUNT

Project: North Central Petroleum 2946

Pace Project No.: 10564129

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10564129001	SB-1 3'	NWTPH-Gx	NS1	2	PASI-M
		ASTM D2974	MT2	1	PASI-M
		EPA 8260D	JT2	8	PASI-M
10564129002	SB-1 6'	NWTPH-Gx	NS1	2	PASI-M
		ASTM D2974	MT2	1	PASI-M
		EPA 8260D	JT2	8	PASI-M
10564129003	SB-2 3'	NWTPH-Gx	NS1	2	PASI-M
		ASTM D2974	MT2	1	PASI-M
		EPA 8260D	JT2	8	PASI-M
10564129004	SB-2 6'	NWTPH-Gx	NS1	2	PASI-M
		ASTM D2974	MT2	1	PASI-M
		EPA 8260D	JT2	8	PASI-M
10564129005	SB-3 4'	NWTPH-Gx	NS1	2	PASI-M
		ASTM D2974	MT2	1	PASI-M
		EPA 8260D	JT2	8	PASI-M
10564129006	SB-3 6'	NWTPH-Gx	NS1	2	PASI-M
		ASTM D2974	MT2	1	PASI-M
		EPA 8260D	JT2	8	PASI-M
10564129007	SB-4 3'	NWTPH-Gx	NS1	2	PASI-M
		ASTM D2974	MT2	1	PASI-M
		EPA 8260D	JT2	8	PASI-M
10564129008	SB-4 6'	NWTPH-Gx	NS1	2	PASI-M
		ASTM D2974	MT2	1	PASI-M
		EPA 8260D	JT2	8	PASI-M
10564129009	SB-5 3'	NWTPH-Gx	NS1	2	PASI-M
		ASTM D2974	MT2	1	PASI-M
		EPA 8260D	JT2	8	PASI-M
10564129010	SB-5 7'	NWTPH-Gx	NS1	2	PASI-M
		ASTM D2974	MT2	1	PASI-M
		EPA 8260D	JT2	8	PASI-M
10564129011	SB-6 3'	NWTPH-Gx	NS1	2	PASI-M
		ASTM D2974	MT2	1	PASI-M
		EPA 8260D	JT2	8	PASI-M
10564129012	SB-6 6'	NWTPH-Gx	NS1	2	PASI-M
		ASTM D2974	MT2	1	PASI-M
		EPA 8260D	JT2	8	PASI-M
10564129013	SB-2	NWTPH-Gx	NS1	2	PASI-M



#### SAMPLE ANALYTE COUNT

Project:North Central Petroleum 2946Pace Project No.:10564129

Lab ID	Sample ID	Analysts Rep	alytes orted	Laboratory
		EPA 8260D NMB	8	PASI-M
10564129014	SB-3	NWTPH-Gx NS1	2	PASI-M
		EPA 8260D NMB	8	PASI-M
10564129015	SB-5	NWTPH-Gx NS1	2	PASI-M
		EPA 8260D NMB	8	PASI-M
10564129016	North Sump	NWTPH-Gx NS1	2	PASI-M
		EPA 8260D NMB	8	PASI-M
10564129017	Trip Blanks	NWTPH-Gx NS1	2	PASI-M
		EPA 8260D NMB	8	PASI-M
10564129018	Trip Blanks	NWTPH-Gx NS1	2	PASI-M
		EPA 8260D JT2	8	PASI-M

PASI-M = Pace Analytical Services - Minneapolis


Project: North Central Petroleum 2946

Pace Project No.: 10564129

Sample: SB-1 3'	Lab ID: 105	64129001	Collected: 06/02/2	21 12:2	25 Received: 06	6/08/21 08:50 N	latrix: Solid			
Results reported on a "dry weight"	basis and are ad	justed for p	oercent moisture, sa	mple	size and any dilu	tions.				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual		
NWTPH-Gx GCV	Analytical Met	Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx								
	Pace Analytica	al Services -	Minneapolis							
TPH as Gas Surrogates	ND	mg/kg	9.3	1	06/16/21 14:25	06/16/21 18:16				
a,a,a-Trifluorotoluene (S)	99	%.	50-150	1	06/16/21 14:25	06/16/21 18:16	98-08-8			
Dry Weight / %M by ASTM D2974	Analytical Met	hod: ASTM	D2974							
	Pace Analytica	al Services -	Minneapolis							
Percent Moisture	31.0	%	0.10	1		06/09/21 12:54		N2		
8260D MSV 5030 Med Level	Analytical Method: EPA 8260D Preparation Method: EPA 5035/5030B									
	Pace Analytica	al Services -	Minneapolis							
Benzene	ND	ug/kg	37.3	1	06/14/21 13:04	06/15/21 02:14	71-43-2			
Ethylbenzene	ND	ug/kg	93.2	1	06/14/21 13:04	06/15/21 02:14	100-41-4			
Methyl-tert-butyl ether	ND	ug/kg	93.2	1	06/14/21 13:04	06/15/21 02:14	1634-04-4			
Toluene	ND	ug/kg	93.2	1	06/14/21 13:04	06/15/21 02:14	108-88-3			
Xylene (Total)	ND	ug/kg	279	1	06/14/21 13:04	06/15/21 02:14	1330-20-7			
Surrogates		00								
1,2-Dichloroethane-d4 (S)	89	%.	73-125	1	06/14/21 13:04	06/15/21 02:14	17060-07-0			
Toluene-d8 (S)	97	%.	75-125	1	06/14/21 13:04	06/15/21 02:14	2037-26-5			
4-Bromofluorobenzene (S)	94	%.	75-125	1	06/14/21 13:04	06/15/21 02:14	460-00-4			



Project: North Central Petroleum 2946

Pace Project No.: 10564129

Sample: SB-1 6'	Lab ID: 105	64129002	Collected: 06/02/2	1 12:3	0 Received: 06	/08/21 08:50 N	Aatrix: Solid	
Results reported on a "dry weight"	basis and are ad	justed for p	percent moisture, sa	mple	size and any dilu	tions.		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Met	hod: NWTP	H-Gx Preparation M	ethod:	NWTPH-Gx			
	Pace Analytica	al Services -	Minneapolis					
TPH as Gas Surrogates	ND	mg/kg	12.0	1	06/16/21 14:25	06/16/21 19:10		
a,a,a-Trifluorotoluene (S)	93	%.	50-150	1	06/16/21 14:25	06/16/21 19:10	98-08-8	
Dry Weight / %M by ASTM D2974	Analytical Met	hod: ASTM	D2974					
	Pace Analytica	al Services -	Minneapolis					
Percent Moisture	40.8	%	0.10	1		06/09/21 12:54		N2
8260D MSV 5030 Med Level	Analytical Met	hod: EPA 82	260D Preparation Me	thod:	EPA 5035/5030B			
	Pace Analytica	al Services -	Minneapolis					
Benzene	ND	ug/kg	43.5	1	06/14/21 13:04	06/15/21 02:32	71-43-2	
Ethylbenzene	ND	ug/kg	109	1	06/14/21 13:04	06/15/21 02:32	100-41-4	
Methyl-tert-butyl ether	ND	ug/kg	109	1	06/14/21 13:04	06/15/21 02:32	1634-04-4	
Toluene	ND	ug/kg	109	1	06/14/21 13:04	06/15/21 02:32	108-88-3	
Xylene (Total)	ND	ug/kg	326	1	06/14/21 13:04	06/15/21 02:32	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	89	%.	73-125	1	06/14/21 13:04	06/15/21 02:32	17060-07-0	
Toluene-d8 (S)	98	%.	75-125	1	06/14/21 13:04	06/15/21 02:32	2037-26-5	
4-Bromofluorobenzene (S)	94	%.	75-125	1	06/14/21 13:04	06/15/21 02:32	460-00-4	



Project: North Central Petroleum 2946

Pace Project No.: 10564129

Sample: SB-2 3'	Lab ID: 105	64129003	Collected: 06/02/2	21 12:4	0 Received: 06	08/21 08:50 N	latrix: Solid		
Results reported on a "dry weight"	basis and are ad	justed for p	percent moisture, sa	mple	size and any dilu	tions.			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
NWTPH-Gx GCV	Analytical Met	hod: NWTP	H-Gx Preparation M	ethod:	NWTPH-Gx				
	Pace Analytica	al Services -	Minneapolis						
TPH as Gas Surrogates	ND	mg/kg	8.7	1	06/16/21 14:25	06/16/21 19:38			
a,a,a-Trifluorotoluene (S)	94	%.	50-150	1	06/16/21 14:25	06/16/21 19:38	98-08-8		
Dry Weight / %M by ASTM D2974	Analytical Met	hod: ASTM	D2974						
	Pace Analytica	al Services -	Minneapolis						
Percent Moisture	26.2	%	0.10	1		06/09/21 12:54		N2	
8260D MSV 5030 Med Level	Analytical Method: EPA 8260D Preparation Method: EPA 5035/5030B								
	Pace Analytica	al Services -	Minneapolis						
Benzene	53.0	ug/kg	32.3	1	06/14/21 13:04	06/15/21 02:50	71-43-2		
Ethylbenzene	ND	ug/kg	80.9	1	06/14/21 13:04	06/15/21 02:50	100-41-4		
Methyl-tert-butyl ether	ND	ug/kg	80.9	1	06/14/21 13:04	06/15/21 02:50	1634-04-4		
Toluene	ND	ug/kg	80.9	1	06/14/21 13:04	06/15/21 02:50	108-88-3		
Xylene (Total)	ND	ug/kg	243	1	06/14/21 13:04	06/15/21 02:50	1330-20-7		
Surrogates		00							
1,2-Dichloroethane-d4 (S)	89	%.	73-125	1	06/14/21 13:04	06/15/21 02:50	17060-07-0		
Toluene-d8 (S)	98	%.	75-125	1	06/14/21 13:04	06/15/21 02:50	2037-26-5		
4-Bromofluorobenzene (S)	93	%.	75-125	1	06/14/21 13:04	06/15/21 02:50	460-00-4		



Project: North Central Petroleum 2946

Pace Project No.: 10564129

Sample: SB-2 6'	Lab ID: 105	64129004	Collected: 06/02/2	1 12:4	5 Received: 06	6/08/21 08:50 N	latrix: Solid	
Results reported on a "dry weight"	basis and are ad	justed for p	oercent moisture, sa	mple	size and any dilu	tions.		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Met	hod: NWTP	H-Gx Preparation M	ethod:	NWTPH-Gx			
	Pace Analytica	al Services -	Minneapolis					
TPH as Gas <i>Surrogates</i>	ND	mg/kg	14.4	1	06/16/21 14:25	06/16/21 20:05		
a,a,a-Trifluorotoluene (S)	93	%.	50-150	1	06/16/21 14:25	06/16/21 20:05	98-08-8	
Dry Weight / %M by ASTM D2974	Analytical Met	hod: ASTM	D2974					
	Pace Analytica	al Services -	Minneapolis					
Percent Moisture	44.5	%	0.10	1		06/09/21 12:54		N2
8260D MSV 5030 Med Level	Analytical Met	hod: EPA 82	260D Preparation Me	thod:	EPA 5035/5030B			
	Pace Analytica	al Services -	Minneapolis					
Benzene	ND	ug/kg	61.0	1	06/14/21 13:04	06/15/21 03:08	71-43-2	
Ethylbenzene	ND	ug/kg	153	1	06/14/21 13:04	06/15/21 03:08	100-41-4	
Methyl-tert-butyl ether	ND	ug/kg	153	1	06/14/21 13:04	06/15/21 03:08	1634-04-4	
Toluene	ND	ug/kg	153	1	06/14/21 13:04	06/15/21 03:08	108-88-3	
Xylene (Total)	ND	ug/kg	458	1	06/14/21 13:04	06/15/21 03:08	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	89	%.	73-125	1	06/14/21 13:04	06/15/21 03:08	17060-07-0	
Toluene-d8 (S)	100	%.	75-125	1	06/14/21 13:04	06/15/21 03:08	2037-26-5	
4-Bromofluorobenzene (S)	96	%.	75-125	1	06/14/21 13:04	06/15/21 03:08	460-00-4	



Project:	North Central	Petroleum	2946
	North Central	1 eu oieuin	2340

Pace Project No.: 10564129

Sample: SB-3 4'	Lab ID: 105	64129005	Collected: 06/02/2	1 13:0	5 Received: 06	/08/21 08:50 N	Atrix: Solid	
Results reported on a "dry weight"	basis and are adj	iusted for p	ercent moisture, sa	mple s	size and any dilu	tions.		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Metl Pace Analytica	hod: NWTP Il Services -	H-Gx Preparation Me Minneapolis	ethod: I	NWTPH-Gx			
TPH as Gas	878	mg/kg	79.3	10	06/16/21 14:25	06/18/21 17:13		G+,G-,
<i>Surrogates</i> a,a,a-Trifluorotoluene (S)	91	%.	50-150	10	06/16/21 14:25	06/18/21 17:13	98-08-8	пэ
Dry Weight / %M by ASTM D2974	Analytical Metl Pace Analytica	hod: ASTM I Services -	D2974 Minneapolis					
Percent Moisture	22.9	%	0.10	1		06/09/21 12:54		N2
8260D MSV 5030 Med Level	Analytical Metl Pace Analytica	hod: EPA 82 al Services -	260D Preparation Me Minneapolis	thod: E	EPA 5035/5030B			
Benzene	218	ug/kg	29.7	1	06/14/21 13:04	06/15/21 03:26	71-43-2	
Ethylbenzene	10500	ug/kg	74.3	1	06/14/21 13:04	06/15/21 03:26	100-41-4	
Methyl-tert-butyl ether	ND	ug/kg	74.3	1	06/14/21 13:04	06/15/21 03:26	1634-04-4	
Toluene	1270	ug/kg	74.3	1	06/14/21 13:04	06/15/21 03:26	108-88-3	
Xylene (Total) <i>Surrogates</i>	65000	ug/kg	1110	5	06/14/21 13:04	06/15/21 20:52	1330-20-7	
1,2-Dichloroethane-d4 (S)	89	%.	73-125	1	06/14/21 13:04	06/15/21 03:26	17060-07-0	
Toluene-d8 (S)	97	%.	75-125	1	06/14/21 13:04	06/15/21 03:26	2037-26-5	
4-Bromofluorobenzene (S)	97	%.	75-125	1	06/14/21 13:04	06/15/21 03:26	460-00-4	



Project: North Central Petroleum 2946

Pace Project No.: 10564129

Sample: SB-3 6'	Lab ID: 105	64129006	Collected: 06/02/2	1 13:1	5 Received: 06	/08/21 08:50 N	Atrix: Solid	
Results reported on a "dry weight"	basis and are ad	justed for p	oercent moisture, sa	mple	size and any dilu	tions.		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Met	hod: NWTP	H-Gx Preparation M	ethod:	NWTPH-Gx			
	Pace Analytica	al Services -	Minneapolis					
TPH as Gas <i>Surrogates</i>	2030	mg/kg	44.0	5	06/16/21 14:25	06/16/21 23:40		G+,G-
a,a,a-Trifluorotoluene (S)	100	%.	50-150	5	06/16/21 14:25	06/16/21 23:40	98-08-8	
Dry Weight / %M by ASTM D2974	Analytical Met	hod: ASTM	D2974					
	Pace Analytica	al Services -	Minneapolis					
Percent Moisture	26.5	%	0.10	1		06/09/21 12:56		N2
8260D MSV 5030 Med Level	Analytical Met	hod: EPA 82	260D Preparation Me	thod:	EPA 5035/5030B			
	Pace Analytica	al Services -	Minneapolis					
Benzene	956	ug/kg	31.7	1	06/14/21 13:04	06/15/21 03:44	71-43-2	
Ethylbenzene	89600	ug/kg	794	10	06/14/21 13:04	06/15/21 21:10	100-41-4	
Methyl-tert-butyl ether	ND	ug/kg	79.4	1	06/14/21 13:04	06/15/21 03:44	1634-04-4	
Toluene	22200	ug/kg	794	10	06/14/21 13:04	06/15/21 21:10	108-88-3	
Xylene (Total)	597000	ug/kg	4760	20	06/14/21 13:04	06/16/21 15:43	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%.	73-125	1	06/14/21 13:04	06/15/21 03:44	17060-07-0	
Toluene-d8 (S)	102	%.	75-125	1	06/14/21 13:04	06/15/21 03:44	2037-26-5	
4-Bromofluorobenzene (S)	96	%.	75-125	1	06/14/21 13:04	06/15/21 03:44	460-00-4	



Project: North Central Petroleum 2946

Pace Project No.: 10564129

Sample: SB-4 3'	Lab ID: 105	64129007	Collected: 06/02/2	1 13:5	0 Received: 06	/08/21 08:50 N	latrix: Solid	
Results reported on a "dry weight"	basis and are ad	justed for p	percent moisture, sa	mple	size and any dilu	tions.		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Met	hod: NWTP	H-Gx Preparation Me	ethod:	NWTPH-Gx			
	Pace Analytica	al Services -	Minneapolis					
TPH as Gas Surrogates	ND	mg/kg	8.3	1	06/16/21 14:25	06/16/21 22:46		
a,a,a-Trifluorotoluene (S)	97	%.	50-150	1	06/16/21 14:25	06/16/21 22:46	98-08-8	
Dry Weight / %M by ASTM D2974	Analytical Met	hod: ASTM	D2974					
	Pace Analytica	al Services -	Minneapolis					
Percent Moisture	25.9	%	0.10	1		06/09/21 12:56		N2
8260D MSV 5030 Med Level	Analytical Met	hod: EPA 82	260D Preparation Me	thod: I	EPA 5035/5030B			
	Pace Analytica	al Services -	Minneapolis					
Benzene	ND	ug/kg	30.8	1	06/14/21 13:04	06/15/21 15:37	71-43-2	
Ethylbenzene	ND	ug/kg	77.1	1	06/14/21 13:04	06/15/21 15:37	100-41-4	
Methyl-tert-butyl ether	ND	ug/kg	77.1	1	06/14/21 13:04	06/15/21 15:37	1634-04-4	
Toluene	ND	ug/kg	77.1	1	06/14/21 13:04	06/15/21 15:37	108-88-3	
Xylene (Total)	ND	ug/kg	231	1	06/14/21 13:04	06/15/21 15:37	1330-20-7	
Surrogates		00						
1,2-Dichloroethane-d4 (S)	87	%.	73-125	1	06/14/21 13:04	06/15/21 15:37	17060-07-0	
Toluene-d8 (S)	98	%.	75-125	1	06/14/21 13:04	06/15/21 15:37	2037-26-5	
4-Bromofluorobenzene (S)	97	%.	75-125	1	06/14/21 13:04	06/15/21 15:37	460-00-4	



Project: North Central Petroleum 2946

Pace Project No.: 10564129

Sample: SB-4 6'	Lab ID: 105	64129008	Collected: 06/02/2	1 14:0	0 Received: 06	08/21 08:50 N	latrix: Solid	
Results reported on a "dry weight"	basis and are ad	justed for p	percent moisture, sa	mple	size and any dilu	tions.		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Met	hod: NWTP	H-Gx Preparation Me	ethod:	NWTPH-Gx			
	Pace Analytica	al Services -	Minneapolis					
TPH as Gas Surrogates	ND	mg/kg	12.1	1	06/16/21 14:25	06/16/21 23:13		
a,a,a-Trifluorotoluene (S)	98	%.	50-150	1	06/16/21 14:25	06/16/21 23:13	98-08-8	
Dry Weight / %M by ASTM D2974	Analytical Met	hod: ASTM	D2974					
	Pace Analytica	al Services -	Minneapolis					
Percent Moisture	29.0	%	0.10	1		06/09/21 12:56		N2
8260D MSV 5030 Med Level	Analytical Met	hod: EPA 82	260D Preparation Me	thod:	EPA 5035/5030B			
	Pace Analytica	al Services -	Minneapolis					
Benzene	ND	ug/kg	36.5	1	06/14/21 13:04	06/15/21 15:19	71-43-2	
Ethylbenzene	ND	ug/kg	91.2	1	06/14/21 13:04	06/15/21 15:19	100-41-4	
Methyl-tert-butyl ether	ND	ug/kg	91.2	1	06/14/21 13:04	06/15/21 15:19	1634-04-4	
Toluene	ND	ug/kg	91.2	1	06/14/21 13:04	06/15/21 15:19	108-88-3	
Xylene (Total)	ND	ug/kg	274	1	06/14/21 13:04	06/15/21 15:19	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	86	%.	73-125	1	06/14/21 13:04	06/15/21 15:19	17060-07-0	
Toluene-d8 (S)	98	%.	75-125	1	06/14/21 13:04	06/15/21 15:19	2037-26-5	
4-Bromofluorobenzene (S)	95	%.	75-125	1	06/14/21 13:04	06/15/21 15:19	460-00-4	



Project: North Central Petroleum 2946

Pace Project No.: 10564129

Sample: SB-5 3'	Lab ID: 105	64129009	Collected: 06/02/2	1 14:1	0 Received: 06	08/21 08:50 N	latrix: Solid		
Results reported on a "dry weight"	basis and are ad	justed for p	percent moisture, sa	mple	size and any dilu	tions.			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
NWTPH-Gx GCV	Analytical Met	hod: NWTP	H-Gx Preparation M	ethod:	NWTPH-Gx				
	Pace Analytica	al Services -	- Minneapolis						
TPH as Gas Surrogates	ND	mg/kg	7.0	1	06/16/21 14:37	06/16/21 20:24			
a,a,a-Trifluorotoluene (S)	125	%.	50-150	1	06/16/21 14:37	06/16/21 20:24	98-08-8		
Dry Weight / %M by ASTM D2974	Analytical Met	hod: ASTM	D2974						
	Pace Analytica	al Services -	Minneapolis						
Percent Moisture	10.7	%	0.10	1		06/09/21 12:56		N2	
8260D MSV 5030 Med Level	Analytical Method: EPA 8260D Preparation Method: EPA 5035/5030B								
	Pace Analytica	al Services -	Minneapolis						
Benzene	ND	ug/kg	24.3	1	06/14/21 13:04	06/15/21 04:38	71-43-2		
Ethylbenzene	ND	ug/kg	60.8	1	06/14/21 13:04	06/15/21 04:38	100-41-4		
Methyl-tert-butyl ether	ND	ug/kg	60.8	1	06/14/21 13:04	06/15/21 04:38	1634-04-4		
Toluene	ND	ug/kg	60.8	1	06/14/21 13:04	06/15/21 04:38	108-88-3		
Xylene (Total)	ND	ug/kg	182	1	06/14/21 13:04	06/15/21 04:38	1330-20-7		
Surrogates									
1,2-Dichloroethane-d4 (S)	86	%.	73-125	1	06/14/21 13:04	06/15/21 04:38	17060-07-0		
Toluene-d8 (S)	98	%.	75-125	1	06/14/21 13:04	06/15/21 04:38	2037-26-5		
4-Bromofluorobenzene (S)	94	%.	75-125	1	06/14/21 13:04	06/15/21 04:38	460-00-4		



Project: North Central Petroleum 2946

Pace Project No.: 10564129

Sample: SB-5 7'	Lab ID: 105	64129010	Collected: 06/02/2	1 14:1	5 Received: 06	6/08/21 08:50 N	latrix: Solid		
Results reported on a "dry weight"	basis and are ad	justed for p	percent moisture, sa	mple s	size and any dilu	tions.			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
NWTPH-Gx GCV	Analytical Met	hod: NWTP	H-Gx Preparation M	ethod:	NWTPH-Gx				
	Pace Analytica	al Services -	Minneapolis						
TPH as Gas Surrogates	193	mg/kg	11.5	1	06/16/21 14:37	06/19/21 02:45		G+,H5	
a,a,a-Trifluorotoluene (S)	103	%.	50-150	1	06/16/21 14:37	06/19/21 02:45	98-08-8		
Dry Weight / %M by ASTM D2974	Analytical Met	hod: ASTM	D2974						
	Pace Analytica	al Services -	Minneapolis						
Percent Moisture	38.8	%	0.10	1		06/09/21 12:56		N2	
8260D MSV 5030 Med Level	Analytical Method: EPA 8260D Preparation Method: EPA 5035/5030B								
	Pace Analytica	al Services -	Minneapolis						
Benzene	ND	ug/kg	48.7	1	06/14/21 13:04	06/15/21 04:56	71-43-2		
Ethylbenzene	ND	ug/kg	122	1	06/14/21 13:04	06/15/21 04:56	100-41-4		
Methyl-tert-butyl ether	ND	ug/kg	122	1	06/14/21 13:04	06/15/21 04:56	1634-04-4		
Toluene	ND	ug/kg	122	1	06/14/21 13:04	06/15/21 04:56	108-88-3		
Xylene (Total)	ND	ug/kg	365	1	06/14/21 13:04	06/15/21 04:56	1330-20-7		
Surrogates		00							
1,2-Dichloroethane-d4 (S)	84	%.	73-125	1	06/14/21 13:04	06/15/21 04:56	17060-07-0		
Toluene-d8 (S)	97	%.	75-125	1	06/14/21 13:04	06/15/21 04:56	2037-26-5		
4-Bromofluorobenzene (S)	94	%.	75-125	1	06/14/21 13:04	06/15/21 04:56	460-00-4		



Project: North Central Petroleum 2946

Pace Project No.: 10564129

Sample: SB-6 3'	Lab ID: 105	64129011	Collected: 06/02/2	21 14:2	25 Received: 06	6/08/21 08:50 N	latrix: Solid			
Results reported on a "dry weight"	basis and are ad	justed for p	percent moisture, sa	mple	size and any dilu	tions.				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual		
NWTPH-Gx GCV	Analytical Met	Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx								
	Pace Analytica	al Services ·	- Minneapolis							
TPH as Gas Surrogates	ND	mg/kg	6.2	1	06/16/21 14:37	06/16/21 21:46				
a,a,a-Trifluorotoluene (S)	125	%.	50-150	1	06/16/21 14:37	06/16/21 21:46	98-08-8			
Dry Weight / %M by ASTM D2974	Analytical Met	hod: ASTM	D2974							
	Pace Analytica	al Services ·	- Minneapolis							
Percent Moisture	10.0	%	0.10	1		06/09/21 12:56		N2		
8260D MSV 5030 Med Level	Analytical Method: EPA 8260D Preparation Method: EPA 5035/5030B									
	Pace Analytica	al Services ·	- Minneapolis							
Benzene	ND	ug/kg	26.5	1	06/14/21 13:04	06/15/21 05:14	71-43-2			
Ethylbenzene	ND	ug/kg	66.3	1	06/14/21 13:04	06/15/21 05:14	100-41-4			
Methyl-tert-butyl ether	ND	ug/kg	66.3	1	06/14/21 13:04	06/15/21 05:14	1634-04-4			
Toluene	ND	ug/kg	66.3	1	06/14/21 13:04	06/15/21 05:14	108-88-3			
Xylene (Total)	ND	ug/kg	199	1	06/14/21 13:04	06/15/21 05:14	1330-20-7			
Surrogates		00								
1,2-Dichloroethane-d4 (S)	86	%.	73-125	1	06/14/21 13:04	06/15/21 05:14	17060-07-0			
Toluene-d8 (S)	98	%.	75-125	1	06/14/21 13:04	06/15/21 05:14	2037-26-5			
4-Bromofluorobenzene (S)	96	%.	75-125	1	06/14/21 13:04	06/15/21 05:14	460-00-4			



Project: North Central Petroleum 2946

Pace Project No.: 10564129

Sample: SB-6 6'	Lab ID: 105	64129012	Collected: 06/02/2	21 14:3	0 Received: 06	08/21 08:50 N	fatrix: Solid						
Results reported on a "dry weight"	basis and are ad	justed for p	percent moisture, sa	mple s	size and any dilu	tions.							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual					
NWTPH-Gx GCV	Analytical Met	hod: NWTP	H-Gx Preparation M	ethod:	NWTPH-Gx								
	Pace Analytica	al Services -	Minneapolis										
TPH as Gas <i>Surrogates</i>	ND	mg/kg	7.1	1	06/16/21 14:37	06/16/21 22:14							
a,a,a-Trifluorotoluene (S)	125	%.	50-150	1	06/16/21 14:37	06/16/21 22:14	98-08-8						
Dry Weight / %M by ASTM D2974	Analytical Met	hod: ASTM	D2974										
	Pace Analytical Services - Minneapolis												
Percent Moisture	22.2	%	0.10	1		06/09/21 12:57		N2					
8260D MSV 5030 Med Level	Analytical Met	hod: EPA 82	260D Preparation Me	ethod: E	EPA 5035/5030B								
	Pace Analytica	al Services -	Minneapolis										
Benzene	ND	ug/kg	28.1	1	06/14/21 13:04	06/15/21 05:32	71-43-2						
Ethylbenzene	ND	ug/kg	70.2	1	06/14/21 13:04	06/15/21 05:32	100-41-4						
Methyl-tert-butyl ether	ND	ug/kg	70.2	1	06/14/21 13:04	06/15/21 05:32	1634-04-4						
Toluene	ND	ug/kg	70.2	1	06/14/21 13:04	06/15/21 05:32	108-88-3						
Xylene (Total)	ND	ug/kg	210	1	06/14/21 13:04	06/15/21 05:32	1330-20-7						
Surrogates		00											
1,2-Dichloroethane-d4 (S)	87	%.	73-125	1	06/14/21 13:04	06/15/21 05:32	17060-07-0						
Toluene-d8 (S)	98	%.	75-125	1	06/14/21 13:04	06/15/21 05:32	2037-26-5						
4-Bromofluorobenzene (S)	93	%.	75-125	1	06/14/21 13:04	06/15/21 05:32	460-00-4						



# Project: North Central Petroleum 2946

Pace Project No.: 10564129

Sample: SB-2	Lab ID:	10564129013	Collected: 06/02/2	1 15:00	Received: 0	6/08/21 08:50 N	latrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical I	Method: NWTP	H-Gx					
	Pace Analy	tical Services -	Minneapolis					
TPH as Gas <b>Surrogates</b>	ND	) ug/L	100	1		06/16/21 15:19		
a,a,a-Trifluorotoluene (S)	97	%.	50-150	1		06/16/21 15:19	98-08-8	
8260D VOC	Analytical I	Method: EPA 82	260D					
	Pace Analy	tical Services -	Minneapolis					
Benzene	49.1	ug/L	1.0	1		06/16/21 19:03	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/16/21 19:03	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/16/21 19:03	1634-04-4	
Toluene	ND	ug/L	1.0	1		06/16/21 19:03	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		06/16/21 19:03	1330-20-7	
Surrogates		-						
1,2-Dichlorobenzene-d4 (S)	101	%.	70-130	1		06/16/21 19:03	2199-69-1	
4-Bromofluorobenzene (S)	93	8 %.	75-125	1		06/16/21 19:03	460-00-4	
Toluene-d8 (S)	92	2 %.	75-125	1		06/16/21 19:03	2037-26-5	



# Project: North Central Petroleum 2946

Pace Project No.: 10564129

Sample: SB-3	Lab ID: 1050	64129014	Collected: 06/02/2	1 15:30	Received: 06	6/08/21 08:50 N	latrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Meth	od: NWTP	'H-Gx					
	Pace Analytica	I Services	- Minneapolis					
TPH as Gas	12300	ug/L	1000	10		06/21/21 20:10		G+,G-, H5
<i>Surrogates</i> a,a,a-Trifluorotoluene (S)	94	%.	50-150	10		06/21/21 20:10	98-08-8	110
8260D VOC	Analytical Meth	od: EPA 8	260D					
	Pace Analytica	I Services	- Minneapolis					
Benzene	77.5	ug/L	1.0	1		06/16/21 19:27	71-43-2	
Ethylbenzene	766	ug/L	20.0	20		06/25/21 22:58	100-41-4	H5
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/16/21 19:27	1634-04-4	
Toluene	254	ug/L	20.0	20		06/25/21 22:58	108-88-3	H5
Xylene (Total)	3530	ug/L	60.0	20		06/25/21 22:58	1330-20-7	H5
Surrogates		•						
1,2-Dichlorobenzene-d4 (S)	99	%.	70-130	1		06/16/21 19:27	2199-69-1	
4-Bromofluorobenzene (S)	100	%.	75-125	1		06/16/21 19:27	460-00-4	
Toluene-d8 (S)	94	%.	75-125	1		06/16/21 19:27	2037-26-5	



# Project: North Central Petroleum 2946

Pace Project No.: 10564129

Sample: SB-5	Lab ID: 105	64129015	Collected: 06/02/27	1 15:15	Received: 0	6/08/21 08:50 N	latrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Meth	od: NWTP	H-Gx					
	Pace Analytica	Services -	Minneapolis					
TPH as Gas <b>Surrogates</b>	6230	ug/L	1000	10		06/16/21 17:10		G+,G-
a,a,a-Trifluorotoluene (S)	101	%.	50-150	10		06/16/21 17:10	98-08-8	
8260D VOC	Analytical Meth	od: EPA 82	260D					
	Pace Analytica	Services -	Minneapolis					
Benzene	ND	ug/L	1.0	1		06/16/21 19:52	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/16/21 19:52	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/16/21 19:52	1634-04-4	
Toluene	ND	ug/L	1.0	1		06/16/21 19:52	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		06/21/21 13:02	1330-20-7	H5
Surrogates		•						
1,2-Dichlorobenzene-d4 (S)	102	%.	70-130	1		06/16/21 19:52	2199-69-1	
4-Bromofluorobenzene (S)	94	%.	75-125	1		06/16/21 19:52	460-00-4	
Toluene-d8 (S)	99	%.	75-125	1		06/16/21 19:52	2037-26-5	



# Project: North Central Petroleum 2946

Pace Project No.: 10564129

Sample: North Sump	Lab ID: 105	64129016	Collected: 06/02/21	10:00	Received: 0	6/08/21 08:50 N	Aatrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Meth	nod: NWTP	'H-Gx					
	Pace Analytica	I Services	- Minneapolis					
TPH as Gas	2470	ug/L	500	5		06/16/21 16:42		C0,G+, G-
<i>Surrogates</i> a,a,a-Trifluorotoluene (S)	100	%.	50-150	5		06/16/21 16:42	98-08-8	C
8260D VOC	Analytical Meth	nod: EPA 8	260D					
	Pace Analytica	I Services	- Minneapolis					
Benzene	198	ug/L	2.0	2		06/16/21 21:55	71-43-2	
Ethylbenzene	226	ug/L	2.0	2		06/16/21 21:55	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	2.0	2		06/16/21 21:55	1634-04-4	
Toluene	10.4	ug/L	2.0	2		06/16/21 21:55	108-88-3	
Xylene (Total)	49.9	ug/L	6.0	2		06/16/21 21:55	1330-20-7	
Surrogates		•						
1,2-Dichlorobenzene-d4 (S)	103	%.	70-130	2		06/16/21 21:55	2199-69-1	D4
4-Bromofluorobenzene (S)	95	%.	75-125	2		06/16/21 21:55	460-00-4	
Toluene-d8 (S)	93	%.	75-125	2		06/16/21 21:55	2037-26-5	



# Project: North Central Petroleum 2946

Pace Project No.: 10564129

Sample: Trip Blanks	Lab ID: 105	64129017	Collected: 06/02/2	1 00:00	Received: 06	i/08/21 08:50 N	latrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Meth	nod: NWTP	'H-Gx					
	Pace Analytica	I Services ·	- Minneapolis					
TPH as Gas <b>Surrogates</b>	ND	ug/L	100	1		06/16/21 14:51		
a,a,a-Trifluorotoluene (S)	95	%.	50-150	1		06/16/21 14:51	98-08-8	
8260D VOC	Analytical Meth	nod: EPA 82	260D					
	Pace Analytica	I Services -	- Minneapolis					
Benzene	ND	ug/L	1.0	1		06/16/21 16:59	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/16/21 16:59	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/16/21 16:59	1634-04-4	
Toluene	ND	ug/L	1.0	1		06/16/21 16:59	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		06/16/21 16:59	1330-20-7	
Surrogates		•						
1,2-Dichlorobenzene-d4 (S)	102	%.	70-130	1		06/16/21 16:59	2199-69-1	
4-Bromofluorobenzene (S)	93	%.	75-125	1		06/16/21 16:59	460-00-4	
Toluene-d8 (S)	93	%.	75-125	1		06/16/21 16:59	2037-26-5	



### Project: North Central Petroleum 2946

Pace Project No.: 10564129

Sample: Trip Blanks	Lab ID: 105	64129018	Collected: 06/02/2	21 00:00	Received: 06	08/21 08:50 N	latrix: Solid	
Results reported on a "wet-weigh	nt" basis							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Met	hod: NWTP	H-Gx Preparation M	ethod: N	IWTPH-Gx			
	Pace Analytica	al Services -	Minneapolis					
TPH as Gas <i>Surrogates</i>	ND	mg/kg	5.0	1	06/16/21 14:37	06/16/21 19:56		
a,a,a-Trifluorotoluene (S)	125	%.	50-150	1	06/16/21 14:37	06/16/21 19:56	98-08-8	
8260D MSV 5030 Med Level	Analytical Met	hod: EPA 82	260D Preparation Me	ethod: E	PA 5035/5030B			
	Pace Analytica	al Services -	Minneapolis					
Benzene	ND	ug/kg	20.0	1	06/14/21 13:04	06/15/21 01:38	71-43-2	
Ethylbenzene	ND	ug/kg	50.0	1	06/14/21 13:04	06/15/21 01:38	100-41-4	
Methyl-tert-butyl ether	ND	ug/kg	50.0	1	06/14/21 13:04	06/15/21 01:38	1634-04-4	
Toluene	ND	ug/kg	50.0	1	06/14/21 13:04	06/15/21 01:38	108-88-3	
Xylene (Total)	ND	ug/kg	150	1	06/14/21 13:04	06/15/21 01:38	1330-20-7	
Surrogates		00						
1,2-Dichloroethane-d4 (S)	92	%.	73-125	1	06/14/21 13:04	06/15/21 01:38	17060-07-0	
Toluene-d8 (S)	98	%.	75-125	1	06/14/21 13:04	06/15/21 01:38	2037-26-5	
4-Bromofluorobenzene (S)	94	%.	75-125	1	06/14/21 13:04	06/15/21 01:38	460-00-4	



Project:	North	Central Petroleu	ım 2946									
Pace Project No .:	10564	129										
QC Batch:	7496	13		Analysi	s Method:	N	WTPH-G	ix				
QC Batch Method:	NWT	PH-Gx		Analysi	s Descript	ion: N	WTPH-G	ix Solid G	CV			
				Labora	tory:	Pa	ace Anal	ytical Ser	vices - Mini	neapolis		
Associated Lab Sar	nples:	10564129001 10564129008	, 10564129002,	105641290	003, 10564	4129004, 10	)564129	005, 1056	64129006,	105641290	007,	
METHOD BLANK:	39982	71		N	latrix: Soli	d						
Associated Lab Sar	nples:	10564129001 10564129008	, 10564129002,	105641290	003, 10564	4129004, 10	)564129	005, 1056	64129006,	105641290	007,	
Dama			11-26-	Blank	R	eporting	•	h	Qualit			
Parar	neter	·	Units	Result		Limit	Ana	alyzed		lers		
TPH as Gas a,a,a-Trifluorotoluer	ne (S)		mg/kg %.		ND 93	5.0 50-150	06/16/2 06/16/2	21 17:49 21 17:49				
METHOD BLANK:	39994	69		N	latrix: Soli	d						
Associated Lab Sar	nples:	10564129001 10564129008	, 10564129002,	105641290	003, 10564	4129004, 10	0564129	005, 1056	64129006,	105641290	007,	
				Blank	R	eporting						
Parar	neter		Units	Result	:	Limit	Ana	lyzed	Qualif	iers		
TPH as Gas			mg/kg		ND	5.0	06/16/	21 22:19				
a,a,a-Trifluorotoluer	ne (S)		%.		91	50-150	06/16/	21 22:19				
METHOD BLANK:	39994	70		N	latrix: Soli	id						
Associated Lab Sar	nples:	10564129001 10564129008	, 10564129002,	105641290	003, 10564	4129004, 10	0564129	005, 1056	64129006,	105641290	007,	
				Blank	R	eporting						
Parar	neter		Units	Result	:	Limit	Ana	lyzed	Qualif	iers		
TPH as Gas			mg/kg		ND	5.0	06/17/	21 02:22				
a,a,a-Trifluorotoluer	ne (S)		%.		96	50-150	06/17/	21 02:22				
LABORATORY CO	NTROL	SAMPLE & LCS	SD: 3998272		3	3998273						
			Linite	Spike	LCS	LCSD	LCS	LCSD	% Rec		Max	Qualifiers
Parar	neter		Units	Conc.	Result	Result	% KeC	% Kec		RPD		Qualifiers
TPH as Gas a,a,a-Trifluorotoluer	ne (S)		mg/kg %.	50	48.6	55.1	97 97	110 96	70-125 50-150	12	20	
SAMPLE DUPLICA	TE: 39	999149		1050 110-	004	_						
Deres	noto-		Linite	10564129	001	Dup		חו	Max	0	olifioro	
	netel			Result			KF		RPD	Qu		
IPH as Gas	no (S)		mg/kg		DN QQ	ND				30		
a,a,a-minuoroioiuer	10 (3)		70.		33	94						

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Project:North Central Petroleum 2946Pace Project No.:10564129

SAMPLE DUPLICATE: 3999422		10563922001	Dun		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
TPH as Gas	mg/kg	466	453	3		30 1M,G+
a,a,a-Trifluorotoluene (S)	%.	89	90			

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Project:	North Central Petro	oleum 2946									
Pace Project No .:	10564129										
QC Batch:	749649		Analys	is Method:	N	IWTPH-G	ix				
QC Batch Method:	NWTPH-Gx		Analys	is Descripti	on: N	IWTPH-G	ix Solid G	SCV			
			Labora	tory:	Р	ace Anal	ytical Ser	vices - Minr	neapolis		
Associated Lab Sam	ples: 105641290	009, 10564129010,	10564129	011, 10564	129012, 1	0564129	018				
METHOD BLANK:	3998461		N	latrix: Solid	d						
Associated Lab Sam	ples: 105641290	009, 10564129010,	10564129	011, 10564	129012, 1	0564129	018				
			Blank	Re	eporting						
Param	eter	Units	Resul	t	Limit	Ana	lyzed	Qualifi	ers		
TPH as Gas		mg/kg		ND	5.0	06/16/	21 19:28				
a,a,a-Trifluorotoluen	e (S)	%.		124	50-150	06/16/	21 19:28				
		000 0000 400			000400						
LABORATORY CON	TIROL SAMPLE &	LCSD: 3998462	Spilko	3	998463	1.00		% Rec		Mox	
Param	eter	Units	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qualifiers
TPH as Gas		mg/kg	50	52.0	50.0	0 104	100	70-125	4	20	
a,a,a-Trifluorotoluen	e (S)	%.				102	100	50-150			
SAMPLE DUPLICAT	E: 3999165										
			10564129	009	Dup			Max			
Param	eter	Units	Resul	t F	Result	RF	PD	RPD	Qua	alifiers	
TPH as Gas		mg/kg		ND	ND	)			30		
a,a,a-Trifluorotoluen	e (S)	%.		125	124	Ļ					

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Project:	North Central Pe	troleum 2946									
Pace Project No.:	10564129										
QC Batch:	749289		Analys	is Method:	1	WTPH-G	бх				
QC Batch Method:	NWTPH-Gx		Analys	is Descript	ion: N	WTPH-G	x Water				
			Labora	tory:	F	Pace Anal	ytical Ser	vices - Minr	neapolis		
Associated Lab Sar	nples: 1056412	9013, 10564129015,	10564129	016, 10564	129017						
METHOD BLANK:	3996626		Ν	latrix: Wat	er						
Associated Lab Sar	nples: 1056412	9013, 10564129015,	10564129	016, 10564	1129017						
			Blank	R	eporting						
Parar	neter	Units	Result	t	Limit	Ana	alyzed	Qualifi	ers		
TPH as Gas	ug/L			ND	100	0 06/16/	21 14:23				
a,a,a-Trifluorotoluer	ne (S)	%.		96	50-150	0 06/16/	21 14:23				
LABORATORY CO	NTROL SAMPLE &	& LCSD: 3996628		3	996629						
			Spike	LCS	LCSD	LCS	LCSD	% Rec		Max	
Parar	neter	Units	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qualifiers
TPH as Gas		ug/L	1000	989	98	5 99	98	75-127	0	20	
a,a,a-Trifluorotoluer	ne (S)	%.				101	102	50-150			
SAMPLE DUPLICA	TE: 3998798										
			10564129	013	Dup			Max			
Parar	neter	Units	Resul	t	Result	RF	D	RPD	Qua	alifiers	
TPH as Gas		ug/L		ND	46	J			30		
a,a,a-Trifluorotoluer	ne (S)	%.		97	99	9					

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Project: Pace Project No.:	North Central Pet 10564129	roleum 2946										
QC Batch:	750533		Analy	sis Method	: N	WTPH-G	ix					
QC Batch Method:	NWTPH-Gx		Analy	sis Descrip	tion: N	WTPH-G	ix Water					
			Labor	atory:	Pa	ace Anal	ytical Serv	ices - Minnea	apolis			
Associated Lab Sam	ples: 10564129	9014										
METHOD BLANK:	4003064			Matrix: Wa	ater							
Associated Lab Sam	ples: 10564129	9014										
-			Blan	k F	Reporting			0 ""				
Param	eter	Units	Resu		Limit	Ana	lyzed	Qualifiers	S			
TPH as Gas		ug/L		ND	100	06/21/2	21 13:15					
a,a,a-Imuorotoiuene	(5)	%.		94	50-150	06/21/	21 13:15					
METHOD BLANK:	4003065			Matrix: Wa	ater							
Associated Lab Sam	ples: 10564129	9014										
			Blan	k F	Reporting							
Param	eter	Units	Resu		Limit	Ana	lyzed	Qualifiers	S			
TPH as Gas		ug/L		ND	100	06/21/	21 18:20					
a,a,a-Irifluorotoluene	e (S)	%.		95	50-150	06/21/	21 18:20					
LABORATORY CON	TROL SAMPLE 8	LCSD: 400306	6		4003067							
			Spike	LCS	LCSD	LCS	LCSD	% Rec		Max		
Param	eter	Units	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qu	alifiers
TPH as Gas		ug/L	1000	) 99	7 987	100	99	75-127	1	20		
a,a,a-Trifluorotoluene	e (S)	%.				98	98	50-150				
MATRIX SPIKE & MA	ATRIX SPIKE DU	PLICATE: 4003	068		4003069							
			MS	MSD								
_		10564440001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	- ·
Parameter	Unit	s Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
TPH as Gas	ug/L	1270	1000	1000	2280	2430	10	2 116	71-139	96	30	G+,G-
a,a,a-Trifluorotoluene	(S) %.						11	3 118	50-150	J		
SAMPLE DUPLICAT	E: 4004357											
_			1056412	9014	Dup		_	Max	_			
Param	eter	Units	Resu	ult	Result	RF	'D	RPD	Qual	ifiers		
TPH as Gas		ug/L		12300	12600		2	30	) G+,G-,I	<del>1</del> 5		
a,a,a-Trifluorotoluene	e (S)	%.		94	95							

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Project:North Central Petroleum 2946Pace Project No.:10564129

SAMPLE DUPLICATE: 4004358						
		10564440002	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
TPH as Gas	ug/L	ND	ND		30	0
a,a,a-Trifluorotoluene (S)	%.	95	97			

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Project:	North Central Petro	leum 2946						
Pace Project No.:	10564129							
QC Batch:	747776		Analysis Meth	iod:	ASTM D2974			
QC Batch Method:	ASTM D2974		Analysis Desc	ription:	Dry Weight / %M b	y ASTM D297	74	
			Laboratory:		Pace Analytical Se	rvices - Minne	eapolis	
Associated Lab Sar	nples: 105641290 105641290	001, 1056412900 008, 1056412900	2, 10564129003, 10 9, 10564129010, 10	9564129004, 9564129011,	10564129005, 10 10564129012	564129006, 10	0564129007,	
SAMPLE DUPLICA	TE: 3988372							
			10564129001	Dup		Max		
Paran	neter	Units	Result	Result	RPD	RPD	Qualifiers	
Percent Moisture		%	31.0	31.	7 2		30 N2	
SAMPLE DUPLICA	TE: 3988373							
			10564129011	Dup		Max		
Paran	neter	Units	Result	Result	RPD	RPD	Qualifiers	
Percent Moisture		%	10.0	10.	8 7	:	30 N2	

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North Central Petroleum 2946

Project:

# **QUALITY CONTROL DATA**

Pace Project No.: 10	564129						
QC Batch: 7	748996		Analysis M	ethod:	EPA 8260D		
QC Batch Method: E	EPA 5035/5030B		Analysis D	escription:	8260D MSV 50	30 Med Level	
			Laboratory	:	Pace Analytical	Services - Minr	neapolis
Associated Lab Sample	es: 10564129001, 10564129008,	, 10564129002 , 10564129009	, 10564129003, , 10564129010,	10564129004 10564129011,	, 10564129005, , 10564129012, 1	10564129006, <sup>-</sup> 10564129018	10564129007,
METHOD BLANK: 39	95267		Matri	x: Solid			
Associated Lab Sample	es: 10564129001, 10564129008,	, 10564129002 , 10564129009	, 10564129003, , 10564129010,	10564129004 10564129011,	, 10564129005, , 10564129012, <sup>,</sup>	10564129006, <sup>.</sup> 10564129018	10564129007,
			Blank	Reporting			
Paramete	er	Units	Result	Limit	Analyzed	d Qualifi	ers
Benzene		ug/kg	NE	20	0.0 06/15/21 01	:20	
Ethylbenzene		ug/kg	NE	50 50	0.0 06/15/21 01	:20	

ug/kg	ND	50.0	06/15/21 01:20	
ug/kg	ND	50.0	06/15/21 01:20	
ug/kg	ND	150	06/15/21 01:20	
%.	91	73-125	06/15/21 01:20	
%.	94	75-125	06/15/21 01:20	
%.	98	75-125	06/15/21 01:20	
	ug/kg ug/kg %. %. %.	ug/kg ND ug/kg ND wg/kg ND %. 91 %. 94 %. 98	ug/kg ND 50.0   ug/kg ND 50.0   ug/kg ND 150   %. 91 73-125   %. 94 75-125   %. 98 75-125	ug/kg ND 50.0 06/15/21 01:20   ug/kg ND 50.0 06/15/21 01:20   ug/kg ND 150 06/15/21 01:20   %. 91 73-125 06/15/21 01:20   %. 94 75-125 06/15/21 01:20   %. 98 75-125 06/15/21 01:20

# LABORATORY CONTROL SAMPLE: 3995268

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/kg	1000	981	98	54-129	
Ethylbenzene	ug/kg	1000	1010	101	65-125	
Methyl-tert-butyl ether	ug/kg	1000	937	94	60-125	
Toluene	ug/kg	1000	998	100	59-125	
Xylene (Total)	ug/kg	3000	3160	105	66-127	
1,2-Dichloroethane-d4 (S)	%.			92	73-125	
4-Bromofluorobenzene (S)	%.			96	75-125	
Toluene-d8 (S)	%.			98	75-125	

MATRIX SPIKE & MATRIX SP	IKE DUPL	ICATE: 399	5269		3995270							
			MS	MSD								
		10564129001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Benzene	ug/kg	ND	1800	1800	2020	1970	113	110	43-150	3	30	
Ethylbenzene	ug/kg	ND	1800	1800	2080	2080	116	116	51-150	0	30	
Methyl-tert-butyl ether	ug/kg	ND	1800	1800	1960	1980	109	110	42-150	1	30	
Toluene	ug/kg	ND	1800	1800	2080	2090	116	116	51-150	0	30	
Xylene (Total)	ug/kg	ND	5390	5390	6460	6620	120	123	51-150	2	30	
1,2-Dichloroethane-d4 (S)	%.						93	90	73-125			
4-Bromofluorobenzene (S)	%.						94	96	75-125			
Toluene-d8 (S)	%.						98	98	75-125			

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North Central Petroleum 2946

Project:

# **QUALITY CONTROL DATA**

QC Batch: 749685		Analysis	Method:	EP	PA 8260D					
QC Batch Method: EPA 8260D	)	Analysis	Description:	82	260D MSV 4	465 W				
		Laborato	rv:	Pa	ace Analvtic	al Servi	ces - Minn	eapolis		
Associated Lab Samples: 1056	64129013, 10564129014	1056412901	5, 1056412901	6, 10	0564129017	7		oupono		
			hin Matan							
METHOD BLANK: 3998708		Ma	trix: vvater			_				
Associated Lab Samples: 1056	64129013, 10564129014	, 1056412901	5, 1056412901	6, 10	0564129017	7				
	11.5	Blank	Reporting	g			0 ""			
Parameter		Result	Limit		Analyz	ed	Qualifie	ers		
Benzene	ug/L	I	ND	1.0	06/16/21	16:34				
Ethylbenzene	ug/L	l	ND	1.0	06/16/21	16:34				
Methyl-tert-butyl ether	ug/L	I	ND	1.0	06/16/21	16:34				
Toluene	ug/L	I	ND	1.0	06/16/21	16:34				
Xylene (Total)	ug/L	I	ND	3.0	06/16/21	16:34				
1.2-Dichlorobenzene-d4 (S)	%.	1	03 70-	130	06/16/21	16:34				
4-Bromofluorobenzene (S) Toluene-d8 (S)	%. %.		94 75- 96 75-	125 125	06/16/21 06/16/21	16:34 16:34				
4-Bromofluorobenzene (S) Toluene-d8 (S)	%. %.		94 75- 96 75-	125 125	06/16/21 06/16/21	16:34 16:34				
4-Bromofluorobenzene (S) Toluene-d8 (S)	%. %. PLE: 3998709		94 75- 96 75-	125 125	06/16/21 06/16/21	16:34 16:34				
4-Bromofluorobenzene (S) Toluene-d8 (S)	%. %. PLE: 3998709	Spike	94 75- 96 75- LCS	125 125	06/16/21 06/16/21 LCS	16:34 16:34 % F	Rec		 	
4-Bromofluorobenzene (S) Toluene-d8 (S) LABORATORY CONTROL SAMP Parameter	%. %. PLE: 3998709 Units	Spike Conc.	94 75- 96 75- LCS Result	125 125	06/16/21 06/16/21 LCS % Rec	16:34 16:34 % F Lim	Rec	Qualifiers	 	
4-Bromofluorobenzene (S) Toluene-d8 (S) LABORATORY CONTROL SAMP Parameter Benzene	%. %. PLE: 3998709 Units ug/L	Spike Conc. 20	94 75- 96 75- LCS Result 18.7	125 125	06/16/21 06/16/21 LCS % Rec 94	16:34 16:34 % F Lim	Rec nits 73-125	Qualifiers	 	
4-Bromofluorobenzene (S) Toluene-d8 (S) LABORATORY CONTROL SAMP Parameter Benzene Ethylbenzene	%. %. PLE: 3998709 Units ug/L ug/L	Spike Conc. 20 20	94 75- 96 75- LCS Result 18.7 21.8	125 125	06/16/21 06/16/21 LCS % Rec 94 109	16:34 16:34 % F 	Rec nits 73-125 75-125	Qualifiers	 	
4-Bromofluorobenzene (S) Toluene-d8 (S) LABORATORY CONTROL SAMP Parameter Benzene Ethylbenzene Methyl-tert-butyl ether	%. %. PLE: 3998709 Units ug/L ug/L ug/L	Spike Conc. 20 20 20	94 75- 96 75- LCS Result 18.7 21.8 17.4	125 125	06/16/21 06/16/21 LCS % Rec 94 109 87	16:34 16:34 % F Lim	Rec nits 73-125 75-125 75-125	Qualifiers		
4-Bromofluorobenzene (S) Toluene-d8 (S) LABORATORY CONTROL SAMP Parameter Benzene Ethylbenzene Methyl-tert-butyl ether Toluene	%. %. PLE: 3998709 Units ug/L ug/L ug/L ug/L ug/L	Spike Conc. 20 20 20 20 20	94 75- 96 75- LCS Result 18.7 21.8 17.4 18.3	125 125	06/16/21 06/16/21 LCS % Rec 94 109 87 91	16:34 16:34 % F Lim	Rec nits 73-125 75-125 75-125 75-125	Qualifiers		
4-Bromofluorobenzene (S) Toluene-d8 (S) LABORATORY CONTROL SAMP Parameter Benzene Ethylbenzene Methyl-tert-butyl ether Toluene Xylene (Total)	%. %. PLE: 3998709 Units ug/L ug/L ug/L ug/L ug/L ug/L	Spike Conc. 20 20 20 20 60	94 75- 96 75- LCS Result 18.7 21.8 17.4 18.3 66.8	125 125	06/16/21 06/16/21 LCS % Rec 94 109 87 91 111	16:34 16:34 % F Lim	Rec 73-125 75-125 75-125 75-125 75-125 75-125	Qualifiers	 	
4-Bromofluorobenzene (S) Toluene-d8 (S) LABORATORY CONTROL SAME Parameter Benzene Ethylbenzene Methyl-tert-butyl ether Toluene Xylene (Total) 1,2-Dichlorobenzene-d4 (S)	%. %. PLE: 3998709 Units ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	Spike Conc. 20 20 20 20 60	94 75- 96 75- LCS Result 18.7 21.8 17.4 18.3 66.8	125 125	06/16/21 06/16/21 LCS % Rec 94 109 87 91 111 96	16:34 16:34 % F Lim	Rec 73-125 75-125 75-125 75-125 75-125 75-125 70-130	Qualifiers		
4-Bromofluorobenzene (S) Toluene-d8 (S) LABORATORY CONTROL SAMP Parameter Benzene Ethylbenzene Methyl-tert-butyl ether Toluene Xylene (Total) 1,2-Dichlorobenzene-d4 (S) 4-Bromofluorobenzene (S)	%. %. PLE: 3998709 Units ug/L ug/L ug/L ug/L ug/L ug/L %. %.	Spike Conc. 20 20 20 20 60	94 75- 96 75- LCS Result 18.7 21.8 17.4 18.3 66.8	125 125	06/16/21 06/16/21 LCS % Rec 94 109 87 91 111 96 99	16:34 16:34 % F Lim	Rec nits 73-125 75-125 75-125 75-125 75-125 70-130 75-125	Qualifiers		
4-Bromofluorobenzene (S) Toluene-d8 (S) LABORATORY CONTROL SAMP Parameter Benzene Ethylbenzene Methyl-tert-butyl ether Toluene Xylene (Total) 1,2-Dichlorobenzene-d4 (S) 4-Bromofluorobenzene (S) Toluene-d8 (S)	%. %. PLE: 3998709 Units ug/L ug/L ug/L ug/L ug/L ug/L %. %. %. %.	Spike Conc. 20 20 20 20 60	94 75- 96 75- LCS Result 18.7 21.8 17.4 18.3 66.8	125 125	06/16/21 06/16/21 LCS % Rec 94 109 87 91 111 96 99 93	16:34 16:34 % F Lim	Rec 73-125 75-125 75-125 75-125 75-125 70-130 75-125 75-125	Qualifiers		
4-Bromofluorobenzene (S) Toluene-d8 (S) LABORATORY CONTROL SAMP Parameter Benzene Ethylbenzene Methyl-tert-butyl ether Toluene Xylene (Total) 1,2-Dichlorobenzene-d4 (S) 4-Bromofluorobenzene (S) Toluene-d8 (S)	%. %. PLE: 3998709 Units ug/L ug/L ug/L ug/L ug/L %. %. %. %. %. %. 39992	Spike Conc. 20 20 20 20 60	94 75- 96 75- LCS Result 18.7 21.8 17.4 18.3 66.8 39992	125 125 %	06/16/21 06/16/21 LCS % Rec 94 109 87 91 111 96 99 93	16:34 16:34 % F Lim	Rec 73-125 75-125 75-125 75-125 75-125 70-130 75-125 75-125	Qualifiers		
4-Bromofluorobenzene (S) Toluene-d8 (S) LABORATORY CONTROL SAMP Parameter Benzene Ethylbenzene Methyl-tert-butyl ether Toluene Xylene (Total) 1,2-Dichlorobenzene-d4 (S) 4-Bromofluorobenzene (S) Toluene-d8 (S)	%. %. PLE: 3998709 Units ug/L ug/L ug/L ug/L %. %. %. %. %. %. 39992	Spike Conc. 20 20 20 20 60 60	94 75- 96 75- LCS Result 18.7 21.8 17.4 18.3 66.8 39992 SD	125 125 9	06/16/21 06/16/21 <u>LCS</u> % Rec 94 109 87 91 111 96 99 93	16:34 16:34 % F Lirr	Rec nits 73-125 75-125 75-125 75-125 70-130 75-125 75-125 75-125	Qualifiers		
4-Bromofluorobenzene (S) Toluene-d8 (S) LABORATORY CONTROL SAMP Parameter Benzene Ethylbenzene Methyl-tert-butyl ether Toluene Xylene (Total) 1,2-Dichlorobenzene-d4 (S) 4-Bromofluorobenzene (S) Toluene-d8 (S) MATRIX SPIKE & MATRIX SPIKE	%. %. PLE: 3998709 Units ug/L ug/L ug/L ug/L ug/L %. %. %. %. %. %. 39992 10563750019	Spike Conc. 20 20 20 20 60 02 MS M Spike Sp	94 75- 96 75- LCS Result 18.7 21.8 17.4 18.3 66.8 39992 SD bike MS	125 125 9	06/16/21 06/16/21 LCS % Rec 94 109 87 91 111 96 99 93 MSD	16:34 16:34 % F Lin	Rec nits 73-125 75-125 75-125 75-125 70-130 75-125 75-125 75-125 75-125	Qualifiers % Rec	 Мах	

T didinotoi	Office	rtoount	00110.	00110.	rtooun	rtooun	/01100	/01100	Emilio			Quai
Benzene	ug/L	ND	20	20	16.8	16.2	84	81	60-125	4	30	
Ethylbenzene	ug/L	ND	20	20	19.3	18.8	96	94	61-125	2	30	
Methyl-tert-butyl ether	ug/L	ND	20	20	15.5	15.5	78	78	61-125	0	30	
Toluene	ug/L	ND	20	20	16.7	16.0	83	80	61-125	4	30	
Xylene (Total)	ug/L	ND	60	60	59.3	58.2	99	97	63-125	2	30	
1,2-Dichlorobenzene-d4 (S)	%.						99	96	70-130			
4-Bromofluorobenzene (S)	%.						98	97	75-125			
Toluene-d8 (S)	%.						95	93	75-125			

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: North Central Petroleum 2946

Pace Project No.: 10564129

## 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.

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

TNI - The NELAC Institute.

# ANALYTE QUALIFIERS

- 1M Preserved from glass jar with headspace outside of 48 hours from collection.
- C0 Result confirmed by second analysis.
- D4 Sample was diluted due to the presence of high levels of target analytes.
- G+ Late peaks present outside the GRO window.
- G- Early peaks present outside the GRO window.
- H5 Reanalysis conducted in excess of EPA method holding time. Results confirm original analysis performed in hold time.
- N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.



# QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

North Central Petroleum 2946

Pace Project No.: 10564129

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10564129001	SB-1 3'	NWTPH-Gx	749613	NWTPH-Gx	749779
10564129002	SB-1 6'	NWTPH-Gx	749613	NWTPH-Gx	749779
10564129003	SB-2 3'	NWTPH-Gx	749613	NWTPH-Gx	749779
10564129004	SB-2 6'	NWTPH-Gx	749613	NWTPH-Gx	749779
10564129005	SB-3 4'	NWTPH-Gx	749613	NWTPH-Gx	749779
10564129006	SB-3 6'	NWTPH-Gx	749613	NWTPH-Gx	749779
10564129007	SB-4 3'	NWTPH-Gx	749613	NWTPH-Gx	749779
10564129008	SB-4 6'	NWTPH-Gx	749613	NWTPH-Gx	749779
10564129009	SB-5 3'	NWTPH-Gx	749649	NWTPH-Gx	749780
0564129010	SB-5 7'	NWTPH-Gx	749649	NWTPH-Gx	749780
0564129011	SB-6 3'	NWTPH-Gx	749649	NWTPH-Gx	749780
0564129012	SB-6 6'	NWTPH-Gx	749649	NWTPH-Gx	749780
0564129018	Trip Blanks	NWTPH-Gx	749649	NWTPH-Gx	749780
10564129013	SB-2	NWTPH-Gx	749289		
10564129014	SB-3	NWTPH-Gx	750533		
10564129015	SB-5	NWTPH-Gx	749289		
10564129016	North Sump	NWTPH-Gx	749289		
0564129017	Trip Blanks	NWTPH-Gx	749289		
0564129001	SB-1 3'	ASTM D2974	747776		
0564129002	SB-1 6'	ASTM D2974	747776		
0564129003	SB-2 3'	ASTM D2974	747776		
0564129004	SB-2 6'	ASTM D2974	747776		
0564129005	SB-3 4'	ASTM D2974	747776		
0564129006	SB-3 6'	ASTM D2974	747776		
0564129007	SB-4 3'	ASTM D2974	747776		
0564129008	SB-4 6'	ASTM D2974	747776		
0564129009	SB-5 3'	ASTM D2974	747776		
0564129010	SB-5 7'	ASTM D2974	747776		
0564129011	SB-6 3'	ASTM D2974	747776		
10564129012	SB-6 6'	ASTM D2974	747776		
0564129001	SB-1 3'	EPA 5035/5030B	748996	EPA 8260D	749062
0564129002	SB-1 6'	EPA 5035/5030B	748996	EPA 8260D	749062
0564129003	SB-2 3'	EPA 5035/5030B	748996	EPA 8260D	749062
0564129004	SB-2 6'	EPA 5035/5030B	748996	EPA 8260D	749062
0564129005	SB-3 4'	EPA 5035/5030B	748996	EPA 8260D	749062
0564129006	SB-3 6'	EPA 5035/5030B	748996	EPA 8260D	749062
0564129007	SB-4 3'	EPA 5035/5030B	748996	EPA 8260D	749062
0564129008	SB-4 6'	EPA 5035/5030B	748996	EPA 8260D	749062
0564129009	SB-5 3'	EPA 5035/5030B	748996	EPA 8260D	749062
0564129010	SB-5 7'	EPA 5035/5030B	748996	EPA 8260D	749062
0564129011	SB-6 3'	EPA 5035/5030B	748996	EPA 8260D	749062
0564129012	SB-6 6'	EPA 5035/5030B	748996	EPA 8260D	749062
10564129018	Trip Blanks	EPA 5035/5030B	748996	EPA 8260D	749062
10564129013	SB-2	EPA 8260D	749685		
10564129014	SB-3	EPA 8260D	749685		



# QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:	North Central Petroleum 2946
Pace Project No.:	10564129

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10564129015	SB-5	EPA 8260D	749685		
10564129016	North Sump	EPA 8260D	749685		
10564129017	Trip Blanks	EPA 8260D	749685		

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# CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

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Pace Analytical<sup>®</sup> www.aacelats.com

# CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

			Doc	ument N	lame:		Docu	ment Revised: 14A	pr2021
	Sample Condition Upon Receipt (SCUR) - MN				(SCUR) - N	/N	Page 1 of 1		
		Document No.:				Pa	Pace Analytical Services ~		
	: 	EN	V-FRM	-MIN4-0	150 Re	v.02		Minneapolis	
Sample Condition Upon Receipt	Client Name: $VNC = C$			Project	#:	WO	<b>#:10</b>	564129	
				_		PM K	SK1	Due Date: 06	/21/21
Courier:	✓ Fed Ex UPS □ Pace □ SpeeDee	USPS	cial L	_Client		CLIEN	T: 11 WC	EC	
Tracking Number	: 1456 2247 6612		56 EN	e Exceptio VV-FRM-MI	ns 🛄 14-0142				
Custody Seal on	Cooler/Box Present?	⊡No	Sea	ais Intacti	?	es 🔲 N	o Biolog	ical Tissue Frozen? [	]Yes ∏No ∕∕N/A
Packing Material	: 🖉 Bubble Wrap 🖉 Bubb	le Bags	None	Oth	er:			Temp Blank?	Yes 🗌 No
Thermometer:	☐ T1(0461) ☐ T2(1336)	459) 🔲 OS418- 16028	-LS 5052	Type of ice:	ØWet	Blue	None	Dry Melted	di da mana ang kana pang sa
Did Samples Origi	nate in West Virginia? 🗌 Yes 🔎	No We	re All Co	ontainer T	emps T	<b>aken?</b> 🗌 Ye	s 🗆 No 🔎	Ń/A	
Temp should be above	e freezing to 6°C Cooler Tem	p Read w/tem	np blank			5-3	°C	Average Corrected	See Exceptions
Correction Factor:	+0. Cooler Temp Cor	rected w/tem	o blank	•	5	4	°c	Temp (no temp blan only): <sup>o</sup> C	k ENV-FRM-MIN4-0142
LISDA Regulated S	oil: ( $\Box$ N/A water sample/Othe	r.		• <u></u>	Date	/Initials of	Person Fyam	ining Contents: 67	18/21 MS7
Did samples origina	te in a quarantine zone within the	United States		' CA, FL, GA	, Dic	samples ori	ginate from a f	oreign source (internation	onally, including
ID, LA. MS, NC, NM,	NY, OK, OR, SC, TN, TX or VA (che	ck maps)?	Yes	⊠No	Ha	waii and Pue	rto Rico)?	∐Yes ☑Ño	
	If Yes to either question, fill or	ut a Regulated	d Soil Ch	necklist (F	-MN-Q-	338) and ir	iclude with S	CUR/COC paperwork	
								COMMENTS:	
Chain of Custody Pre	sent and Filled Out?	<u> </u>			1.			· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
Sampler Name and/	Inquisned r	Zi Yes			2.		·	··· •• • ••• •• •• •• • • • • •	
Samples Arrived with	hin Hold Time?	Z Yes			4.				
Short Hold Time Ana	ılysis (<72 hr)?	Yes			5. [	Fecal Colifor	m HPC To Nitrate Nitri	otal Coliform/E coliBOI teOrthophosOther	D/cBOD Hex Chrome
Rush Turn Around T	ime Requested?	Yes	⊿Ño	7	6.				
Sufficient Volume?	· · · · · · · · · · · · · · · · · · ·	Z Yes	No		7.		·		
Correct Containers U	sed?	<b>V</b> yes	<b>□</b> No		8.				
-Pace Containers I Containers Intact?	Used?	∠ Yes ∕ XYes			9.				
Field Filtered Volume	Received for Dissolved Tests?				10.	ls sediment	visible in the	dissolved container?	Yes No
Is sufficient informat	ion available to reconcile the sam	ples			11. If	no, write ID/	Date/Time on (	Container Below:	See Exception
to the COC? Matrix: Water	oil Doil DOther		∏No			for Ol	3-016	6 vials not	ENV-FRM-MIN4-01
All containers needin checked?	g acid/base preservation have be	en 🔤 Yes	□No	ØN/A	12. Sa	mple #			
All containers needin	g preservation are found to be in	□Yes	⊡No	<b>∑</b> ÎN/A		🗌 NaOH	🗌 HN	O₃ ∏H₂SO₄	Zinc Acetate
(HNO <sub>2</sub> , H <sub>2</sub> SO <sub>4</sub> , <2nH,	recommendation? NaOH >9 Sulfide, NaOH>10 Cvan	ide)		•					
			_		Positiv	e for Res.	Yes		See Exception
Exceptions: VOA, Col	iform, TOC/DOC Oil and Grease,	L_ Yes	∐No	J∠]N/A	Chlori	ne? [	No	pH Paper Lot#	ENV-FRM-MIN4-014
DR0/8015 (water) ar					Res. C	niorine	0-6 KOII	0-6 Strip	0-14 Strip
Extra labels present of	on soil VOA or WIDRO containers?	Yes	□No		13.				See Exception
Headspace in VOA Vi	als (greater than 6mm)?	Yes			14			×4 H4	ENV-FRM-MIN4-014
Trip Blank Custody Se	eals Present?	⊠ Yes ⊠Yes			14.	Pace Trip Bla	ank Lot # (if pi	urchased): 306701	041921-3
CLIENT N	OTIFICATION/RESOLUTION	<u></u> بيني					Field	Data Required?	Yes No
Person Contacted:			. <del>.</del>	Date	e/Time:				
Comments/Resoluti	on:				-				
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Project M	anager Review:	1 TROSS				Date	06/0	18/21	leation Office /:
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# Appendix **B**

Soil Boring Logs





# West Central Environmental Consultants

Project Name: North Central Petroleum Location: SR 17 Near MP 123 Drilling Company: AEC Drilling Method: Direct Push



Depth	Elevation	Symbol	Description	Sample	PID   (ppm)   0 1000 2000 3000	Notes
	1843  1842 		SILT moist, dark brown (organic)			
	1841   1840 			SB-1 3'	▲ 1.2	
4 —  5 — 	1839  1838 		SANDY SILT wet, brown to gray, soft			
6 —	1837 			SB-1 6'	• 0.2	
7 —	1836 					
8	1835 		SILTY SAND wet, brownish gray, some gravel, marsh odor			
9	1834 					


		AL C	West Cent Project Name Location: SR Drilling Comp Drilling Meth	tral Environmental Consul North Central Petroleum T7 Near MP 123 Dany: AEC od: Direct Push		tants <b>SB-3</b> Easting (ft): 1980033.75 Northing (ft): 340903.11 Elevation (ft amsl): 1844.07 Boring Depth: 10 ft bgs
Depth	Elevation	Symbol	Description	Sample	PID   (ppm)   0 1000 2000 3000	Notes
	1844 9 1843 0 1843 0 1842 0 1842 0 1841 0 1841 0 1841 0		BACKFILL crushed gravel, gray, dry to moist			Temp well constructed, 0.75-inch PVC. Depth to water = 2.20 feet bgs. Groundwater sample collected (SB-3). Temp well was properly abandoned following sample collection.
	1840 1839 1839 1838 1838 1837 1837 1837		SANDY SILT wet, brown to gray, soft, HC odor and staining	SB-3 4' SB-3 6'	2,082	
8 — 9 — 10 —	1836  1835  		SAND wet, brown, medium, HC odor			



West Central Environmental ConsultantsSB-5Project Name: North Central Petroleum Location: SR 17 Near MP 123 Drilling Company: AEC Drilling Method: Direct PushEasting (ft): 1980098.83 Northing (ft): 340853.66 Elevation (ft amsl): 1846.07 Boring Depth: 10 ft bgs								
Depth	Elevation	Symbol	Description	Sample	PID (ppm) Notes   0 1000 2000 3000			
	1846  1845 		SANDY SILT dry, light gray, with gravel		Temp well constructed, 0.75-inch PVC. Depth to water = 4.15 feet bgs. Groundwater sample collected (SB-5). Temp well was properly abandoned following sample collection.			
	1844  1843  1842 1842 		SILTY SAND moist to wet, dark brown, soft	SB-5 3'	0.8			
	1841 1840 1839 1839 1838 1838 1837 1837 		SANDY SILT wet, dark brown to gray, slight HC odor and stain at 7 feet	SB-5 7'	120.1			



## West Central Environmental Consultants

Project Name: North Central Petroleum Location: SR 17 Near MP 123 Drilling Company: AEC Drilling Method: Direct Push



Easting (ft): 1980130.12 Northing (ft): 340826.60 Elevation (ft amsl): 1847.69 Boring Depth: 10 ft bgs

