Shane C. DeGross
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Remediation

BNSF Railway Company
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Sent via email and us mail

January 25, 2019

Mr. Frank P. Winslow
Washington Department of Ecology
CRO – Toxics Cleanup Program
1250 W Alder St.
Union Gap, Washington 98903

Re:	Draft First Quarter Supplemental Groundwater Data Report
Site Name:	Michael Irrigation
Site Address:	5640 Sunset Highway, Cashmere, WA
Facility/Site ID No.:	3154383
Cleanup Site ID No.:	2149
VCP Project No.:	CE0278

Dear Mr. Winslow,

BNSF Railway Company (BNSF) is delivering for your review and approval this draft supplemental groundwater data report for the referenced Site pursuant to the Scope of Work (Exhibit B) for Agreed Order No. DE 15694.

Three (3) new groundwater monitoring wells were installed, five (5) soil samples were collected from the borings, and groundwater samples were collected from all site wells. Groundwater data from the previously installed wells showed high turbidity and other characteristics that suggest these wells need to be redeveloped to provide representative groundwater samples.

As described in Section 7 (Conclusions & Recommendations) of the enclosed report, BNSF recommends redevelopment of MW-1 through MW-4 and re-sampling these wells to provide data representative of current groundwater conditions. In addition, if high turbidity persists, BNSF requests adding Dissolved Organic Carbon (DOC, Standard Method 5310B) to the analyte list to evaluate differences in TOC and DOC.

Thank you,

Shane C. DeGross
BNSF Railway Company
Manager Environmental Remediation

encl: Draft First Quarter Supplemental Groundwater Data Report

DRAFT FIRST QUARTER SUPPLEMENTAL GROUNDWATER DATA REPORT

BNSF John Michael Lease Site
Cashmere, Washington

Prepared for:

BNSF Railway Company
605 Puyallup Avenue South
Tacoma, Washington 98421

Prepared by:

TRC

January 2019

DRAFT FIRST QUARTER SUPPLEMENTAL GROUNDWATER DATA REPORT

January 25, 2019

BNSF Glacier Park East
Leavenworth, Washington

TRC Project No. 318140

Prepared For:

BNSF Railway Company
605 Puyallup Avenue South
Tacoma, Washington 98421

By:

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1.0 INTRODUCTION

This *Draft First Quarter Supplemental Groundwater Data Report* has been prepared on behalf of BNSF Railway Company (BNSF) to document well installation and groundwater sampling activities conducted in accordance with the *Final Supplemental Groundwater Data Collection Work Plan* dated September 11, 2018 at the John Michael Lease property (FSID 3154383) located adjacent to 5640 Sunset Highway in Cashmere, Chelan County, Washington (the Site, Figure 1). The monitoring well installation and development activities were completed between October 29 and 30, 2018. The groundwater sampling activities were completed between November 7 and 9, 2018.

Pursuant to the State of Washington, Department of Ecology (Ecology) Exhibit B - Scope of Work (SOW) and Schedule of the Agreed Order No. DE 15694 (AO) and a September 17, 2018 Site meeting between Ecology, BNSF, and TRC, three (3) new groundwater monitoring wells (MW-5, MW-6, and MW-7) were installed at the Site. Two wells were installed on the northeast side of the tracks, south of existing monitoring well MW-1 and hydraulically downgradient of the soil contamination present on the east side of the tracks, and one well was installed on the southwest side of the tracks, at a location immediately downgradient of an area of documented soil impacts (Figure 2).

The wells were installed in order to collect data to determine if contaminants previously identified in Site soil with historical reported concentrations exceeding the Model Toxics Control Act (MTCA) Method A cleanup levels (CULs) for unrestricted land use are present in downgradient Site groundwater. Site-related contaminants in soil have previously been identified as total petroleum hydrocarbons (TPH) as diesel-range organics (DRO), heavy oil-range organics (ORO), and gasoline-range organics (GRO); benzene, naphthalene, and carcinogenic polycyclic aromatic hydrocarbons (cPAHs). Site-related contaminants in groundwater have previously been identified as DRO, ORO, benzene, and cPAHs. Reported concentrations in samples collected from Site monitoring wells have been below MTCA Method A CULs over five consecutive sampling events conducted between September 2012 and August 2015.

2.0 BACKGROUND

The site consists of portions of the BNSF right-of-way on either side of active mainline railroad tracks (rail line) proximal to the real property at 5640 Sunset Highway, at the northeast corner of the intersection of Hagman Road and Sunset Highway in Cashmere, Washington (Figure 1). A portion of the BNSF right-of-way is leased by the adjacent Michael's Tires, a commercial business at 5640 Sunset Highway in Cashmere, Washington.

According to the Chelan County Assessor's Office (2010) website, the 0.34-acre leased property is identified as Parcel No. 231905120070 (Figure 2). The BNSF right-of-way included in the Site is not identified as real property. The Wenatchee River is adjacent to the Site to the east and flows parallel to the BNSF rail line to the southeast (Figure 2).

Limited information pertaining to the history of the Site was located. A tanker derailment and subsequent spill of crude oil that occurred sometime in the 1930s (EMR, 2005) was verbally confirmed by local residents during field activities (Farallon, 2008). However, no formal record of the derailment or spill has been located.

2.1 Geology and Hydrogeology

The Site is located within the Wenatchee River Valley, approximately 9 miles upstream of the confluence of the Wenatchee and Columbia Rivers. Previous work showed the eastern portion of the Site comprises fill material underlain by Pleistocene alluvial sediments deposited by the Wenatchee River; the western portion of the Site comprises Pleistocene deposits of till, outwash, and glaciolacustrine material (Washington State Geological Survey, as cited in Farallon, 2016).

Soils previously encountered at the Site consisted of sand and gravel with some silt, cobbles, debris, and organic material overlying granitic bedrock (Farallon, 2016). Debris previously observed on the eastern portion of the Site is representative of fill material, however, debris was not encountered in the borings during this investigation. The conditions encountered were not stratified in discernible zones within the depths investigated.

Water levels were measured in monitoring wells at the Site on August 6, 2008; April 7, 2009; September 25 and December 11, 2012; March 20 and June 19, 2013; and August 11, 2015. Groundwater elevations were consistent from August 2008 to August 2015, with little variation in depth to water between events. Groundwater flow at the Site is generally to the east to southeast, toward the Wenatchee River.

3.0 MONITORING WELL INSTALLATION

3.1 Pre-Field Activities

A site- and job-specific health and safety plan was developed that promoted personnel safety and preparedness during the planned activities. Prior to commencement of the field activities, a “tailgate” meeting was conducted with all exclusion zone workers to discuss the health and safety issues and concerns related to the specific work.

To determine feasible monitoring well locations that would meet the goals of the data gap evaluation, and that would be acceptable to Ecology, TRC and BNSF met with Ecology at the Site on July 10, 2018 to evaluate feasible and acceptable well locations. During the Site visit, it was determined that two monitoring wells (MW-5 and MW-6) would be installed at accessible locations on the northeast side of the tracks, south of existing monitoring well MW-1 and hydraulically downgradient of the soil contamination present on the east side of the rail line. Additionally, the possibility of installing a third monitoring well (MW-7) was discussed at a location on the southwest side of the tracks in a location immediately downgradient of the source area, between test pits TP-28 and TP-29.

On September 17, 2018, TRC met with BNSF and Holocene Drilling, Inc. (Holocene) at the Site to evaluate the feasibility of installing proposed well MW-7 beneath the overhead power and communication. Holocene indicated that the rig intended for the job had a mast height of 16 feet and would require 15 feet of vertical clearance between the top of the mast and the power lines. The three power lines were located well above the limits of clearance, however two lower lines were not greater than 15 feet above the top of mast.

To address concerns regarding the two lower lines, TRC contacted the Chelan County Public Utility District (CCPUD) to obtain information on the lines located above the proposed location of MW-7. Mr. Jeff Flader with the CCPUD provided the following information regarding the overhead utility lines located directly above the proposed location of well MW-7:

- The lowermost CCPUD power line (115KV) line at 42 feet above grade at the well site;
- CCPUD 144 Count Fiber line at 21 feet above grade at the well site; and
- Frontier Communications phone line at 19 feet above grade at the well site.

Based on the information provided by CCPUD, and confirmation from CCPUD and Frontier Communications that no height restrictions existed with regards to mast height below the lines, TRC and BNSF determined that the proposed location of MW-7 was feasible and that it was safe to operate the drill rig at that location.

The monitoring well locations were marked at the Site with white paint, and the Washington Utility Notification Center (WUNC) was notified at least two business days prior to the commencement of field activities to mark underground utilities at the property boundaries and selected boring location. Additionally, BNSF's Communications Network Control Center was contacted to have BNSF signal and telecommunication buried utilities marked at the Site. Utilities Plus, LLC, a private utility locating company, out of Yakima, Washington, was contracted to confirm the absence of buried utilities at the boring location.

Notice of Intent forms and applicable fees were submitted to Ecology at least 72 hours prior to mobilization to the Site in accordance with Washington Administrative Code (WAC) Chapter 173-160 Section 151.

3.2 Monitoring Well Installation Activities

TRC oversaw and directed the installation of three (3) monitoring wells (designated MW-5, MW-6, and MW-7). A representative from Ecology was onsite during the completion of the pilot borings for MW-5, MW-6, and MW-7 and the installation of monitoring wells MW-5 and MW-6.

Monitoring well MW-5 was installed approximately 50 feet southeast of existing monitoring well MW-1, monitoring well MW-6 was installed approximately 100 feet southeast of monitoring well MW-1, and monitoring well MW-7 was installed approximately 100 feet

east-northeast of existing monitoring well MW-4, and immediately downgradient of an area of documented soil impact.

A copy of the well construction logs is included in Appendix A and the well locations are shown on Figure 2.

3.2.1 Soil Sampling

The pilot borings were completed by Holocene out of Puyallup, Washington using a track-mounted Geoprobe 8140 LC Sonic rig. Soil sample cores were collected continuously starting at ground surface to total depth and extruded into plastic sleeves for examination and lithologic description in accordance with the Unified Soil Classification System (ASTM D-2487) and TRC's Standard Operating Procedure (SOP) (ECR 005) for soil classification. Each core was screened at least every five feet for odors, visual staining, and/or evidence of volatile compound contamination using a photoionization detector (PID).

If evidence of soil contamination was observed in the smear zone (the area between the high groundwater table and the low groundwater table), a soil sample was collected from the interval exhibiting the greatest evidence of contamination or the interval immediately above water during the time of drilling. If no evidence of contamination was observed within the vadose zone at the well locations, one vadose zone sample was collected at approximately 2 feet above first encountered groundwater or soil saturation. In addition, a soil sample was collected at each proposed well location from the saturated zone below the water table except as noted below:

- A sample was not collected in the vadose zone from MW-5 due to the presence of cobbles and rock having particle sizes too large to sample at depth above the water table. Additionally, there was an insufficient volume of matrix present to sample.

A total of five (5) soil samples were collected and submitted to Pace National of Mt. Juliet, Tennessee, under chain-of-custody protocols, for analysis of the following compounds:

- DRO and ORO by Northwest Method NWTPH-Dx (with and without Silica Gel Cleanup [SGC]);
    - Soil samples were analyzed with and without SGC in order to determine the potential for interferences of naturally occurring non-petroleum organic matter during the extraction process.
- Gasoline-range organics (GRO) by Northwest Method NWTPH-Gx;
- Naphthalene and cPAHs by US EPA Method 8270D-SIM;
- Benzene, toluene, ethyl benzene, and total xylenes (BTEX) by US EPA Method 8260; and
- Total Organic Carbon (TOC) by US EPA Method 9060A.

Sample depths are shown on the boring logs in Appendix A.

3.2.2 Well Construction and Development

Monitoring wells MW-5, MW-6, and MW-7 were installed by Holocene under the supervision of a licensed geologist. Each well was constructed of Schedule 40 poly vinyl chloride (PVC) well casing with continuous 0.010-inch slotted well screen and set within a filter pack of 10/20 silica sand in accordance with ASTM D5092 *Standard Practice for Design and Installation of Groundwater Monitoring Wells* and TRC's SOP (ECR 007) for well installation. Each well was installed with screen interval and depth designed to intercept the groundwater table at the location. The wellhead was sealed with a watertight, lockable well cap. A flush-mounted, watertight, traffic-rated monument well box was installed over the wellhead.

The wells were constructed as follows:

Well ID	Casing/Screen Diameter (inches)	Total Depth (ft bgs)	Screen Interval (ft bgs)
MW-5	2	20	10-20
MW-6	2	20	10-20
MW-7	2	15	5-15

The wells were developed on October 30, 2018 following the procedures described in the well installation work plan and outlined in TRC's SOP (ECR 006) for well development. Each well was developed by surging and purging water to remove fine-grained material from the wells. Purge water was monitored for field parameters including pH, electrical conductivity (EC), temperature, and turbidity. Well development continued until field parameters stabilized (i.e., turbidity readings reach between five [5] and fifty [50] Nephelometric Turbidity Units [NTU]), a minimum of ten well volumes had been purged from well, or the well purged dry and recovery rates prohibited further development.

Erlandsen, Inc., a licensed surveyor out of Wenatchee, Washington, surveyed the horizontal coordinates and top of casing elevations of all Site wells (MW-1 through MW-7) on November 7, 2018. The surveyed northings and eastings were based on the North American Datum of 1983 (NAD83) datum and the surveyed elevations were based on the North American Vertical Datum of 1988 (NAVD88). A copy of the surveyor's report is included in Appendix B.

3.2.3 Soil Analytical Results

The analytical results of soil samples submitted for analysis are discussed below.

MTCA Method A soil cleanup levels were selected as screening levels as they are the most stringent cleanup levels under applicable state or federal laws.

- TOC ranged from 2,350 mg/kg (in the sample from MW-6 at 10.5 ft bgs) to 6,140 mg/kg (in the sample from MW-5 at 16.0 ft bgs), within the normal range of organic matter in soil.

- Turbidity measured during sampling ranged from 44.2 Nephelometric turbidity units (NTU) (at MW-5) to 515 NTU (MW-1).
    - The samples were collected following stabilization of turbidity measurements to within 10% for three consecutive readings, with the exception of MW-1, which was sampled prior to stabilization due to the well purging dry prior to sample collection.
- DRO and ORO were detected in the soil sample from MW-7 at 10 ft bgs with reported concentrations (4,480 mg/kg and 4,890 mg/kg before SGC and 2,220 mg/kg and 2,930 mg/kg after SGC) exceeding their respective CULs (2,000 mg/kg). GRO, ethylbenzene, and total xylenes were detected in the sample with reported concentrations below their respective CULs.
- DRO and ORO were detected in the soil sample collected from MW-7 at 12 ft bgs with reported concentrations below their respective CULs.
- DRO, ORO, and GRO were detected in the sample from MW-5 collected at 16 ft bgs with reported concentrations below their respective CULs.
- There were no detections of TPH or BTEX compounds at or above the laboratory reporting limits in the soil samples collected from MW-6 at 10.5 and 12.5 ft bgs.
- Benzo(a)pyrene was detected with a reported concentration (0.130 mg/kg) exceeding the CUL (0.10 mg/kg) in the soil sample from MW-7 at 10 ft bgs. Benzo(a)anthracene, chrysene, benzo(b)fluoranthene, and benzo(k)fluoranthene were also detected in the sample with reported concentrations of 0.251 mg/kg, 0.668 mg/kg, 0.0967 mg/kg, and 0.0259 mg/kg, respectively. The total cPAH total toxicity equivalency (TEQ) of benzo(a)pyrene for the sample exceeded the CUL (0.10 mg/kg). There were no other detections of cPAHs or naphthalene in the sample at or above the laboratory reporting limits.
- Benzo(a)anthracene and chrysene were detected in the sample from MW-7 at 12 ft bgs, however, the total cPAH TEQ for benzo(a)pyrene was below the CUL for the sample. There were no other detections of cPAHs or naphthalene in the sample at or above the laboratory reporting limits.
- There were no detections of cPAHs or naphthalene in the soil samples from MW-5 or MW-6 at or above the laboratory reporting limits.

The analytical results of soil samples submitted for analysis of TPH and BTEX compounds are summarized in Table 1. The analytical results of soil samples submitted for analysis of cPAHs are summarized in Table 2.

Copies of the laboratory analytical reports and chain-of-custody documentation are provided in Appendix C.

4.0 GROUNDWATER MONITORING AND SAMPLING ACTIVITIES

4.1 Monitoring Well Gauging and Sampling

On November 7, 2018 depth to groundwater was gauged in the seven (7) site monitoring wells (MW-1 through MW-7) and groundwater samples were collected from the wells between November 7 and November 9, 2018. A representative from Ecology was onsite on November 8, 2018 during the collection of samples from MW-5, MW-6, and MW-7. The Ecology representative collected split samples for analysis of volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). The locations of the monitoring wells are shown in Figure 2.

Groundwater samples from monitoring wells were collected by bladder pump with disposable polyethylene bladders and new skip bonded polyethylene tubing using low-flow purging and sampling procedures in accordance with TRC's SOP (ECR 009) for groundwater sampling. During sample collection, TRC recorded geochemical parameters such as dissolved oxygen (DO), pH, temperature, conductivity, turbidity, and oxidation reduction potential (ORP) using a YSI multi-meter and flow-through cell and Hach 2100Q turbidity meter.

Following parameter stabilization, the discharge tubing was disconnected from the flow-through cell and the samples were collected in laboratory provided bottles and immediately placed on ice. The bladder pump was disassembled and decontaminated and the disposable bladder was replaced between each sampling location.

A total of seven (7) groundwater samples were collected and submitted to Pace National of Mt. Juliet, Tennessee, under chain-of-custody protocols, for analysis of the following compounds:

- DRO and ORO by Northwest Method NWTPH-Dx (with and without SGC);
    - Groundwater samples were analyzed with and without SGC in order to determine the potential for interferences of naturally occurring non-petroleum organic matter during the extraction process.
- Gasoline-range organics (GRO) by Northwest Method NWTPH-Gx;
- Naphthalene and cPAHs by US EPA Method 8270D-SIM;
- BTEX by US EPA Method 8260; and
- TOC by US EPA Method 9060A.

Copies of the laboratory analytical reports and chain-of-custody documentation are provided in Appendix C.

5.0 GROUNDWATER MONITORING RESULTS

5.1 Groundwater Flow Direction

During the November 2018 monitoring event, groundwater elevations ranged from 788.88 feet above mean sea level (amsl) at monitoring well MW-5 to 794.96 feet amsl at MW-2 (Table 3).

The interpreted groundwater gradient is to the east-southeast towards the Wenatchee River (Figure 3), and is consistent with previous interpretations. The groundwater gradient is steeper in the eastern and western areas of the Site, with an approximate gradient of 0.040. In the middle area of the Site, the groundwater gradient is approximately 0.017.

5.2 Groundwater Sample Results

The analytical results of groundwater samples collected during the November 2018 monitoring event are summarized below:

- TOC ranged from 1,470 micrograms per liter (µg/L) (in the sample from MW-2) to 2,680 µg/L (in the sample from MW-1).
- DRO and ORO were detected in the groundwater sample from MW-1 with reported concentrations before SGC (1,760 µg/L and 2,760 µg/L, respectively) and after SGC (703 µg/L and 1,220 µg/L, respectively) exceeding the CUL (500 µg/L).
- DRO and ORO were detected in the groundwater sample from MW-7 with reported concentrations before SGC (743 µg/L and 707 µg/L, respectively) exceeding the CUL (500 µg/L). DRO was detected in the groundwater sample from MW-7 after SGC with a reported concentration of 200 µg/L.
- There were no other detections of DRO or ORO before or after SGC at or above the laboratory reporting limits in groundwater samples collected during this event.
- GRO was detected in one groundwater sample from MW- 2 at a reported concentration (100 µg/L) that did not exceed the CUL (1,000 µg/L). There were no other detections of GRO at or above the laboratory reporting limit in groundwater samples collected during this event.
- There were no detections of BTEX, cPAHs or naphthalene in the Site groundwater samples at or above the laboratory reporting limits.

Groundwater analytical results are provided in Tables 4 and 5 and measured field parameters at the time of sampling are provided in Table 6. Groundwater analytical results are shown on Figure 4.

6.0 INVESTIGATION DERIVED WASTE

Soil cuttings, purged groundwater, and decontamination fluids generated during the drilling and groundwater sampling activities were placed in properly labeled 55-gallon Department of Transportation (DOT)-rated steel drums and temporarily stored near the southern

boundary of the Site between Sunset Highway and the BNSF railroad tracks. All drums were labeled with a non-hazardous waste label which includes the name of generator, site name, and contents of drum. Drums are stored on-site pending transport to a BNSF-approved waste facility by a Washington state approved waste handler. Waste transport and disposal occurred on January 9, 2019, as documented in the manifest (Appendix D).

7.0 CONCLUSIONS AND RECOMMENDATIONS

Monitoring wells MW-5 and MW-6 were installed at locations on the east side of the rail line and hydraulically downgradient of the soil contamination present on the west side of the tracks. There were no detections of Site-related contaminants exceeding the CULs in the soil and groundwater samples collected from MW-5 and MW-6.

Monitoring well MW-7 was installed on the southwest side of the tracks at a location agreed to by Ecology and presumed to be immediately downgradient of an area of documented soil impacts. However, based on the analytical results of soil samples collected from the pilot boring for MW-7 (DRO, ORO, and benzo(a)pyrene at reported concentrations exceeding their respective CULs), the well was installed within the extent of soil contamination present on the west side of the tracks. The extent is bounded to the east by TP28, and the extent has been updated on Figure 2. Additional step-outs to the east are not feasible, given the proximity of the track prism, and are not recommended, as sufficient characterization data exists to the east of the track prism.

DRO and ORO were reported at concentrations exceeding the CUL in MW-1 and MW-7. Both wells are located within areas of soil contamination. There were no other detections of Site-related contaminants in groundwater samples from this event with reported concentrations exceeding the CULs.

MW-1 had the lowest recharge rate, the highest final turbidity (which did not stabilize before it purged dry), the lowest DO, and the highest TOC result, indicating the groundwater sample may be biased high due to entrained particulates and not representative of dissolved phase contaminant concentrations. Such suspended particulate matter may be a result of enhanced biological activity in the aquifer near the well, which can function as a conduit for oxygen, and the resulting degradation of organic compounds, including naturally occurring organic matter (NOM) and petroleum hydrocarbons. Degradation of NOM and consumption of DO is consistent with high turbidity and TOC and low DO in groundwater. When subjected to SGC, DRO and ORO concentrations in the groundwater sample from MW-1 were decreased to approximately 42% of their initial values (but remained above the CULs). Similarly, when subjected to SGC, DRO and ORO concentrations in the groundwater sample from MW-7 were reduced by as much as 73% to concentrations at or below the reporting limits and well below the CULs. These decreases are consistent with removal of organic interferences with the NWTPH-Dx method.

Due to the low recharge rate and high turbidity measured in MW-1 prior to sampling (515.0 NTU), as well as the high turbidity values measured in all of the previously installed Site

wells, it is recommended that monitoring wells MW-1 through MW-4 be re-developed at least 48 hours prior to the next sampling event. If high turbidity persists in groundwater monitoring wells, dissolved organic carbon should be added to the analyte list to differentiate between solid-phase and dissolved-phase sources of organic carbon.

Because the next step in the AO process is submission of a *Draft Supplemental Groundwater Data Report*, the next quarterly sampling event should be conducted to incorporate more representative data.

8.0 REFERENCES

Ecology, 2013. Model Toxics Control Act Regulation and Statute, MTCA Cleanup Regulation Chapter 173-340 WAC, Model Toxics Control Act Chapter 70.105D RCW, Uniform Environmental Covenants Act Chapter 64.70 RCW. Publication No. 94-06. Revised 2013.

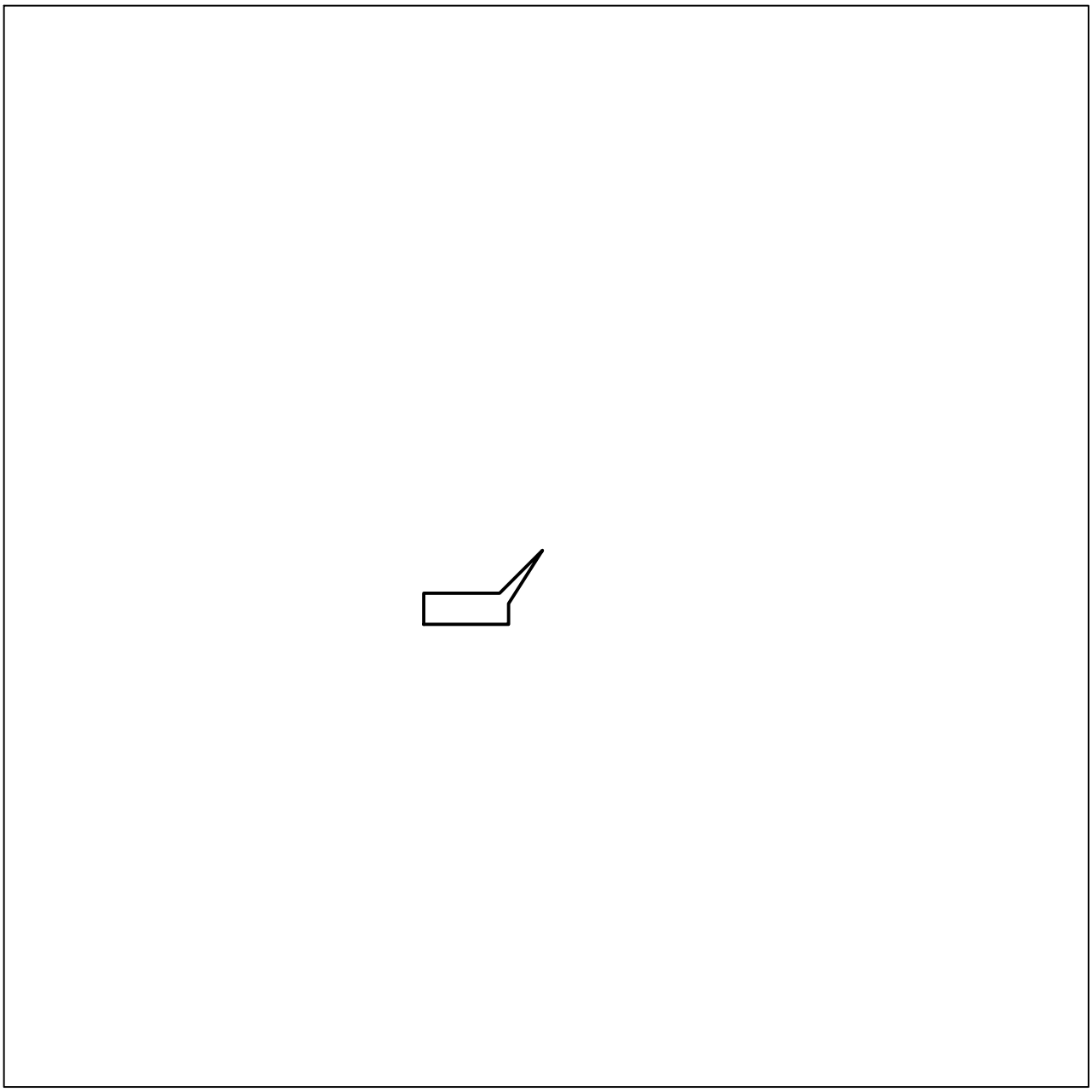
Ecology, 2018. Agreed Order No. DE 15694: Exhibit B – Scope of Work (SOW) and Schedule. May 24.

Farallon Consulting (Farallon), 2016. Supplemental Soil and Groundwater Investigation Report, John Michael Lease Site, 5640 Sunset Highway, Cashmere, Washington. June 29.

TRC, 2018. Final Supplemental Groundwater Data Collection Work Plan, BNSF John Michael Lease Site, Cashmere, Washington. September 11.

Washington State Geological Survey. 2016. Interactive Geological Map of the State of Washington. < https://fortress.wa.gov/dnr/protectiongis/geology/>.

FIGURES



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United States Geological Survey
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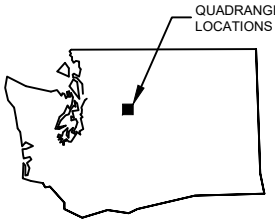
Cashmere and Peshastin Quadrangles,
Washington



PROJECT:

JOHN MICHAEL LEASE SITE
ADJACENT TO 5640 SUNSET HIGHWAY
CASHMERE, WASHINGTON

TITLE:

VICINITY MAP

	R. Collins	PROJ NO	318140.0000.0000
	A. Meugniot		
	B. Helland		**FIGURE 1**
DAT	January 2019		

19874 141st Place N.E.
Woo

Fig1_Vicinity Map.dwg

8.5x11 --- USER: rcollins --- ATTACHED XREFS: --- ATTACHED IMAGES: BNSF Cashmere_Topo_TPC Reversed Out Blue Logo:
DRAWING NAME: L:\CAD_DRAW\Current\BNSF_RR\BNSF Cashmere\Supp GW Data Work Plan_Dec18\ Fig1_Vicinity Map.dwg --- PLOT DATE: January 22, 2019 - 11:03AM --- LAYOUT: 8x11

Version: 2017-10-21

LEGEND

- MW-7 — Monitoring well
- B8 — Boring (EMR, 2004)
- TP29 — Test pit (Farallon, 2007, 2008, 2009)
- TP38 — Supplemental Investigation, soil sample test pit (Farallon, 2012)
- TP34 — Supplemental Investigation, cultural survey and soil sample test pit (Farallon, 2012)
- TP41 — Supplemental Investigation, cultural survey test pit (Farallon, 2012)
- FB-5 — Soil boring (Farallon, 2015)
- DH — Overhead utility line
- BNSF Right-of-Way
- Soils with diesel-range organic (DRO) / oil-range organic (ORO) concentrations above Model Toxics Control Act Method A cleanup levels for unrestricted land use; dashed where inferred

SOURCES:
Base site plan by Farallon Consulting, LLC, June 2016.
Aerial photo by Google Earth, July 2017.

N

SCALE (FEET)
0 50 100

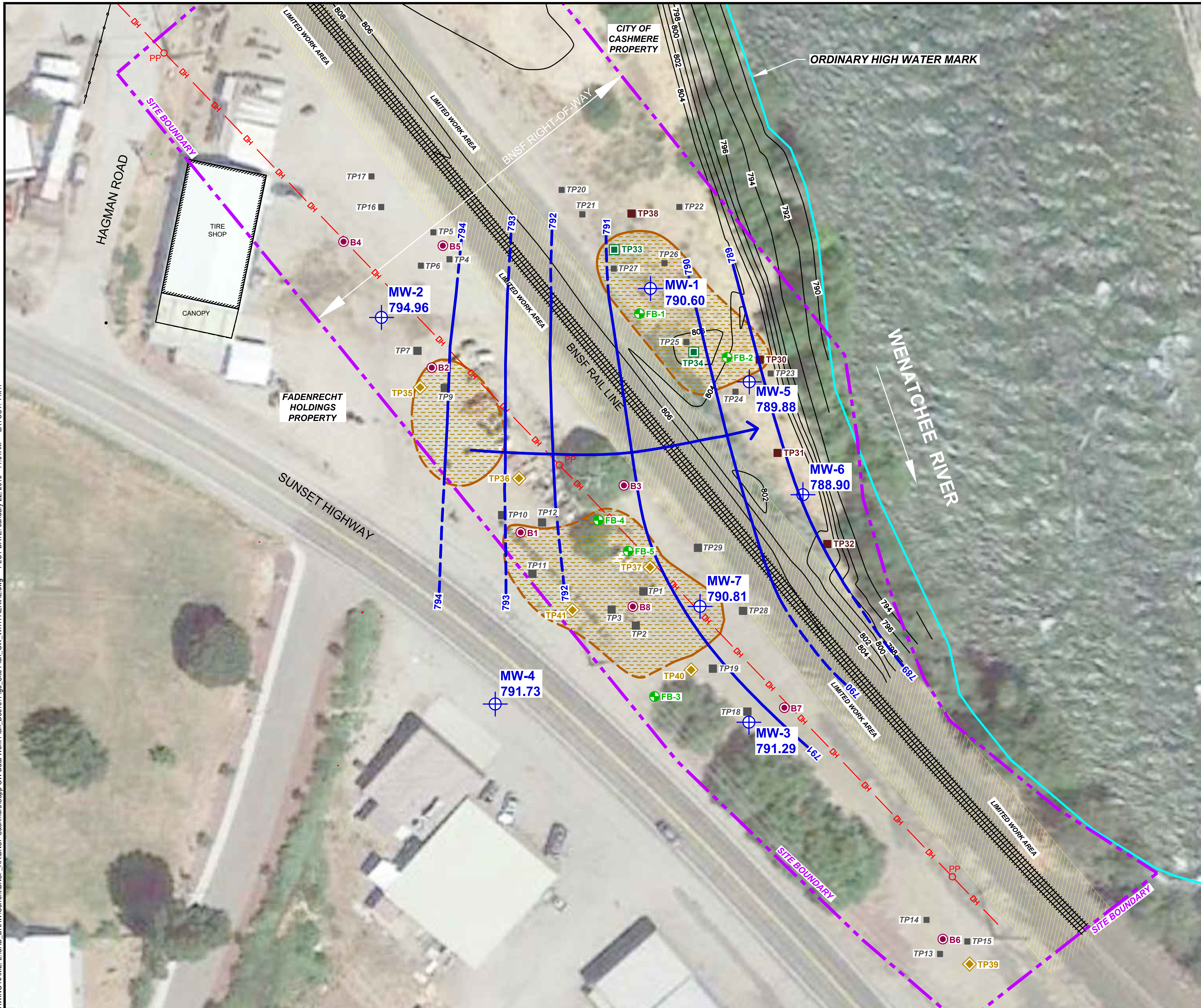
PROJECT:
JOHN MICHAEL LEASE SITE
ADJACENT TO 5640 SUNSET HIGHWAY
CASHMERE, WASHINGTON

TITLE:
SITE PLAN

DRAWN BY:	R. Collins	PROJ NO.:	318140.0000.0000
CHECKED BY:	A. Meugniot		**FIGURE 2**
APPROVED BY:	B. Helland		
DATE:	January 2019		

TRC
19874 141st Place N.E.
Woodinville, WA 98072
Phone: 425.489.1938
www.trcsolutions.com

FILE NO.: Fig2_Site Plan.dwg



LEGEND

MW-7	Monitoring well
B8	Boring (EMR, 2004)
TP29	Test pit (Farallon, 2007, 2008, 2009)
TP38	Supplemental Investigation, soil sample test pit (Farallon, 2012)
TP34	Supplemental Investigation, cultural survey and soil sample test pit (Farallon, 2012)
TP41	Supplemental Investigation, cultural survey test pit (Farallon, 2012)
FB-5	Soil boring (Farallon, 2015)
— OH —	Overhead utility line
	BNSF Right-of-Way
789.88	Groundwater elevation (November 2018)
794	Interpreted groundwater elevation contour line (November 2018) dashed where inferred
	Interpreted gradient direction (November 2018)
	Soils with diesel-range organic (DRO) / oil-range organic (ORO) concentrations above Model Toxics Control Act Method A cleanup levels for unrestricted land use; dashed where inferred

SOURCES:
Base site plan by Farallon Consulting, LLC, June 2016.
Aerial photo by Google Earth, July 2017.

N

SCALE (FEET)
0 50 100

PROJECT:
JOHN MICHAEL LEASE SITE
ADJACENT TO 5640 SUNSET HIGHWAY
CASHMERE, WASHINGTON

TITLE:
GROUNDWATER ELEVATION CONTOUR MAP
November 2018

DRAWN BY:	R. Collins	PROJ NO.:	318140.0000.0000
CHECKED BY:	A. Meugniot		**FIGURE 3**
APPROVED BY:	B. Helland		
DATE:	January 2019		

TRC

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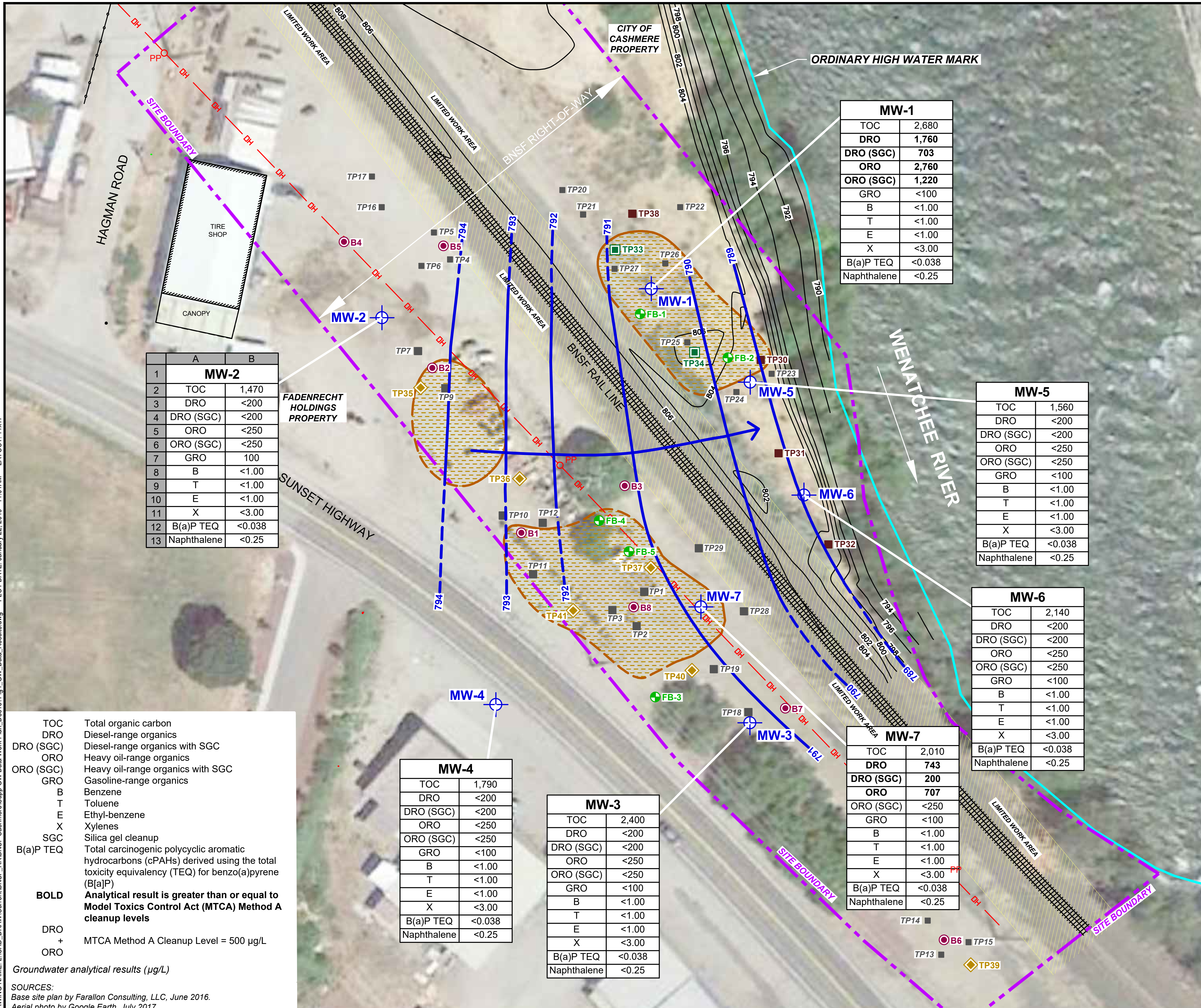
FILE NO.: Fig3_Site Plan_GW_WITH AERIAL.dwg

DRAWING NAME: L:\CAD_DRAW\Current\BNSF_RR\BNSF Cashmere\Supp GW Data Work Plan_Dec18\ Fig3_Site Plan_GW_WITH AERIAL.dwg --- PLOT DATE: January 22, 2019 - 11:01AM --- LAYOUT: 11x17
Version: 2017-10-21



	A	B
1	**MW-2**	
2	TOC	1,470
3	DRO	<200
4	DRO (SGC)	<200
5	ORO	<250
6	ORO (SGC)	<250
7	GRO	100
8	B	<1.00
9	T	<1.00
10	E	<1.00
11	X	<3.00
12	B(a)P TEQ	<0.038
13	Naphthalene	<0.25

MW-1	
TOC	2,680
DRO	**1,760**
DRO (SGC)	**703**
ORO	**2,760**
ORO (SGC)	**1,220**
GRO	<100
B	<1.00
T	<1.00
E	<1.00
X	<3.00
B(a)P TEQ	<0.038
Naphthalene	<0.25

MW-5	
TOC	1,560
DRO	<200
DRO (SGC)	<200
ORO	<250
ORO (SGC)	<250
GRO	<100
B	<1.00
T	<1.00
E	<1.00
X	<3.00
B(a)P TEQ	<0.038
Naphthalene	<0.25

MW-6	
TOC	2,140
DRO	<200
DRO (SGC)	<200
ORO	<250
ORO (SGC)	<250
GRO	<100
B	<1.00
T	<1.00
E	<1.00
X	<3.00
B(a)P TEQ	<0.038
Naphthalene	<0.25

MW-4	
TOC	1,790
DRO	<200
DRO (SGC)	<200
ORO	<250
ORO (SGC)	<250
GRO	<100
B	<1.00
T	<1.00
E	<1.00
X	<3.00
B(a)P TEQ	<0.038
Naphthalene	<0.25

MW-3	
TOC	2,400
DRO	<200
DRO (SGC)	<200
ORO	<250
ORO (SGC)	<250
GRO	<100
B	<1.00
T	<1.00
E	<1.00
X	<3.00
B(a)P TEQ	<0.038
Naphthalene	<0.25

MW-7	
TOC	2,010
DRO	**743**
DRO (SGC)	**200**
ORO	**707**
ORO (SGC)	<250
GRO	<100
B	<1.00
T	<1.00
E	<1.00
X	<3.00
B(a)P TEQ	<0.038
Naphthalene	<0.25

TOC	Total organic carbon
DRO	Diesel-range organics
DRO (SGC)	Diesel-range organics with SGC
ORO	Heavy oil-range organics
ORO (SGC)	Heavy oil-range organics with SGC
GRO	Gasoline-range organics
B	Benzene
T	Toluene
E	Ethyl-benzene
X	Xylenes
SGC	Silica gel cleanup
B(a)P TEQ	Total carcinogenic polycyclic aromatic hydrocarbons (cPAHs) derived using the total toxicity equivalency (TEQ) for benzo(a)pyrene (B[a]P)
BOLD	**Analytical result is greater than or equal to Model Toxics Control Act (MTCA) Method A cleanup levels**
DRO + ORO	MTCA Method A Cleanup Level = 500 µg/L

Groundwater analytical results (µg/L)

SOURCES:
Base site plan by Farallon Consulting, LLC, June 2016.
Aerial photo by Google Earth, July 2017.

LEGEND

- MW-7 — Monitoring well
- B8 — Boring (EMR, 2004)
- TP29 — Test pit (Farallon, 2007, 2008, 2009)
- TP38 — Supplemental Investigation, soil sample test pit (Farallon, 2012)
- TP34 — Supplemental Investigation, cultural survey and soil sample test pit (Farallon, 2012)
- TP41 — Supplemental Investigation, cultural survey test pit (Farallon, 2012)
- FB-5 — Soil boring (Farallon, 2015)
- OH — Overhead utility line
- BNSF Right-of-Way
- 794 — Interpreted groundwater elevation contour line (November 2018) dashed where inferred
- Interpreted gradient direction (November 2018)
- Soils with diesel-range organic (DRO) / oil-range organic (ORO) concentrations above Model Toxics Control Act Method A cleanup levels for unrestricted land use; dashed where inferred

N

SCALE (FEET) 0 50 100

PROJECT:
JOHN MICHAEL LEASE SITE ADJACENT TO 5640 SUNSET HIGHWAY CASHMERE, WASHINGTON

TITLE:
GROUNDWATER ANALYTICAL RESULTS November 2018

DRAWN BY:	R. Collins	PROJ NO.:	318140.0000.0000
CHECKED BY:	A. Meugniot		**FIGURE 4**
APPROVED BY:	B. Helland		
DATE:	January 2019		

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FILE NO.: Fig4_GW_Data_Results.dwg

DRAWING NAME: L:\CAD_DRAW\Current\BNSF_RR\BNSF Cashmere\Supp GW Data Work Plan_Dec18\Fig4_GW_Data_Results.dwg --- PLOT DATE: January 22, 2019 - 11:01AM --- LAYOUT: 11x17

Version: 2017-10-21

TABLES

Table 1
Summary of Soil Analytical Results
TPH and BTEX
John Michael Lease Site
Cashmere, Washington

Analytical Results in milligrams per kilogram (mg/kg)

Location ID	Sampled By	Sample Date	Sample Depth (ft bgs)	TOC	TPH					VOCs[c]			
					DRO[a] (w/ SGC)	DRO[a] (w/o SGC)	ORO[a] (w/ SGC)	ORO[a] (w/o SGC)	GRO[b]	Benzene	Toluene	Ethyl-benzene	Xylenes
MTCA Method A Cleanup Levels for Soil[d]				**NE**	**2,000**	**2,000**	**2,000**	**2,000**	**100/30**	**0.03**	**7**	**6**	**9**
Monitoring Well Borings													
MW-1	Farallon	07/29/08	10.0	--	**38,700**	--	**58,100**	--	**1,250**	<0.449	<0.748	**3.08**	**8.14**
MW-4	Farallon	07/29/08	5.0	--	**11.0**	--	**80.4**	--	<5.07	<0.0304	<0.0507	<0.0507	<0.101
MW-5	TRC	10/29/18	16.0	6,140	**22.2**	**41.4**	**41.4**	**60.4**	**2.99 B**	<0.00111	<0.00555	<0.00278	<0.00722
MW-6	TRC	10/29/18	10.5	2,350	<4.32	<4.32	<10.8	<10.8	<2.78	<0.00112	<0.00562	<0.00281	<0.00731
MW-6	TRC	10/29/18	12.5	2,530	<4.58	<4.58	<11.5	<11.5	<2.86	<0.00115	<0.00573	<0.00286	<0.00745
MW-7	TRC	10/30/18	10.0	5,570	**2,220**	**4,480**	**2,930**	**4,890**	**8.89 B**	<0.00102	<0.00511	**0.00267**	**0.0118**
MW-7	TRC	10/30/18	12.0	2,960	**47.9**	**51.4**	**129**	**129**	<2.66	<0.00106	<0.00531	<0.00266	<0.00691
Soil Borings													
B-1	EMR	12/01/04	4.0	--	**446**	--	**7,610**	--	<4.13	<0.0206	<0.0413	<0.0413	<0.0825
B-2	EMR	12/01/04	8.0	--	**3,620**	--	**7,380**	--	**795**	<2.11	<4.21	<4.21	<8.42
B-3	EMR	12/01/04	6.0	--	<24.8	--	<49.5	--	<4.26	<0.0213	<0.0426	<0.0426	<0.0853
B-4	EMR	12/01/04	6.0	--	**46.5**	--	**286**	--	<4.21	<0.0237	<0.0475	<0.0475	<0.0949
B-5	EMR	12/01/04	8.0	--	**397**	--	**989**	--	**38.7**	**0.0294**	<0.0421	<0.0421	<0.0841
B-6	EMR	12/01/04	5.0	--	**35.9**	--	**320**	--	<4.85	<0.0243	<0.0485	<0.0485	<0.097
B-7	EMR	12/01/04	3.0	--	<24.5	--	<48.9	--	<4.24	<0.0212	<0.0424	<0.0424	<0.0848
B-8	EMR	12/01/04	5.0	--	**433**	--	**6,320**	--	<4.42	<0.0221	<0.0442	<0.0442	<0.0883
FB-1	Farallon	9/15/2015	10.0	--	**2,660**	--	**442**	--	<100	--	--	--	--
FB-2	Farallon	9/15/2015	10.0	--	<100	--	<250	--	<100	--	--	--	--
FB-4	Farallon	8/25/2015	8.5	--	**1,800**	--	**742**	--	<100	<0.50	<5.0	<0.50	<1.50
Test Pits													
TP1	Farallon	09/20/07	0-2	--	<19.5	--	**314**	--	<5.12	<0.0256	<0.205	<0.205	<0.614
TP1	Farallon	09/20/07	6-8	--	**10,500**	--	**20,900**	--	**17.3**	<0.0240	<0.912	<0.192	<0.576
TP2	Farallon	09/20/07	2-4	--	**21.1**	--	**169**	--	<4.41	<0.0221	<0.177	<0.177	<0.530
TP2	Farallon	09/20/07	6-8	--	**2,210**	--	**11,900**	--	**16.3**	<0.0275	<0.220	<0.220	<0.660
TP3	Farallon	09/20/07	2-4	--	**5.63**	--	**82.8**	--	<4.39	<0.0219	<0.175	<0.175	<0.526
TP3	Farallon	09/20/07	4-6	--	**8.80**	--	**79.1**	--	<5.19	<0.0259	<0.207	<0.207	<0.622
TP4	Farallon	09/20/07	4-6	--	<3.88	--	**85.3**	--	<4.32	<0.0216	<0.173	<0.173	<0.518
TP4	Farallon	09/20/07	6-8	--	**7.33**	--	**92.9**	--	<4.19	<0.0210	<0.168	<0.168	<0.503
TP5	Farallon	09/20/07	2-4	--	<3.96	--	**16.9**	--	<4.81	<0.0241	<0.192	<0.192	<0.577
TP5	Farallon	09/20/07	6-8	--	**5.29**	--	**24.0**	--	<4.37	<0.0218	<0.175	<0.175	<0.524
TP6	Farallon	09/20/07	4-6	--	<19.9	--	**387**	--	<4.42	<0.0221	<0.177	<0.177	<0.530
TP6	Farallon	09/20/07	6-8	--	**24.5**	--	**170**	--	<4.74	<0.0237	<0.190	<0.190	<0.569
TP7	Farallon	09/20/07	2-4	--	**22.1**	--	**125**	--	<5.47	<0.0274	<0.219	<0.219	<0.656
TP7	Farallon	09/20/07	4-6	--	**19.1**	--	**140**	--	<4.59	<0.0229	<0.184	<0.184	<0.551
TP8	Farallon	09/20/07	2-4	--	**17.4**	--	**248**	--	<5.45	<0.0273	<0.218	<0.218	<0.654
TP8	Farallon	09/20/07	6-8	--	**78.9**	--	**701**	--	<5.97	<0.0299	<0.239	<0.239	<0.717
TP9	Farallon	09/20/07	2-4	--	<3.94	--	**10.4**	--	<4.39	<0.0220	<0.176	<0.176	<0.527
TP9	Farallon	09/20/07	6-8	--	<399	--	**9,260**	--	<5.79	<0.0289	<0.232	<0.232	<0.695
TP10	Farallon	09/20/07	2-4	--	**24.4**	--	**174**	--	<5.54	<0.0277	<0.221	<0.221	<0.664

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Summary of Soil Analytical Results
TPH and BTEX
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Cashmere, Washington

Analytical Results in milligrams per kilogram (mg/kg)

Location ID	Sampled By	Sample Date	Sample Depth (ft bgs)	TOC	TPH					VOCs[c]			
					DRO[a] (w/ SGC)	DRO[a] (w/o SGC)	ORO[a] (w/ SGC)	ORO[a] (w/o SGC)	GRO[b]	Benzene	Toluene	Ethyl-benzene	Xylenes
MTCA Method A Cleanup Levels for Soil[d]				**NE**	**2,000**	**2,000**	**2,000**	**2,000**	**100/30**	**0.03**	**7**	**6**	**9**
Test Pits (continued)													
TP10	Farallon	09/20/07	6-8	--	**149**	--	**1,080**	--	**16.8**	**1.73**	**0.265**	<0.242	**1.26**
TP11	Farallon	09/20/07	2-4	--	<3.99	--	**29.2**	--	<4.92	<0.0246	<0.197	<0.197	<0.590
TP11	Farallon	09/20/07	4-6	--	**949**	--	**6,710**	--	<5.43	<0.0271	<0.217	<0.217	<0.651
TP12	Farallon	09/21/07	4-6	--	<3.92	--	**16.5**	--	<4.80	**0.202**	<0.192	<0.192	<0.575
TP12	Farallon	09/21/07	6-8	--	**23.2**	--	**183**	--	**23.4**	**1.17**	<0.232	<0.232	<0.695
TP13	Farallon	09/21/07	0-2	--	<38.9	--	**412**	--	<5.84	<0.0292	<0.234	<0.234	<0.701
TP13	Farallon	09/21/07	6-8	--	<3.88	--	**38.2**	--	<5.42	<0.0271	<0.217	<0.217	<0.650
TP14	Farallon	09/21/07	4-6	--	<7.90	--	**222**	--	<4.46	<0.0223	<0.178	<0.178	<0.535
TP14	Farallon	09/21/07	6-8	--	<19.7	--	**454**	--	<5.49	<0.0275	<0.220	<0.220	<0.659
TP15	Farallon	09/21/07	0-2	--	**58.7**	--	**812**	--	<5.44	<0.0272	<0.218	<0.218	<0.653
TP15	Farallon	09/21/07	4-6	--	**14.5**	--	**194**	--	<5.73	<0.0286	<0.229	<0.229	<0.687
TP17	Farallon	05/06/08	8	--	<211	--	**829**	--	<10.6	<0.0634	<0.106	<0.106	<0.211
TP18	Farallon	05/08/08	8	--	**193**	--	**1,470**	--	<13.7	<0.0823	<0.137	<0.137	<0.274
TP21	Farallon	04/06/09	8	--	**15.5**	--	**129**	--	--	--	--	--	--
TP22	Farallon	04/06/09	15	--	<11.7	--	**52.9**	--	--	--	--	--	--
TP23	Farallon	04/06/09	14	--	**20.4**	--	**119**	--	--	--	--	--	--
TP24	Farallon	04/06/09	14	--	<10.6	--	<26.4	--	--	--	--	--	--
TP25	Farallon	04/06/09	8	--	**318**	--	**1,880**	--	--	--	--	--	--
TP25	Farallon	04/06/09	14	--	**44,500**	--	**61,000**	--	--	--	--	--	--
TP26	Farallon	04/07/09	10	--	<15.5	--	**105**	--	--	--	--	--	--
TP26	Farallon	04/07/09	16	--	**8,080**	--	**12,900**	--	--	--	--	--	--
TP27	Farallon	04/07/09	8	--	<11.8	--	**49.3**	--	--	--	--	--	--
TP27	Farallon	04/07/09	12	--	**37,400**	--	**51,500**	--	--	--	--	--	--
TP28	Farallon	04/07/09	10	--	**47.5**	--	**301**	--	--	--	--	--	--
TP29	Farallon	04/07/09	8	--	**40.1**	--	**397**	--	--	--	--	--	--
TP30	Farallon	06/25/12	14	--	**110**	--	**19,000**	--	<0.25	<0.00037	<0.00067	<0.00037	<0.0015
TP30	Farallon	06/25/12	16	--	**2.4 J**	--	**7.8 J**	--	<0.25	<0.00037	<0.00067	<0.00037	<0.0015
TP31	Farallon	06/25/12	12	--	<2.0	--	<5.0	--	**0.28 J**	<0.00037	<0.00067	<0.00037	<0.0015
TP31	Farallon	06/25/12	16	--	<2.0	--	<5.0	--	<0.25	<0.00037	<0.00067	<0.00037	<0.0015
TP32	Farallon	06/26/12	12	--	<2.0	--	<5.0	--	<0.25	<0.00037	<0.00067	<0.00037	<0.0015
TP32	Farallon	06/26/12	16	--	<2.0	--	**<5.0**	--	<0.25	<0.00037	<0.00067	<0.00037	<0.0015
TP33	Farallon	06/25/12	14	--	**1,000**	--	**1,500**	--	**8.4**	<0.00037	<0.00067	**0.016**	**0.049**
TP34	Farallon	06/25/12	14	--	**120**	--	**19,000**	--	**72**	**0.0079**	**0.032**	**0.20**	**0.47**
TP38	Farallon	06/26/12	4	--	<20	--	**98 J**	--	<0.25	<0.00037	<0.00067	<0.00037	<0.0015
TP38	Farallon	06/26/12	10	--	**60**	--	**70**	--	<0.25	0.0046	<0.00067	<0.00037	<0.0015
TP38	Farallon	06/26/12	12	--	**6.0**	--	**31**	--	<0.25	<0.00037	<0.00067	<0.00037	<0.0015
TP38	Farallon	06/26/12	16	--	<2.0	--	<5.0	--	<0.25	<0.00037	<0.00067	<0.00037	<0.0015

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Summary of Soil Analytical Results
TPH and BTEX
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Cashmere, Washington

Analytical Results in milligrams per kilogram (mg/kg)

Location ID	Sampled By	Sample Date	Sample Depth (ft bgs)	TOC	TPH					VOCs[c]			
					DRO[a] (w/ SGC)	DRO[a] (w/o SGC)	ORO[a] (w/ SGC)	ORO[a] (w/o SGC)	GRO[b]	Benzene	Toluene	Ethyl-benzene	Xylenes
MTCA Method A Cleanup Levels for Soil[d]				**NE**	**2,000**	**2,000**	**2,000**	**2,000**	**100/30**	**0.03**	**7**	**6**	**9**
Test Trenches													
T1-NE	Farallon	05/06/08	8	--	<58.5	--	201	--	<11.3	<0.0679	0.117	<0.113	<0.226
T1-SW	Farallon	05/06/08	8	--	205	--	942	--	<12.6	<0.0755	<0.126	<0.126	<0.252
T2-SW	Farallon	05/06/08	8	--	854	--	**3,840**	--	<15.1	<0.0905	<0.151	<0.151	<0.302
T2-NE	Farallon	05/06/08	8	--	<1,410	--	**3,960**	--	<12.0	<0.0718	<0.120	<0.120	<0.239
T3-SW	Farallon	05/07/08	8	--	<223	--	973	--	<9.35	<0.0561	<0.0935	<0.0935	<0.187
T3-NE	Farallon	05/07/08	8	--	<53.3	--	137	--	**17.6**	<0.0656	<0.109	<0.109	<0.219
T4-S	Farallon	05/07/08	8	--	**2,020**	--	**3,580**	--	**303**	<0.672	<1.12	<1.12	<2.24
T4-N	Farallon	05/07/08	8	--	**6,890**	--	**13,000**	--	**297**	<0.494	<0.823	<0.823	<1.65
T5-NE	Farallon	05/06/08	8	--	71.9	--	175.0	--	**10.1**	<0.0586	<0.0977	<0.0977	<0.195
T5-W	Farallon	05/06/08	8	--	82.9	--	341	--	<15.4	<0.0923	<0.154	<0.154	<0.308
T6-S	Farallon	05/07/08	8	--	**12,100**	--	**16,300**	--	**719**	<0.523	<0.872	1.44	2.92
T6-N	Farallon	05/07/08	10	--	**18,100**	--	**24,300**	--	**271**	<0.0593	<0.0988	0.135	0.862
T7-S	Farallon	05/08/08	8	--	**37,600**	--	**51,600**	--	**1,020**	<0.569	<0.949	<0.949	3.09
T7-N	Farallon	05/08/08	8	--	**6,860**	--	**11,300**	--	**156**	<0.0500	<0.0833	<0.0833	0.359
T8-SW	Farallon	05/08/08	6	--	<12.0	--	<30.0	--	<10.4	<0.0627	<0.104	<0.104	<0.209
T8-NE	Farallon	05/08/08	6	--	<11.6	--	<29.1	--	<10.5	<0.0629	<0.105	<0.105	<0.210

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Analytical Results in milligrams per kilogram (mg/kg)

Location ID	Sampled By	Sample Date	Sample Depth (ft bgs)	TOC	TPH					VOCs[c]			
					DRO[a] (w/ SGC)	DRO[a] (w/o SGC)	ORO[a] (w/ SGC)	ORO[a] (w/o SGC)	GRO[b]	Benzene	Toluene	Ethyl-benzene	Xylenes
MTCA Method A Cleanup Levels for Soil[d]				**NE**	**2,000**	**2,000**	**2,000**	**2,000**	**100/30**	**0.03**	**7**	**6**	**9**

NOTES:
Results in **bold** denote concentrations detected at or above the reporting limit.
Results in bold and shaded denote concentrations detected at or above the applicable cleanup level.
< denotes analyte not detected at or above the given reporting limit.
-- sample was not analyzed for this constituent.
B denotes analyte was detected in the blank and the value presented here may be biased high.

ABBREVIATIONS:
ft bgs = feet below ground surface
TOC = total organic carbon
TPH = total petroleum hydrocarbons
VOC = volatile organic compounds
DRO = diesel-range organics
ORO = heavy oil-range organics
GRO = gasoline-range organics
NE = no cleanup level established
EMR = EMR, Inc.
Farallon = Farallon Consulting, LLC
TRC = TRC Environmental

FOOTNOTES:
[a]Analyzed by Northwest Method NWTPH-Dx.
[b]Analyzed by Northwest Method NWTPH-Gx.
[c]Analyzed by U.S. Environmental Protection Agency Method 8021B. 2018 samples use EPA 8260C
[d]Washington State Department of Ecology, Model Toxics Control Act (MTCA) Cleanup Level and Risk Calculations(CLARC) Tables Method A values for Soil, Chapter 173-340 WAC, MTCA Chapter 70.105D RCW, Uniform Environmental Covenants Act Chapter 64.70 TCW. Publication No. 94-06. Revised August 2015.

Table 2
Summary of Soil Analytical Results
cPAHs and Naphthalene
John Michael Lease Site
Cashmere, Washington

Analytical Results in milligrams per kilogram (mg/kg)

Location ID	Sampled By	Sample Date	Sample Depth (ft bgs)	Semi-Volatile Organic Compounds[a]								
				Benzo (a) anthracene	Chrysene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Indeno (1,2,3-cd) pyrene	Dibenz(a,h) anthracene	B(a)P TEQ[c]	Naphthalene
MTCA Method A Cleanup Levels for Soil[b]				**NE**	**NE**	**NE**	**NE**	**0.10**	**NE**	**NE**	**0.10**	**5**
Monitoring Wells												
MW-5	TRC	10/29/18	16.0	<0.00666	**0.00939**	<0.00666	<0.00666	<0.00666	<0.00666	<0.00666	< 0.0101	<0.0222
MW-6	TRC	10/29/18	10.5	<0.00648	<0.00648	<0.00648	<0.00648	<0.00648	<0.00648	<0.00648	< 0.0098	<0.0216
MW-6	TRC	10/29/18	12.5	<0.00687	<0.00687	<0.00687	<0.00687	<0.00687	<0.00687	<0.00687	< 0.0104	<0.0229
MW-7	TRC	10/30/18	10.0	**0.251**	**0.668**	**0.0967**	**0.0259**	**0.130**	<0.00613	<0.00613	**0.1753**	**0.0685**
MW-7	TRC	10/30/18	12.0	**0.00866**	**0.0199**	<0.00638	<0.00638	<0.00638	<0.00638	<0.00638	< 0.0100	<0.0213
Soil Borings												
FB-1	Farallon	9/15/2015	10	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.076	--
FB-2	Farallon	9/15/2015	10	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.076	--
FB-4	Farallon	8/25/2015	8.5	**0.00577 J**	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.071	--
Test Pits												
TP1	Farallon	09/20/07	0-2	<0.00330	**0.0076**	<0.00330	<0.00330	<0.00330	<0.00330	<0.00330	**0.0026**	<0.00330
TP1	Farallon	09/20/07	6-8	<8.28	<8.28	<8.28	<8.28	<8.28	<8.28	<8.28	< 6.2514	<0.00330
TP2	Farallon	09/20/07	2-4	**0.0313**	**0.0360**	**0.0642**	**0.0282**	**0.0282**	**0.0188**	<0.0156	**0.0436**	<0.0156
TP2	Farallon	09/20/07	6-8	<8.22	<8.22	<8.22	<8.22	<8.22	<8.22	<8.22	< **6.2061**	<0.0156
TP3	Farallon	09/20/07	2-4	<0.00326	**0.00522**	**0.00424**	**0.00456**	<0.00326	**0.00326**	<0.00326	**0.0032**	<0.00326
TP3	Farallon	09/20/07	4-6	<0.00327	<0.00327	<0.00327	<0.00327	<0.00327	<0.00327	<0.00327	< 0.0025	<0.00326
TP4	Farallon	09/20/07	4-6	<0.00316	**0.00411**	**0.00411**	**0.00348**	<0.00316	<0.00316	<0.00316	**0.0029**	<0.00316
TP4	Farallon	09/20/07	6-8	<0.00327	**0.00327**	**0.00392**	<0.00327	<0.00327	<0.00327	<0.00327	**0.0027**	<0.00316
TP5	Farallon	09/20/07	2-4	<0.00320	<0.00320	<0.00320	<0.00320	<0.00320	<0.00320	<0.00320	< 0.0024	<0.00320
TP5	Farallon	09/20/07	6-8	<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	< 0.0025	<0.00320
TP6	Farallon	09/20/07	4-6	**0.00426**	**0.00623**	<0.00328	<0.00328	<0.00328	<0.00328	<0.00328	**0.0028**	<0.00328
TP6	Farallon	09/20/07	6-8	<0.00323	**0.00355**	<0.00323	<0.00323	<0.00323	<0.00323	<0.00323	**0.0025**	<0.00328
TP7	Farallon	09/20/07	2-4	<0.00333	<0.00333	**0.00366**	<0.00333	<0.00333	<0.00333	<0.00333	**0.0027**	<0.00333
TP7	Farallon	09/20/07	4-6	<0.0323	<0.0323	<0.0323	<0.0323	<0.0323	<0.0323	<0.0323	< 0.0024	<0.00333
TP8	Farallon	09/20/07	2-4	**0.0155**	**0.0152**	**0.0107**	**0.00939**	**0.00615**	**0.00324**	<0.00324	**0.0103**	**0.01**
TP8	Farallon	09/20/07	6-8	**0.163**	**0.202**	**0.264**	**0.117**	**0.1300**	**0.0358**	**0.0391**	**0.1939**	**0.01**
TP9	Farallon	09/20/07	2-4	<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	<0.00332	< 0.0025	<0.00332
TP9	Farallon	09/20/07	6-8	<16.6	<16.6	<16.6	<16.6	<16.6	<16.6	<16.6	< **12.5330**	<0.00332
TP10	Farallon	09/20/07	2-4	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	<0.0330	< 0.0249	<0.0330
TP10	Farallon	09/20/07	6-8	<0.0162	**0.0276**	<0.0162	<0.0162	<0.0162	<0.0162	<0.0162	< 0.0124	<0.0330
TP11	Farallon	09/20/07	2-4	**0.00364**	**0.00430**	**0.00530**	**0.00331**	<0.00331	**0.00331**	<0.00331	**0.0034**	<0.00331
TP11	Farallon	09/20/07	4-6	<0.163	<0.163	<0.163	<0.163	<0.163	<0.163	<0.163	< **0.1231**	<0.00331
TP12	Farallon	09/21/07	4-6	<0.00325	<0.00325	<0.00325	<0.00325	<0.00325	<0.00325	<0.00325	< 0.0025	<0.00325
TP12	Farallon	09/21/07	6-8	**0.00657**	**0.0151**	<0.00328	<0.00328	**0.0102**	**0.00722**	<0.00328	**0.0122**	<0.00325
TP13	Farallon	09/21/07	6-8	<0.00329	<0.00329	<0.00329	<0.00329	<0.00329	<0.00329	<0.00329	< 0.0025	<0.00329
TP14	Farallon	09/21/07	4-6	**0.147**	**0.163**	**0.153**	**0.171**	**0.166**	**0.0570**	**0.0374**	**0.2242**	<0.0163
TP14	Farallon	09/21/07	6-8	<0.164	<0.164	<0.164	<0.164	<0.164	<0.164	<0.164	< **0.1238**	<0.0163
TP15	Farallon	09/21/07	0-2	<0.162	<0.162	<0.162	<0.162	<0.162	<0.162	<0.162	< **0.1223**	<0.162
TP15	Farallon	09/21/07	4-6	**0.168**	**0.183**	**0.208**	**0.159**	**0.165**	**0.0586**	**0.0322**	**0.2294**	<0.162
TP17	Farallon	05/06/08	8	<0.107	<0.107	<0.107	<0.107	<0.107	<0.107	<0.107	< **1.4667**	<0.107
TP18	Farallon	05/08/08	8	<0.133	<0.133	<0.133	<0.133	<0.133	<0.133	<0.133	< 0.0823	<0.133

Table 2
Summary of Soil Analytical Results
cPAHs and Naphthalene
John Michael Lease Site
Cashmere, Washington

Analytical Results in milligrams per kilogram (mg/kg)

Location ID	Sampled By	Sample Date	Sample Depth (ft bgs)	Semi-Volatile Organic Compounds[a]								
				Benzo (a) anthracene	Chrysene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Indeno (1,2,3-cd) pyrene	Dibenz(a,h) anthracene	B(a)P TEQ[c]	Naphthalene
MTCA Method A Cleanup Levels for Soil[b]				**NE**	**NE**	**NE**	**NE**	**0.10**	**NE**	**NE**	**0.10**	**5**
Test Pits (continued)												
TP30	Farallon	06/25/12	14	**0.0064 J**	**0.0055 J**	**0.0083**	<0.0013	**0.012**	**0.0018 J**	**0.0057 J**	**0.0087**	--
TP30	Farallon	06/25/12	16	<0.00062	**0.0012 J**	**0.0011 J**	<0.0013	<0.0011	<0.0011	<0.0012	**0.0007**	--
TP31	Farallon	06/25/12	12	**0.0012 J**	**0.0018 J**	**0.0015 J**	<0.0013	<0.0011	<0.0011	<0.0012	**0.0017**	--
TP31	Farallon	06/25/12	16	<0.00062	<0.00092	<0.00082	<0.0013	<0.0011	<0.0011	<0.0012	**0.0006**	--
TP32	Farallon	06/26/12	12	**0.0031 J**	**0.0032 J**	**0.0046 J**	<0.0013	**0.0026 J**	<0.0011	**0.0021 J**	**0.0042**	--
TP32	Farallon	06/26/12	16	<0.00062	<0.00092	<0.00082	<0.0013	<0.0011	<0.0011	<0.0012	**0.0006**	--
TP33	Farallon	06/25/12	14	**0.14 J**	**0.22 J**	**0.14 J**	<0.067	**0.63**	<0.056	<0.058	**0.19**	--
TP34	Farallon	06/25/12	14	**0.27 J**	**1.0**	**0.24 J**	<0.067	<0.055	<0.056	<0.058	**0.40**	--
TP38	Farallon	06/26/12	4	**0.039 J**	**0.045 J**	**0.059 J**	<0.027	**0.026 J**	<0.022	**0.035 J**	**0.056**	--
TP38	Farallon	06/26/12	10	**0.034 J**	**0.097**	**0.082 J**	<0.013	**0.11**	<0.011	<0.012	**0.055**	--
TP38	Farallon	06/26/12	12	**0.0031 J**	<0.00092	**0.0022 J**	<0.0013	**0.0029 J**	**0.0029 J**	**0.0024 J**	**0.0040**	--
TP38	Farallon	06/26/12	16	<0.00062	<0.00092	<0.00082	<0.0013	<0.0011	<0.0011	<0.0012	**0.0006**	--
Test Trenches												
T1-NE	Farallon	05/06/08	8	<0.0117	**0.0155**	<0.0117	<0.0117	<0.0117	<0.0117	<0.0117	< 0.0089	<0.0117
T1-SW	Farallon	05/06/08	8	**0.0255**	**0.0502**	**0.0366**	**0.0204**	**0.0230**	**0.0153**	<0.0128	**0.0339**	**0.02**
T2-NE	Farallon	05/06/08	8	<0.282	<0.282	<0.282	<0.282	<0.282	<0.282	<0.282	< **0.2129**	<0.282
T2-SW	Farallon	05/06/08	8	<0.327	<0.327	<0.327	<0.327	**0.4150**	<0.327	<0.327	**0.4984**	<0.327
T3-NE	Farallon	05/07/08	8	<0.530	**0.635**	<0.530	<0.530	<0.530	<0.530	<0.530	**0.0289**	<0.530
T3-SW	Farallon	05/07/08	8	<0.109	<0.109	<0.109	<0.109	<0.109	<0.109	<0.109	< 0.0091	<0.109
T4-N	Farallon	05/07/08	8	<1.59	**3.39**	<1.59	<1.59	<1.59	<1.59	<1.59	**0.1004**	<1.59
T4-S	Farallon	05/07/08	8	**0.68**	**1.56**	<0.600	<0.600	<0.600	<0.600	<0.600	**0.0808**	<0.600
T5-NE	Farallon	05/06/08	8	<0.0118	<0.0118	<0.0118	<0.0118	<0.0118	<0.0118	<0.0118	< 0.0109	<0.0118
T5-W	Farallon	05/06/08	8	**0.0177**	**0.0237**	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	**1.3165**	**0.05**
T6-N	Farallon	05/07/08	10	**2.68**	**7.17**	<1.61	<1.61	<1.61	<1.61	<1.61	**1.1704**	**87.30**
T6-S	Farallon	05/07/08	8	**1.86**	**4.55**	<1.55	<1.55	<1.55	<1.55	<1.55	**3.5970**	**33.10**
T7-N	Farallon	05/08/08	8	<1.52	**3.04**	<1.52	<1.52	<1.52	<1.52	<1.52	**0.0089**	**6.98**
T7-S	Farallon	05/08/08	8	**5.54**	**13.8**	<4.15	<4.15	<4.15	<4.15	<4.15	**1.2264**	**189.80**
T8-NE	Farallon	05/08/08	6	**0.0212**	**0.0236**	**0.0228**	**0.0188**	**0.0204**	**0.0141**	<0.0118	**0.5036**	<0.0118
T8-SW	Farallon	05/08/08	6	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120	< **0.4039**	<0.0120

Table 2
Summary of Soil Analytical Results
cPAHs and Naphthalene
John Michael Lease Site
Cashmere, Washington

Analytical Results in milligrams per kilogram (mg/kg)

Location ID	Sampled By	Sample Date	Sample Depth (ft bgs)	Semi-Volatile Organic Compounds[a]								
				Benzo (a) anthracene	Chrysene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Indeno (1,2,3-cd) pyrene	Dibenz(a,h) anthracene	B(a)P TEQ[c]	Naphthalene
MTCA Method A Cleanup Levels for Soil[b]				**NE**	**NE**	**NE**	**NE**	**0.10**	**NE**	**NE**	**0.10**	**5**

NOTES:
Results in **bold** denote concentrations detected at or above the reporting limit.
Results in bold and shaded denote concentrations detected at or above the applicable cleanup level.
< denotes analyte not detected at or above the given reporting limit.
-- sample was not analyzed for this constituent.
J denotes analyte was detected in the sample at an estimated concentration between the method detection limit and the reporting limit.

ABBREVIATIONS:
ft bgs = feet below ground surface
B(a)P = benzo(a)pyrene
TEQ = total toxicity equivalency
NE = no cleanup level established
EMR = EMR, Inc.
Farallon = Farallon Consulting, LLC
TRC = TRC Environmental

FOOTNOTES:
[a]Analyzed by U.S. Environmental Protection Agency Method 8270D-SIM.
[b]Washington State Department of Ecology, Model Toxics Control Act (MTCA) Cleanup Level and Risk Calculations(CLARC) Tables Method A values for Soil, Chapter 173-340 WAC, MTCA Chapter 70.105D RCW, Uniform Environmental Covenants Act Chapter 64.70 TCW. Publication No. 94-06. Revised August 2015.
[c]Total carcinogenic polycyclic aromatic hydrocarbons (cPAHs) derived using the total toxicity equivalency (TEQ) for benzo(a)pyrene method in Section 708(8) of Chapter 173-340 of the Washington Administrative Code.
For concentrations reported at less than the laboratory reporting limit, half the reporting limit was used to calculate the TEQ.

Table 3
Summary of Groundwater Elevation Data
John Michael Lease Site
Cashmere, Washington

Well ID	Date Measured	TOC Elevation (ft amsl)	Depth to Water (ft btoc)	Groundwater Elevation (ft amsl)
MW-1	8/6/2008	804.01	13.94	790.07
	4/7/2009		13.96	790.05
	9/25/2012		13.98	790.03
	12/11/2012		13.66	790.35
	3/20/2013		13.40	790.61
	6/19/2013		11.86	792.15
	8/11/2015		14.32	789.69
	11/7/2018		13.41	790.60
MW-2	8/6/2008	801.22	9.00	792.22
	4/7/2009		9.12	792.10
	9/25/2012		9.30	791.92
	12/11/2012		8.88	792.34
	3/20/2013		8.70	792.52
	6/19/2013		7.54	793.68
	8/11/2015		9.76	791.46
	11/7/2018		6.26	794.96
MW-3	8/6/2008	798.88	7.83	791.05
	4/7/2009		7.79	791.09
	9/25/2012		7.70	791.18
	12/11/2012		7.62	791.26
	3/20/2013		7.54	791.34
	6/19/2013		6.64	792.24
	8/11/2015		8.14	790.74
	11/7/2018		7.59	791.29
MW-4	8/6/2008	797.99	6.39	791.60
	4/7/2009		6.45	791.54
	9/25/2012		6.33	791.66
	12/11/2012		6.30	791.69
	3/20/2013		6.22	791.77
	6/19/2013		5.18	792.81
	8/11/2015		6.99	791.00
	11/7/2018		6.26	791.73

Table 3
Summary of Groundwater Elevation Data
John Michael Lease Site
Cashmere, Washington

Well ID	Date Measured	TOC Elevation (ft amsl)	Depth to Water (ft btoc)	Groundwater Elevation (ft amsl)
MW-5	11/7/2018	802.97	13.09	789.88
MW-6	11/7/2018	799.49	10.59	788.90
MW-7	11/7/2018	798.92	8.11	790.81

NOTES:

TOC elevations surveyed to NAVD88 by Erlandsen Surveying, November 2018

ABBREVIATIONS:

TOC = top of casing

ft amsl = feet above mean sea level

ft btoc = feet below top of casing

Table 4
Summary of Groundwater Analytical Results
TPH and BTEX
John Michael Lease Site
Cashmere, Washington

Analytical Results in micrograms per liter (µg/L)

Well ID	Sampled By	Sample Date	TOC	TPH					VOCs[c]			
				DRO[a] w/SGC	DRO[a] w/oSGC	ORO[a] w/SGC	ORO[a] w/o SGC	GRO[b]	Benzene	Toluene	Ethyl-benzene	Xylenes
MTCA Method A Cleanup Levels for Groundwater[d]			**NE**	**500**	**500**	**500**	**500**	**1,000/800**	**5**	**1,000**	**700**	**1,000**
Monitoring Well Samples												
MW-1	Farallon	8/6/2008	--	**1,110**	**--**	<472	--	**145 J**	**1.09 J**	**0.7 J**	**0.893 J**	**2.84 J**
MW-1	Farallon	9/25/2012	--	<100	--	<250	--	<100	<0.50	<5.0	<0.50	<1.5
MW-1	Farallon	12/11/2012	--	**200**	--	150 J	--	<100	<0.50	<5.0	<0.50	<1.5
MW-1	Farallon	3/20/2013	--	**100**	--	<250	--	<100	<0.50	0.23 J	<0.50	0.82 J
MW-1	Farallon	6/19/2013	--	**110**	--	<250	--	<100	<0.50	<5.0	<0.50	<1.5
MW-1	Farallon	8/11/2015	--	**210**	--	267	--	<100	<0.50	<5.0	<0.50	<1.5
MW-1	TRC	11/9/2018	**2,680**	**703**	**1,760**	**1,220**	**2,760**	<100	<1.00	<1.00	<1.00	<3.00
MW-2	Farallon	8/6/2008	--	<236	--	<472	--	<50	<0.500	<0.500	<0.500	<1.00
MW-2	Farallon	9/25/2012	--	<100	--	<250	--	<100	<0.50	<5.0	<0.50	<1.5
MW-2	Farallon	12/11/2012	--	<100	--	<250	--	<100	<0.50	<5.0	<0.50	<1.5
MW-2	Farallon	3/20/2013	--	<100	--	<250	--	<100	<0.50	<5.0	<0.50	<1.5
MW-2	Farallon	6/19/2013	--	<100	--	<250	--	<100	<0.50	<5.0	<0.50	<1.5
MW-2	Farallon	8/11/2015	--	<100	--	<250	--	<100	<0.50	<5.0	<0.50	<1.5
MW-2	TRC	11/9/2018	**1,470**	<200	<200	<250	<250	100	<1.00	<1.00	<1.00	<3.00
MW-3	Farallon	8/6/2008	--	<236	--	**499**	--	<50	<0.500	<0.500	<0.500	<1.00
MW-3	Farallon	9/25/2012	--	<100	--	<250	--	<100	<0.50	<5.0	<0.50	<1.5
MW-3	Farallon	12/11/2012	--	**90 J**	--	<250	--	<100	<0.50	<5.0	<0.50	<1.5
MW-3	Farallon	3/20/2013	--	<100	--	<250	--	<100	<0.50	0.26 J	<0.50	<1.5
MW-3	Farallon	6/19/2013	--	**57 J**	--	<250	--	59 J	<0.50	<5.0	<0.50	<1.5
MW-3	Farallon	8/11/2015	--	<100	--	<250	--	<100	<0.50	<5.0	<0.50	<1.5
MW-3	TRC	11/9/2018	**2,400**	<200	<200	<250	<250	<100	<1.00	<1.00	<1.00	<3.00
MW-4	Farallon	8/6/2008	--	<236	--	<472	--	<50	<0.500	<0.500	<0.500	<1.00
MW-4	Farallon	9/25/2012	--	<100	--	<250	--	<100	<0.50	<5.0	<0.50	<1.5
MW-4	Farallon	12/11/2012	--	**78 J**	--	**170 J**	--	<100	<0.50	<5.0	<0.50	<1.5
MW-4	Farallon	3/20/2013	--	<100	--	<250	--	<100	<0.50	<5.0	<0.50	<1.5
MW-4	Farallon	6/19/2013	--	<100	--	<250	--	<50	<0.50	<5.0	<0.50	<1.5
MW-4	Farallon	8/11/2015	--	<100	--	<250	--	<100	<0.50	<5.0	<0.50	<1.5
MW-4	TRC	11/7/2018	**1,790**	<200	<200	<250	<250	<100	<1.00	<1.00	<1.00	<3.00
MW-5	TRC	11/8/2018	**1,560**	<200	<200	<250	<250	<100	<1.00	<1.00	<1.00	<3.00
MW-6	TRC	11/8/2018	**2,140**	<200	<200	<250	<250	<100	<1.00	<1.00	<1.00	<3.00
MW-7	TRC	11/8/2018	**2,010**	**200**	**743**	**<250**	**707**	<100	<1.00	<1.00	<1.00	<3.00

Table 4
Summary of Groundwater Analytical Results
TPH and BTEX
John Michael Lease Site
Cashmere, Washington

Analytical Results in micrograms per liter (µg/L)

Well ID	Sampled By	Sample Date	TOC	TPH					VOCs[c]			
				DRO[a] w/SGC	DRO[a] w/oSGC	ORO[a] w/SGC	ORO[a] w/o SGC	GRO[b]	Benzene	Toluene	Ethyl-benzene	Xylenes
MTCA Method A Cleanup Levels for Groundwater[d]			**NE**	**500**	**500**	**500**	**500**	**1,000/800**	**5**	**1,000**	**700**	**1,000**
Temporary Well Samples												
B-5	EMR	12/1/2004	--	**1,290**	**--**	**2,160**	**--**	<100	**26.1**	<1.0	<1.0	<2.0
B-6	EMR	12/1/2004	--	<254	--	<507	--	<100	<0.5	<1.0	<1.0	<2.0
B-8	EMR	12/1/2004	--	<252	--	<505	--	<100	<0.5	<1.0	<1.0	<2.0

NOTES:
Results in **bold** denote concentrations detected at or above the reporting limit.
Results in bold and shaded denote concentrations detected at or above the applicable cleanup level.
< denotes analyte not detected at or above the given reporting limit.
-- sample was not analyzed for this constituent.
J denotes analyte was detected in the sample at an estimated concentration between the method detection limit and the reporting limit.

ABBREVIATIONS:
ft bgs = feet below ground surface
TOC = total organic carbon
TPH = total petroleum hydrocarbons
VOC = volatile organic compounds
DRO = diesel-range organics
ORO = heavy oil-range organics
GRO = gasoline-range organics
NE = no cleanup level established
EMR = EMR, Inc.
Farallon = Farallon Consulting, LLC
TRC = TRC Environmental

FOOTNOTES:
[a]Analyzed by Northwest Method NWTPH-Dx.
[b]Analyzed by Northwest Method NWTPH-Gx.
[c]Analyzed by USEPA Method 8260C. Prior to 2018, analyzed by USEPA Method 8021B.
[d]Washington State Department of Ecology, Model Toxics Control Act (MTCA) Cleanup Level and Risk Calculations(CLARC) Tables Method A values for Groundwater, Chapter 173-340 WAC, MTCA Chapter 70.105D RCW, Uniform Environmental Covenants Act Chapter 64.70 TCW. Publication No. 94-06. Revised August 2015.

Table 5
Summary of Groundwater Analytical Results
cPAHs and Naphthalene
John Michael Lease Site
Cashmere, Washington

Analytical Results in micrograms per liter (µg/L)

Well ID	Sampled By	Sample Date	Semi-Volatile Organic Compounds[a]								
			Benzo (a) anthracene	Chrysene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Indeno (1,2,3-cd) pyrene	Dibenz(a,h) anthracene	B(a)P TEQ[c]	Naphthalene
MTCA Method A Cleanup Levels for Groundwater[b]			**NE**	**NE**	**NE**	**NE**	**0.10**	**NE**	**NE**	**0.10**	**160**
Monitoring Well Samples											
MW-1	Farallon	8/6/2008	<0.0943	<0.0943	**0.2890**	<0.0943	**0.2550**	<0.0943	<0.0943	**0.3032**	**0.975**
MW-1	Farallon	9/25/2012	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.038	<0.079
MW-1	Farallon	12/11/2012	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.038	<0.11
MW-1	Farallon	3/20/2013	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.038	<0.11
MW-1	Farallon	6/19/2013	**0.015 J**	**0.012 J**	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.037	<0.11
MW-1	Farallon	8/11/2015	**0.0172 J**	**0.0245 J**	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.037	<0.038
MW-1	TRC	11/9/2018	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	< 0.038	<0.25
MW-2	Farallon	8/6/2008	<0.0943	<0.0943	<0.0943	<0.0943	<0.0943	<0.0943	<0.0943	< 0.0712	<0.0943
MW-2	Farallon	9/25/2012	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.038	<0.5
MW-2	Farallon	12/11/2012	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.038	<0.5
MW-2	Farallon	3/20/2013	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.038	<0.033
MW-2	Farallon	6/19/2013	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.038	<0.041
MW-2	Farallon	8/11/2015	**0.00657 J**	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.036	<0.0335
MW-2	TRC	11/9/2018	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	< 0.038	<0.25
MW-3	Farallon	8/6/2008	<0.0943	<0.0943	<0.0943	<0.0943	<0.0943	<0.0943	<0.0943	< 0.0712	<0.0943
MW-3	Farallon	9/25/2012	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.038	<0.5
MW-3	Farallon	12/11/2012	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.038	<0.5
MW-3	Farallon	3/20/2013	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.038	<0.08
MW-3	Farallon	6/19/2013	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.038	<0.038
MW-3	Farallon	8/11/2015	**0.00570 J**	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.036	<0.03
MW-3	TRC	11/9/2018	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	< 0.038	<0.25
MW-4	Farallon	8/6/2008	<0.0943	<0.0943	<0.0943	<0.0943	<0.0943	<0.0943	<0.0943	< 0.0712	<0.0943
MW-4	Farallon	9/25/2012	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.038	<0.08
MW-4	Farallon	12/11/2012	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.038	<0.08
MW-4	Farallon	3/20/2013	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.038	<0.031
MW-4	Farallon	6/19/2013	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.038	<0.04
MW-4	Farallon	8/11/2015	**0.00636 J**	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.036	<0.0435
MW-4	TRC	11/7/2018	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	< 0.038	<0.25
MW-5	TRC	11/8/2018	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	< 0.038	<0.25
MW-6	TRC	11/8/2018	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	< 0.038	<0.25
MW-7	TRC	11/8/2018	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	< 0.038	<0.25

Table 5
Summary of Groundwater Analytical Results
cPAHs and Naphthalene
John Michael Lease Site
Cashmere, Washington

Analytical Results in micrograms per liter (µg/L)

Well ID	Sampled By	Sample Date	Semi-Volatile Organic Compounds[a]								
			Benzo (a) anthracene	Chrysene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Indeno (1,2,3-cd) pyrene	Dibenz(a,h) anthracene	B(a)P TEQ[c]	Naphthalene
MTCA Method A Cleanup Levels for Groundwater[b]			**NE**	**NE**	**NE**	**NE**	**0.10**	**NE**	**NE**	**0.10**	**160**
Temporary Monitoring Well Samples											
B-5	EMR	12/1/2004	--	--	--	--	--	--	--	--	0.64
B-6	EMR	12/1/2004	--	--	--	--	--	--	--	--	1.8
B-8	EMR	12/1/2004	--	--	--	--	--	--	--	--	1.1

NOTES:
Results in **bold** denote concentrations detected at or above the reporting limit.
Results in bold and shaded denote concentrations detected at or above the applicable cleanup level.
< denotes analyte not detected at or above the given reporting limit.
-- sample was not analyzed for this constituent.
J denotes analyte was detected in the sample at an estimated concentration between the method detection limit and the reporting limit.

ABBREVIATIONS:
ft bgs = feet below ground surface
B(a)P = benzo(a)pyrene
TEQ = total toxicity equivalency
NE = no cleanup level established
EMR = EMR, Inc.
Farallon = Farallon Consulting, LLC
TRC = TRC Environmental

FOOTNOTES:
[a]Analyzed by U.S. Environmental Protection Agency Method 8270D-SIM.

[b]Washington State Department of Ecology, Model Toxics Control Act (MTCA) Cleanup Level and Risk Calculations(CLARC) Tables Method A values for Groundwater, Chapter 173-340 WAC, MTCA Chapter 70.105D RCW, Uniform Environmental Covenants Act Chapter 64.70 TCW. Publication No. 94-06. Revised August 2015.

[c]Total carcinogenic polycyclic aromatic hydrocarbons (cPAHs) derived using the total toxicity equivalency (TEQ) for benzo(a)pyrene method in Section 708(8) of Chapter 173-340 of the Washington Administrative Code.

For concentrations reported at less than the laboratory reporting limit, half the reporting limit was used to calculate the TEQ.

Table 6
Summary of Groundwater Field Parameters
John Michael Lease Site
Cashmere, Washington

Well ID	Sampled By	Sample Date	Temperature (°C)	pH	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)
MW-1	Farallon	8/6/2008	14.78	7.12	0.634	2.02	194.8	--
MW-1	Farallon	9/25/2012	13.29	6.42	0.546	0.99	110.2	--
MW-1	Farallon	12/11/2012	11.13	6.57	0.481	1.19	67.8	--
MW-1	Farallon	3/20/2013	10.15	6.83	0.595	3.22	114.9	--
MW-1	Farallon	6/19/2013	12.79	6.64	0.517	2.13	70.0	--
MW-1	Farallon	8/11/2015	18.47	6.72	0.567	2.04	93.0	--
MW-1	TRC	11/9/2018	12.29	6.49	0.435	1.12	283.7	515.0
MW-2	Farallon	8/6/2008	17.00	6.72	0.550	3.69	403.5	--
MW-2	Farallon	9/25/2012	14.83	6.63	0.530	4.31	145.7	--
MW-2	Farallon	12/11/2012	11.53	6.38	0.466	4.35	276.1	--
MW-2	Farallon	3/20/2013	9.68	6.89	0.502	5.29	146.6	--
MW-2	Farallon	6/19/2013	14.25	7.26	0.521	5.72	316.0	--
MW-2	Farallon	8/11/2015	20.39	6.91	0.542	3.66	96.0	--
MW-2	TRC	11/9/2018	13.28	6.75	0.402	6.21	270.8	73.3
MW-3	Farallon	8/6/2008	17.07	6.23	0.548	2.64	432.7	--
MW-3	Farallon	9/25/2012	16.43	6.38	0.534	0.81	137.6	--
MW-3	Farallon	12/11/2012	12.44	6.89	0.517	2.11	145.1	--
MW-3	Farallon	3/20/2013	9.06	6.79	0.560	4.05	128.3	--
MW-3	Farallon	6/19/2013	14.55	7.10	0.560	3.08	297.0	--
MW-3	Farallon	8/11/2015	20.53	6.89	0.595	1.25	80.0	--
MW-3	TRC	11/9/2018	13.62	6.64	0.422	1.33	235.2	83.3
MW-4	Farallon	8/6/2008	16.86	6.35	0.504	5.37	439.1	--
MW-4	Farallon	9/25/2012	14.30	6.46	0.532	4.14	157.0	--
MW-4	Farallon	12/11/2012	11.95	6.99	0.486	4.59	235.0	--
MW-4	Farallon	3/20/2013	10.29	6.82	0.580	6.18	159.6	--
MW-4	Farallon	6/19/2013	13.18	6.78	0.559	6.50	66.5	--
MW-4	Farallon	8/11/2015	19.76	7.00	0.595	3.75	95.0	--
MW-4	TRC	11/7/2018	13.72	6.78	0.414	6.35	221.0	154.0

Table 6
Summary of Groundwater Field Parameters
John Michael Lease Site
Cashmere, Washington

Well ID	Sampled By	Sample Date	Temperature (°C)	pH	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)
MW-5	TRC	11/8/2018	12.30	6.83	0.392	5.51	149.8	44.2
MW-6	TRC	11/8/2018	14.71	6.73	0.425	2.98	39.6	299.0
MW-7	TRC	11/8/2018	13.71	6.81	0.411	3.37	120.8	49.7

ABBREVIATIONS:
°C = degrees Celsius
mS/cm = milliSiemens per centimeter
mg/L = milligrams per liter
mV = milliVolts
NTU = Nephelometric turbidity units
Farallon = Farallon Consulting, LLC
TRC = TRC Environmental

APPENDIX A

MONITORING WELL LOGS

TRC Environmental
19874 141st Place NE
Woodinville, WA 98072
(425) 489-1938

State of Washington
3270
Licensed Geologist
Amanda Helen Meugniot

MONITORING WELL LOG

BOREHOLE NUMBER: **MW-5**

PROJECT NUMBER / NAME: **318140 / BNSF John Michael Lease Site**

APPROVED BY: **Keith Woodburne, LG**

DRILLING CONTRACTOR / DRILLER: **Holocene / Zach Bailey**

LOGGED BY: **A. Meugniot**

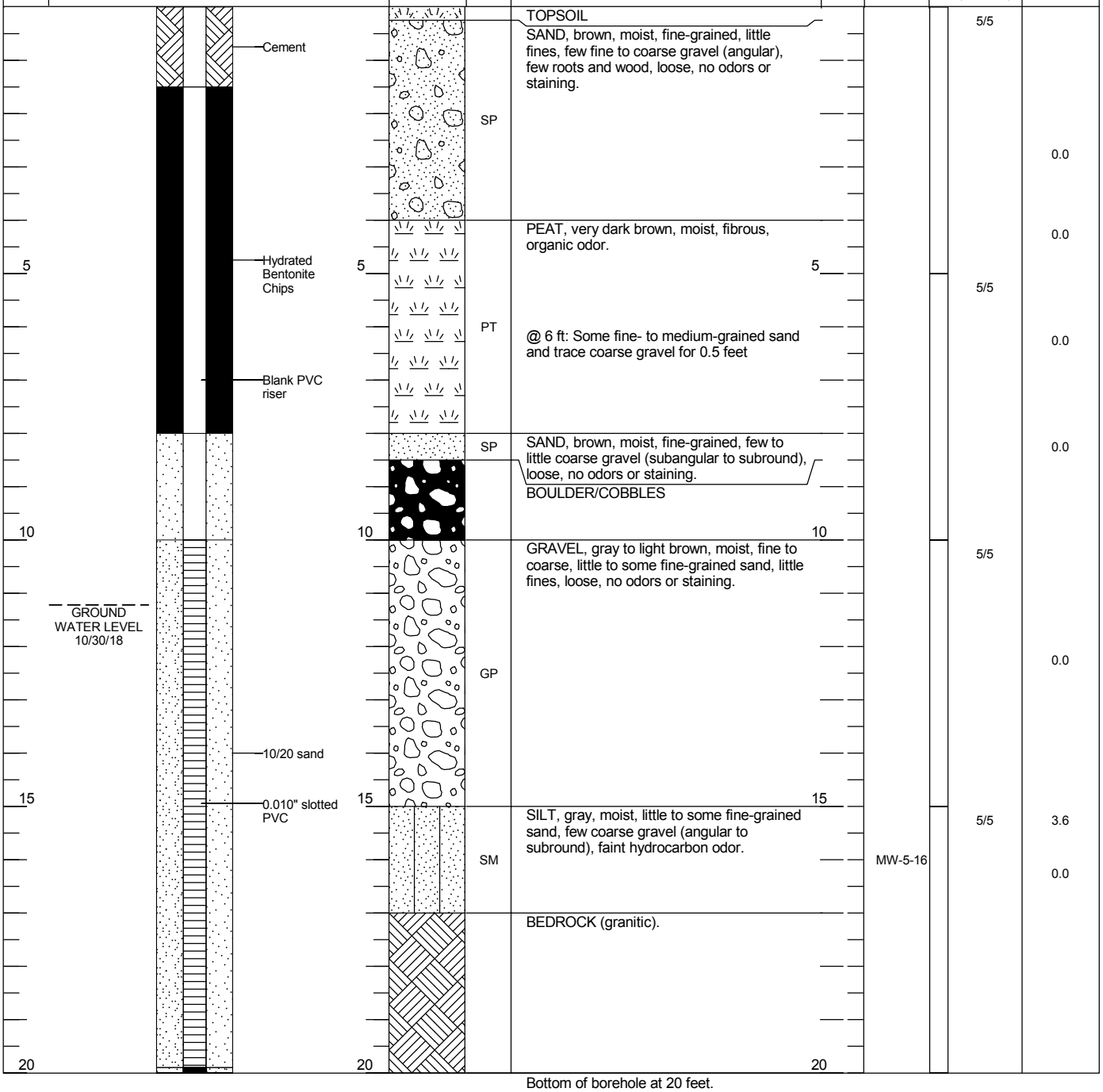
DRILLING EQUIPMENT / METHOD: **8140 LC / Sonic**

BIT SIZE / BIT TYPE: **4" / Sonic**

SAMPLING METHOD: **Continuous**

START-FINISH DATE: **10/29/18 - 10/29/18**

LOCATION: **Adjacent to 5640 Sunset Hwy Cashmere, WA**



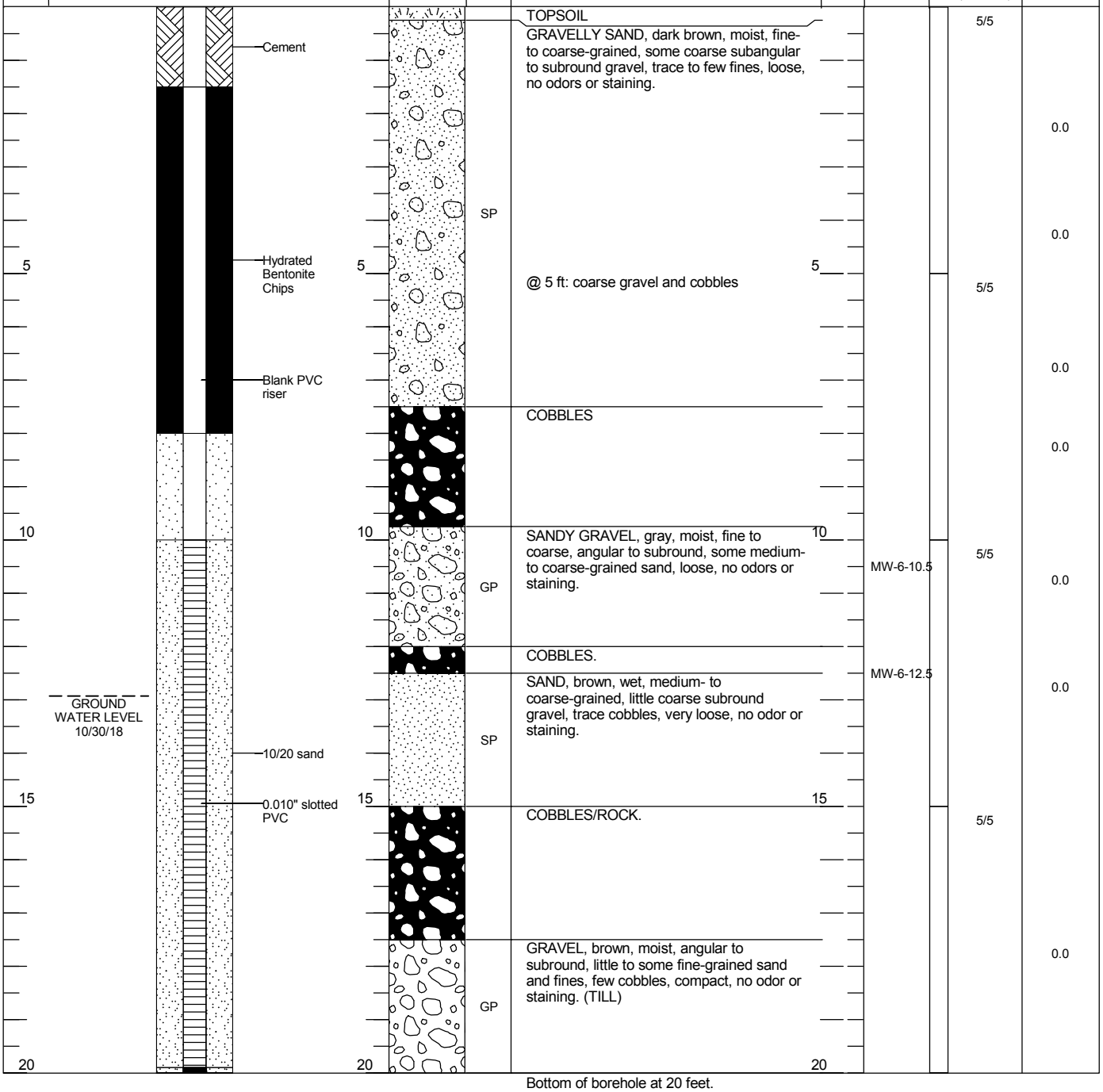
Bottom of borehole at 20 feet.

SOIL BORING LOG - LOG A EWNN08.GDT - 12/21/18 11:26 - C:\USERS\AMEUGNIOT.EMPLOYEES\DESKTOP\BNSF JML REPORT\BNSF JML MWS.GPJ

TRC Environmental
19874 141st Place NE
Woodinville, WA 98072
(425) 489-1938

MONITORING WELL LOG

BOREHOLE NUMBER	**MW-6**
PROJECT NUMBER / NAME	**318140 / BNSF John Michael Lease Site**
APPROVED BY	**Keith Woodburne, LG**
DRILLING CONTRACTOR / DRILLER	**Holocene / Zach Bailey**
LOGGED BY	**A. Meugniot**
DRILLING EQUIPMENT / METHOD	**8140 LC / Sonic**
BIT SIZE / BIT TYPE	**4" / Sonic**
SAMPLING METHOD	**Continuous**
START-FINISH DATE	**10/29/18 - 10/29/18**
LOCATION	**Adjacent to 5640 Sunset Hwy Cashmere, WA**



Depth (feet)	Visual Description	USCS	Sample Number	Core Recovery (feet/feet)	PID Reading (ppm)
0	TOPSOIL			5/5	
	GRAVELLY SAND, dark brown, moist, fine- to coarse-grained, some coarse subangular to subround gravel, trace to few fines, loose, no odors or staining.	SP			0.0
5	@ 5 ft: coarse gravel and cobbles			5/5	0.0
	COBBLES				0.0
10	SANDY GRAVEL, gray, moist, fine to coarse, angular to subround, some medium- to coarse-grained sand, loose, no odors or staining.	GP	MW-6-10.5	5/5	0.0
	COBBLES.				
	SAND, brown, wet, medium- to coarse-grained, little coarse subround gravel, trace cobbles, very loose, no odor or staining.	SP	MW-6-12.5		0.0
15	COBBLES/ROCK.			5/5	
	GRAVEL, brown, moist, angular to subround, little to some fine-grained sand and fines, few cobbles, compact, no odor or staining. (TILL)	GP			0.0
20	Bottom of borehole at 20 feet.				

TRC Environmental
19874 141st Place NE
Woodinville, WA 98072
(425) 489-1938

MONITORING WELL LOG

BOREHOLE NUMBER: **MW-7**

PROJECT NUMBER / NAME: **318140 / BNSF John Michael Lease Site**

APPROVED BY: **Keith Woodburne, LG**

DRILLING CONTRACTOR / DRILLER: **Holocene / Zach Bailey**

LOGGED BY: **A. Meugniot**

DRILLING EQUIPMENT / METHOD: **8140 LC / Sonic**

BIT SIZE / BIT TYPE: **4' / Sonic**

SAMPLING METHOD: **Continuous**

START-FINISH DATE: **10/30/18 - 10/30/18**

LOCATION: **Adjacent to 5640 Sunset Hwy, Cashmere, WA**

State of Washington
3270
Licensed Geologist
Amanda Helen Meugniot

Depth (feet)	Temporary Well Completion Details	Graphic Log	USCS	Visual Description	Depth (feet)	Sample Number	Core Recovery (feet/feet)	PID Reading (ppm)
	Cement		GP	GRAVEL, brown, moist, fine to coarse, angular to subangular, little fine- to medium-grained sand, few fines, loose, no odors or staining.			5/5	0.0
	Hydrated Bentonite Chips							
	Blank PVC riser			GRAVEL with COBBLES, gray, moist, coarse, angular to subangular, few fines, no odor or staining.				0.0
5	10/20 sand	5	GP		5		2.5/2.5	
				COBBLES.			2.5/2.5	40.5
	GROUND WATER LEVEL 10/30/18			GRAVEL, gray, moist, coarse, angular to subangular, few cobbles, few fines, slight hydrocarbon odor, gray/black staining.				
10	0.010" slotted PVC	10	GP		10	MW-7-10	5/5	51.3
				BEDROCK (granitic).		MW-7-12		0.0
15		15		Bottom of borehole at 15 feet.	15			

SOIL BORING LOG - LOG A EWNN08.GDT - 12/21/18 11:26 - C:\USERS\AMEUGNIOT.EMPLOYEES\DESKTOP\BNSF JML REPORT\BNSF JML MWS.GPJ

APPENDIX B

SURVEYOR'S REPORT

DATUM:

HORIZONTAL DATUM: NORTH AMERICAN DATUM (NAD) 83/96

VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM (NAVD) 88

0 50 100

SCALE IN FEET

NOTE: SCALE BAR IS ESTABLISHED FOR FULL SIZE WITH SCALE BAR EQUAL TO 2"

TRC

JOHN MICHEAL LEASE SITE

MONITORING WELL EXHIBIT

811 Know what's below. Call before you dig.

NO:	DESCRIPTION:	DATE:

SHEET OF

SHEET 1 OF 1

ERLANDSEN
250 SIMON ST. SE
EAST WENATCHEE, WA 98802
PH: 509.884.2562
TOLL FREE (800) 732-7442
http://www.erlandsen.com

Erlandsen
SURVEYING | PLANNING | ENGINEERING | GIS

DRAWN BY: BS
DATE: 11/8/2018
SCALE: 1" = 50'
LAYOUT: E11X17
FILE NO: 20180310.0000_WK_1.DWG
JOB NO: —

BIRS, 11/08/18, 1:23pm
M:\1jobs\2018\20180310.0000\Dwg\Working\20180310.0000_WK_1.dwg, Layout: E11x17

APPENDIX C

CERTIFIED ANALYTICAL LABORATORY REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

December 10, 2018

TRC - BNSF Region 1

Sample Delivery Group:	L1040102
Samples Received:	11/01/2018
Project Number:	318140
Description:	BNSF - John Michael Lease Cashmere, WA

Report To: Amanda Meugniot
19874 141st Place NE
Woodinville, WA 98072

Entire Report Reviewed By:

Mark W. Beasley
Project Manager

MW-5-16 L1040102-01 Solid

Collected by: A. Meugnoit | Collected date/time: 10/29/18 15:25 | Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1191747	1	11/06/18 09:18	11/06/18 09:35	JD
Wet Chemistry by Method USDA LOI	WG1192534	1	11/07/18 13:15	11/07/18 14:03	MMF
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1191935	25	10/29/18 15:25	11/06/18 12:59	DWR
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1191235	1	10/29/18 15:25	11/04/18 22:02	ACG
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1190881	1	11/03/18 12:52	11/05/18 07:37	AAT
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1195282	1	11/03/18 12:52	11/13/18 04:54	MTJ
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1191391	1	11/05/18 14:00	11/06/18 00:32	DMG

MW-6-10.5 L1040102-02 Solid

Collected by: A. Meugnoit | Collected date/time: 10/29/18 11:40 | Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1191747	1	11/06/18 09:18	11/06/18 09:35	JD
Wet Chemistry by Method USDA LOI	WG1192534	1	11/07/18 13:15	11/07/18 14:03	MMF
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1191935	25.75	10/29/18 11:40	11/06/18 13:22	DWR
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1191235	1.04	10/29/18 11:40	11/04/18 22:21	ACG
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1190881	1	11/03/18 12:52	11/05/18 04:18	KME
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1195282	1	11/03/18 12:52	11/13/18 04:17	MTJ
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1191391	1	11/05/18 14:00	11/06/18 00:53	DMG

MW-6-12.5 L1040102-03 Solid

Collected by: A. Meugnoit | Collected date/time: 10/29/18 11:55 | Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1191747	1	11/06/18 09:18	11/06/18 09:35	JD
Wet Chemistry by Method USDA LOI	WG1192534	1	11/07/18 13:15	11/07/18 14:03	MMF
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1191935	25	10/29/18 11:55	11/06/18 13:44	DWR
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1191235	1	10/29/18 11:55	11/04/18 22:39	ACG
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1190881	1	11/03/18 12:52	11/05/18 04:34	KME
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1195282	1	11/03/18 12:52	11/13/18 04:35	MTJ
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1191391	1	11/05/18 14:00	11/06/18 01:14	DMG

MW-7-10 L1040102-04 Solid

Collected by: A. Meugnoit | Collected date/time: 10/30/18 10:10 | Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1191747	1	11/06/18 09:18	11/06/18 09:35	JD
Wet Chemistry by Method USDA LOI	WG1192534	1	11/07/18 13:15	11/07/18 14:03	MMF
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1191935	25	10/30/18 10:10	11/06/18 14:06	DWR
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1191537	1	10/30/18 10:10	11/05/18 16:44	ACG
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1192359	50	11/07/18 15:23	11/08/18 06:07	KME
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1195285	50	11/07/18 15:23	11/13/18 20:08	CLG
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1191391	1	11/05/18 14:00	11/06/18 03:00	DMG

MW-7-12 L1040102-05 Solid

Collected by: A. Meugnoit | Collected date/time: 10/30/18 10:20 | Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1191747	1	11/06/18 09:18	11/06/18 09:35	JD
Wet Chemistry by Method USDA LOI	WG1205701	1	12/05/18 08:22	12/05/18 08:38	MMF
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1191935	25	10/30/18 10:20	11/06/18 14:28	DWR
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1191537	1	10/30/18 10:20	11/05/18 17:02	ACG

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

MW-7-12 L1040102-05 Solid

Collected by	Collected date/time	Received date/time
A. Meugnoit	10/30/18 10:20	11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1192359	1	11/07/18 15:23	11/08/18 03:45	KME
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1195285	1	11/07/18 15:23	11/13/18 17:09	MTJ
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1191391	1	11/05/18 14:00	11/06/18 01:35	DMG

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Mark W. Beasley
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	90.1		1	11/06/2018 09:35	WG1191747

Wet Chemistry by Method USDA LOI

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TOC (Total Organic Carbon)	6140		10.0	1	11/07/2018 14:03	WG1192534

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Gasoline Range Organics-NWTPH	2.99	B	2.78	25	11/06/2018 12:59	WG1191935
(S) a,a,a-Trifluorotoluene(FID)	*99.2*		*77.0-120*		*11/06/2018 12:59*	WG1191935

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	ND		0.00111	1	11/04/2018 22:02	WG1191235
Toluene	ND		0.00555	1	11/04/2018 22:02	WG1191235
Ethylbenzene	ND		0.00278	1	11/04/2018 22:02	WG1191235
Total Xylenes	ND		0.00722	1	11/04/2018 22:02	WG1191235
(S) Toluene-d8	*97.0*		*75.0-131*		*11/04/2018 22:02*	WG1191235
(S) Dibromofluoromethane	*121*		*65.0-129*		*11/04/2018 22:02*	WG1191235
(S) a,a,a-Trifluorotoluene	*100*		*80.0-120*		*11/04/2018 22:02*	WG1191235
(S) 4-Bromofluorobenzene	*106*		*67.0-138*		*11/04/2018 22:02*	WG1191235

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Diesel Range Organics (DRO)	41.4		4.44	1	11/05/2018 07:37	WG1190881
Residual Range Organics (RRO)	60.4		11.1	1	11/05/2018 07:37	WG1190881
(S) o-Terphenyl	*64.8*		*18.0-148*		*11/05/2018 07:37*	WG1190881

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Diesel Range Organics (DRO)	22.2		4.44	1	11/13/2018 04:54	WG1195282
Residual Range Organics (RRO)	41.4	J4	11.1	1	11/13/2018 04:54	WG1195282
(S) o-Terphenyl	*37.2*		*18.0-148*		*11/13/2018 04:54*	WG1195282

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Anthracene	0.0185		0.00666	1	11/06/2018 00:32	WG1191391
Acenaphthene	0.0108		0.00666	1	11/06/2018 00:32	WG1191391
Acenaphthylene	ND		0.00666	1	11/06/2018 00:32	WG1191391
Benzo(a)anthracene	ND		0.00666	1	11/06/2018 00:32	WG1191391
Benzo(a)pyrene	ND		0.00666	1	11/06/2018 00:32	WG1191391
Benzo(b)fluoranthene	ND		0.00666	1	11/06/2018 00:32	WG1191391
Benzo(g,h,i)perylene	ND		0.00666	1	11/06/2018 00:32	WG1191391
Benzo(k)fluoranthene	ND		0.00666	1	11/06/2018 00:32	WG1191391
Chrysene	0.00939		0.00666	1	11/06/2018 00:32	WG1191391
Dibenz(a,h)anthracene	ND		0.00666	1	11/06/2018 00:32	WG1191391
Fluoranthene	ND		0.00666	1	11/06/2018 00:32	WG1191391

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Fluorene	0.0175		0.00666	1	11/06/2018 00:32	WG1191391
Indeno(1,2,3-cd)pyrene	ND		0.00666	1	11/06/2018 00:32	WG1191391
Naphthalene	ND		0.0222	1	11/06/2018 00:32	WG1191391
Phenanthrene	0.00865		0.00666	1	11/06/2018 00:32	WG1191391
Pyrene	0.0241		0.00666	1	11/06/2018 00:32	WG1191391
1-Methylnaphthalene	ND		0.0222	1	11/06/2018 00:32	WG1191391
2-Methylnaphthalene	ND		0.0222	1	11/06/2018 00:32	WG1191391
2-Chloronaphthalene	ND		0.0222	1	11/06/2018 00:32	WG1191391
(S) Nitrobenzene-d5	*75.4*		*14.0-149*		*11/06/2018 00:32*	WG1191391
(S) 2-Fluorobiphenyl	*68.2*		*34.0-125*		*11/06/2018 00:32*	WG1191391
(S) p-Terphenyl-d14	*58.0*		*23.0-120*		*11/06/2018 00:32*	WG1191391

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	92.5		1	11/06/2018 09:35	WG1191747

Wet Chemistry by Method USDA LOI

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TOC (Total Organic Carbon)	2350		10.0	1	11/07/2018 14:03	WG1192534

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Gasoline Range Organics-NWTPH	ND		2.78	25.75	11/06/2018 13:22	WG1191935
(S) a,a,a-Trifluorotoluene(FID)	*98.4*		*77.0-120*		*11/06/2018 13:22*	WG1191935

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	ND		0.00112	1.04	11/04/2018 22:21	WG1191235
Toluene	ND		0.00562	1.04	11/04/2018 22:21	WG1191235
Ethylbenzene	ND		0.00281	1.04	11/04/2018 22:21	WG1191235
Total Xylenes	ND		0.00731	1.04	11/04/2018 22:21	WG1191235
(S) Toluene-d8	*97.4*		*75.0-131*		*11/04/2018 22:21*	WG1191235
(S) Dibromofluoromethane	*120*		*65.0-129*		*11/04/2018 22:21*	WG1191235
(S) a,a,a-Trifluorotoluene	*103*		*80.0-120*		*11/04/2018 22:21*	WG1191235
(S) 4-Bromofluorobenzene	*103*		*67.0-138*		*11/04/2018 22:21*	WG1191235

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Diesel Range Organics (DRO)	ND		4.32	1	11/05/2018 04:18	WG1190881
Residual Range Organics (RRO)	ND		10.8	1	11/05/2018 04:18	WG1190881
(S) o-Terphenyl	*93.1*		*18.0-148*		*11/05/2018 04:18*	WG1190881

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Diesel Range Organics (DRO)	ND		4.32	1	11/13/2018 04:17	WG1195282
Residual Range Organics (RRO)	ND	J4	10.8	1	11/13/2018 04:17	WG1195282
(S) o-Terphenyl	*69.3*		*18.0-148*		*11/13/2018 04:17*	WG1195282

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Anthracene	ND		0.00648	1	11/06/2018 00:53	WG1191391
Acenaphthene	ND		0.00648	1	11/06/2018 00:53	WG1191391
Acenaphthylene	ND		0.00648	1	11/06/2018 00:53	WG1191391
Benzo(a)anthracene	ND		0.00648	1	11/06/2018 00:53	WG1191391
Benzo(a)pyrene	ND		0.00648	1	11/06/2018 00:53	WG1191391
Benzo(b)fluoranthene	ND		0.00648	1	11/06/2018 00:53	WG1191391
Benzo(g,h,i)perylene	ND		0.00648	1	11/06/2018 00:53	WG1191391
Benzo(k)fluoranthene	ND		0.00648	1	11/06/2018 00:53	WG1191391
Chrysene	ND		0.00648	1	11/06/2018 00:53	WG1191391
Dibenz(a,h)anthracene	ND		0.00648	1	11/06/2018 00:53	WG1191391
Fluoranthene	ND		0.00648	1	11/06/2018 00:53	WG1191391

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Fluorene	ND		0.00648	1	11/06/2018 00:53	WG1191391
Indeno(1,2,3-cd)pyrene	ND		0.00648	1	11/06/2018 00:53	WG1191391
Naphthalene	ND		0.0216	1	11/06/2018 00:53	WG1191391
Phenanthrene	ND		0.00648	1	11/06/2018 00:53	WG1191391
Pyrene	ND		0.00648	1	11/06/2018 00:53	WG1191391
1-Methylnaphthalene	ND		0.0216	1	11/06/2018 00:53	WG1191391
2-Methylnaphthalene	ND		0.0216	1	11/06/2018 00:53	WG1191391
2-Chloronaphthalene	ND		0.0216	1	11/06/2018 00:53	WG1191391
(S) Nitrobenzene-d5	*95.6*		*14.0-149*		*11/06/2018 00:53*	WG1191391
(S) 2-Fluorobiphenyl	*87.6*		*34.0-125*		*11/06/2018 00:53*	WG1191391
(S) p-Terphenyl-d14	*76.4*		*23.0-120*		*11/06/2018 00:53*	WG1191391

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	87.3		1	11/06/2018 09:35	WG1191747

Wet Chemistry by Method USDA LOI

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TOC (Total Organic Carbon)	2530		10.0	1	11/07/2018 14:03	WG1192534

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Gasoline Range Organics-NWTPH	ND		2.86	25	11/06/2018 13:44	WG1191935
(S) a,a,a-Trifluorotoluene(FID)	*98.4*		*77.0-120*		*11/06/2018 13:44*	WG1191935

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	ND		0.00115	1	11/04/2018 22:39	WG1191235
Toluene	ND		0.00573	1	11/04/2018 22:39	WG1191235
Ethylbenzene	ND		0.00286	1	11/04/2018 22:39	WG1191235
Total Xylenes	ND		0.00745	1	11/04/2018 22:39	WG1191235
(S) Toluene-d8	*88.6*		*75.0-131*		*11/04/2018 22:39*	WG1191235
(S) Dibromofluoromethane	*119*		*65.0-129*		*11/04/2018 22:39*	WG1191235
(S) a,a,a-Trifluorotoluene	*100*		*80.0-120*		*11/04/2018 22:39*	WG1191235
(S) 4-Bromofluorobenzene	*107*		*67.0-138*		*11/04/2018 22:39*	WG1191235

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Diesel Range Organics (DRO)	ND		4.58	1	11/05/2018 04:34	WG1190881
Residual Range Organics (RRO)	ND		11.5	1	11/05/2018 04:34	WG1190881
(S) o-Terphenyl	*68.8*		*18.0-148*		*11/05/2018 04:34*	WG1190881

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Diesel Range Organics (DRO)	ND		4.58	1	11/13/2018 04:35	WG1195282
Residual Range Organics (RRO)	ND	J4	11.5	1	11/13/2018 04:35	WG1195282
(S) o-Terphenyl	*47.6*		*18.0-148*		*11/13/2018 04:35*	WG1195282

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Anthracene	ND		0.00687	1	11/06/2018 01:14	WG1191391
Acenaphthene	ND		0.00687	1	11/06/2018 01:14	WG1191391
Acenaphthylene	ND		0.00687	1	11/06/2018 01:14	WG1191391
Benzo(a)anthracene	ND		0.00687	1	11/06/2018 01:14	WG1191391
Benzo(a)pyrene	ND		0.00687	1	11/06/2018 01:14	WG1191391
Benzo(b)fluoranthene	ND		0.00687	1	11/06/2018 01:14	WG1191391
Benzo(g,h,i)perylene	ND		0.00687	1	11/06/2018 01:14	WG1191391
Benzo(k)fluoranthene	ND		0.00687	1	11/06/2018 01:14	WG1191391
Chrysene	ND		0.00687	1	11/06/2018 01:14	WG1191391
Dibenz(a,h)anthracene	ND		0.00687	1	11/06/2018 01:14	WG1191391
Fluoranthene	ND		0.00687	1	11/06/2018 01:14	WG1191391

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Fluorene	ND		0.00687	1	11/06/2018 01:14	WG1191391
Indeno(1,2,3-cd)pyrene	ND		0.00687	1	11/06/2018 01:14	WG1191391
Naphthalene	ND		0.0229	1	11/06/2018 01:14	WG1191391
Phenanthrene	ND		0.00687	1	11/06/2018 01:14	WG1191391
Pyrene	ND		0.00687	1	11/06/2018 01:14	WG1191391
1-Methylnaphthalene	ND		0.0229	1	11/06/2018 01:14	WG1191391
2-Methylnaphthalene	ND		0.0229	1	11/06/2018 01:14	WG1191391
2-Chloronaphthalene	ND		0.0229	1	11/06/2018 01:14	WG1191391
(S) Nitrobenzene-d5	*73.9*		*14.0-149*		*11/06/2018 01:14*	WG1191391
(S) 2-Fluorobiphenyl	*67.9*		*34.0-125*		*11/06/2018 01:14*	WG1191391
(S) p-Terphenyl-d14	*53.0*		*23.0-120*		*11/06/2018 01:14*	WG1191391

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.9		1	11/06/2018 09:35	WG1191747

Wet Chemistry by Method USDA LOI

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TOC (Total Organic Carbon)	5570		10.0	1	11/07/2018 14:03	WG1192534

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Gasoline Range Organics-NWTPH	8.89	B	2.55	25	11/06/2018 14:06	WG1191935
(S) a,a,a-Trifluorotoluene(FID)	*98.5*		*77.0-120*		*11/06/2018 14:06*	WG1191935

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	ND		0.00102	1	11/05/2018 16:44	WG1191537
Toluene	ND		0.00511	1	11/05/2018 16:44	WG1191537
Ethylbenzene	0.00267		0.00255	1	11/05/2018 16:44	WG1191537
Total Xylenes	0.0118		0.00664	1	11/05/2018 16:44	WG1191537
(S) Toluene-d8	*82.4*		*75.0-131*		*11/05/2018 16:44*	WG1191537
(S) Dibromofluoromethane	*97.5*		*65.0-129*		*11/05/2018 16:44*	WG1191537
(S) a,a,a-Trifluorotoluene	*101*		*80.0-120*		*11/05/2018 16:44*	WG1191537
(S) 4-Bromofluorobenzene	*112*		*67.0-138*		*11/05/2018 16:44*	WG1191537

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Diesel Range Organics (DRO)	2930		204	50	11/08/2018 06:07	WG1192359
Residual Range Organics (RRO)	4890		511	50	11/08/2018 06:07	WG1192359
(S) o-Terphenyl	*0.000*	J7	*18.0-148*		*11/08/2018 06:07*	WG1192359

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Diesel Range Organics (DRO)	2220		204	50	11/13/2018 20:08	WG1195285
Residual Range Organics (RRO)	4480	J4	511	50	11/13/2018 20:08	WG1195285
(S) o-Terphenyl	*0.000*	J7	*18.0-148*		*11/13/2018 20:08*	WG1195285

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Anthracene	ND		0.00613	1	11/06/2018 03:00	WG1191391
Acenaphthene	0.102		0.00613	1	11/06/2018 03:00	WG1191391
Acenaphthylene	ND		0.00613	1	11/06/2018 03:00	WG1191391
Benzo(a)anthracene	0.251		0.00613	1	11/06/2018 03:00	WG1191391
Benzo(a)pyrene	0.130		0.00613	1	11/06/2018 03:00	WG1191391
Benzo(b)fluoranthene	0.0967		0.00613	1	11/06/2018 03:00	WG1191391
Benzo(g,h,i)perylene	0.0374		0.00613	1	11/06/2018 03:00	WG1191391
Benzo(k)fluoranthene	0.0259		0.00613	1	11/06/2018 03:00	WG1191391
Chrysene	0.668		0.00613	1	11/06/2018 03:00	WG1191391
Dibenz(a,h)anthracene	ND		0.00613	1	11/06/2018 03:00	WG1191391
Fluoranthene	0.180		0.00613	1	11/06/2018 03:00	WG1191391

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Fluorene	0.319		0.00613	1	11/06/2018 03:00	WG1191391
Indeno(1,2,3-cd)pyrene	ND		0.00613	1	11/06/2018 03:00	WG1191391
Naphthalene	0.0685		0.0204	1	11/06/2018 03:00	WG1191391
Phenanthrene	0.314		0.00613	1	11/06/2018 03:00	WG1191391
Pyrene	1.20		0.00613	1	11/06/2018 03:00	WG1191391
1-Methylnaphthalene	0.630		0.0204	1	11/06/2018 03:00	WG1191391
2-Methylnaphthalene	ND		0.0204	1	11/06/2018 03:00	WG1191391
2-Chloronaphthalene	ND		0.0204	1	11/06/2018 03:00	WG1191391
(S) Nitrobenzene-d5	*36.2*		*14.0-149*		*11/06/2018 03:00*	WG1191391
(S) 2-Fluorobiphenyl	*109*		*34.0-125*		*11/06/2018 03:00*	WG1191391
(S) p-Terphenyl-d14	*77.9*		*23.0-120*		*11/06/2018 03:00*	WG1191391

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	94.1		1	11/06/2018 09:35	WG1191747

Wet Chemistry by Method USDA LOI

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TOC (Total Organic Carbon)	2960		10.0	1	12/05/2018 08:38	WG1205701

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Gasoline Range Organics-NWTPH	ND		2.66	25	11/06/2018 14:28	WG1191935
(S) a,a,a-Trifluorotoluene(FID)	*98.8*		*77.0-120*		*11/06/2018 14:28*	WG1191935

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	ND		0.00106	1	11/05/2018 17:02	WG1191537
Toluene	ND		0.00531	1	11/05/2018 17:02	WG1191537
Ethylbenzene	ND		0.00266	1	11/05/2018 17:02	WG1191537
Total Xylenes	ND		0.00691	1	11/05/2018 17:02	WG1191537
(S) Toluene-d8	*102*		*75.0-131*		*11/05/2018 17:02*	WG1191537
(S) Dibromofluoromethane	*90.1*		*65.0-129*		*11/05/2018 17:02*	WG1191537
(S) a,a,a-Trifluorotoluene	*104*		*80.0-120*		*11/05/2018 17:02*	WG1191537
(S) 4-Bromofluorobenzene	*108*		*67.0-138*		*11/05/2018 17:02*	WG1191537

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Diesel Range Organics (DRO)	51.4		4.25	1	11/08/2018 03:45	WG1192359
Residual Range Organics (RRO)	129		10.6	1	11/08/2018 03:45	WG1192359
(S) o-Terphenyl	*57.5*		*18.0-148*		*11/08/2018 03:45*	WG1192359

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Diesel Range Organics (DRO)	47.9		4.25	1	11/13/2018 17:09	WG1195285
Residual Range Organics (RRO)	129	J4	10.6	1	11/13/2018 17:09	WG1195285
(S) o-Terphenyl	*47.6*		*18.0-148*		*11/13/2018 17:09*	WG1195285

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Anthracene	0.0233		0.00638	1	11/06/2018 01:35	WG1191391
Acenaphthene	ND		0.00638	1	11/06/2018 01:35	WG1191391
Acenaphthylene	ND		0.00638	1	11/06/2018 01:35	WG1191391
Benzo(a)anthracene	0.00866		0.00638	1	11/06/2018 01:35	WG1191391
Benzo(a)pyrene	ND		0.00638	1	11/06/2018 01:35	WG1191391
Benzo(b)fluoranthene	ND		0.00638	1	11/06/2018 01:35	WG1191391
Benzo(g,h,i)perylene	ND		0.00638	1	11/06/2018 01:35	WG1191391
Benzo(k)fluoranthene	ND		0.00638	1	11/06/2018 01:35	WG1191391
Chrysene	0.0199		0.00638	1	11/06/2018 01:35	WG1191391
Dibenz(a,h)anthracene	ND		0.00638	1	11/06/2018 01:35	WG1191391
Fluoranthene	ND		0.00638	1	11/06/2018 01:35	WG1191391

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Fluorene	0.0121		0.00638	1	11/06/2018 01:35	WG1191391
Indeno(1,2,3-cd)pyrene	ND		0.00638	1	11/06/2018 01:35	WG1191391
Naphthalene	ND		0.0213	1	11/06/2018 01:35	WG1191391
Phenanthrene	0.0162		0.00638	1	11/06/2018 01:35	WG1191391
Pyrene	0.0388		0.00638	1	11/06/2018 01:35	WG1191391
1-Methylnaphthalene	0.0252		0.0213	1	11/06/2018 01:35	WG1191391
2-Methylnaphthalene	ND		0.0213	1	11/06/2018 01:35	WG1191391
2-Chloronaphthalene	ND		0.0213	1	11/06/2018 01:35	WG1191391
(S) Nitrobenzene-d5	*89.7*		*14.0-149*		*11/06/2018 01:35*	WG1191391
(S) 2-Fluorobiphenyl	*81.8*		*34.0-125*		*11/06/2018 01:35*	WG1191391
(S) p-Terphenyl-d14	*71.8*		*23.0-120*		*11/06/2018 01:35*	WG1191391

Method Blank (MB)

(MB) R3357550-1 11/06/18 09:35

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1040102-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1040102-01 11/06/18 09:35 • (DUP) R3357550-3 11/06/18 09:35

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	90.1	87.4	1	3.05		10

Laboratory Control Sample (LCS)

(LCS) R3357550-2 11/06/18 09:35

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3358271-1 11/07/18 14:03

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TOC (Total Organic Carbon)	U		3.33	10.0

L1040102-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1040102-04 11/07/18 14:03 • (DUP) R3358271-3 11/07/18 14:03

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
TOC (Total Organic Carbon)	5570	5510	1	1.05		20

Laboratory Control Sample (LCS)

(LCS) R3358271-2 11/07/18 14:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TOC (Total Organic Carbon)	5430	5160	95.0	50.0-150	

Method Blank (MB)

(MB) R3365875-1 12/05/18 08:38

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TOC (Total Organic Carbon)	U		3.33	10.0

L1040102-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1040102-05 12/05/18 08:38 • (DUP) R3365875-3 12/05/18 08:38

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
TOC (Total Organic Carbon)	2960	2930	1	0.970		20

Laboratory Control Sample (LCS)

(LCS) R3365875-2 12/05/18 08:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TOC (Total Organic Carbon)	5430	7660	141	50.0-150	

Method Blank (MB)

(MB) R3357307-5 11/06/18 11:41

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Gasoline Range Organics-NWTPH	0.0486	J	0.0339	0.100
(S) a,a,a-Trifluorotoluene(FID)	*98.5*			*77.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3357307-3 11/06/18 10:35 • (LCSD) R3357307-4 11/06/18 10:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5.50	6.20	6.22	113	113	71.0-124			0.322	20
(S) a,a,a-Trifluorotoluene(FID)				*103*	*103*	*77.0-120*				

L1040057-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1040057-11 11/06/18 17:04 • (MS) R3357307-8 11/06/18 21:27 • (MSD) R3357307-9 11/06/18 21:49

Analyte	Spike Amount mg/kg	Original Result	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5.50		328	284	40.4	8.57	25	10.0-149	E	E J6	14.3	27
(S) a,a,a-Trifluorotoluene(FID)					*105*	*102*		*77.0-120*				

Method Blank (MB)

(MB) R3357056-2 11/04/18 21:44

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000400	0.00100
Ethylbenzene	U		0.000530	0.00250
Toluene	U		0.00125	0.00500
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	*98.2*			*75.0-131*
(S) Dibromofluoromethane	*121*			*65.0-129*
(S) a,a,a-Trifluorotoluene	*100*			*80.0-120*
(S) 4-Bromofluorobenzene	*102*			*67.0-138*

Laboratory Control Sample (LCS)

(LCS) R3357056-1 11/04/18 20:49

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.134	107	70.0-123	
Ethylbenzene	0.125	0.127	101	74.0-126	
Toluene	0.125	0.124	99.3	75.0-121	
Xylenes, Total	0.375	0.396	106	72.0-127	
(S) Toluene-d8			*96.9*	*75.0-131*	
(S) Dibromofluoromethane			*122*	*65.0-129*	
(S) a,a,a-Trifluorotoluene			*104*	*80.0-120*	
(S) 4-Bromofluorobenzene			*105*	*67.0-138*	

Method Blank (MB)

(MB) R3356975-3 11/05/18 10:11

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000400	0.00100
Ethylbenzene	U		0.000530	0.00250
Toluene	U		0.00125	0.00500
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	*107*			*75.0-131*
(S) Dibromofluoromethane	*95.6*			*65.0-129*
(S) 4-Bromofluorobenzene	*111*			*67.0-138*
(S) a,a,a-Trifluorotoluene	*103*			*80.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3356975-1 11/05/18 08:55 • (LCSD) R3356975-2 11/05/18 09:14

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.123	0.117	98.3	93.8	70.0-123			4.76	20
Ethylbenzene	0.125	0.125	0.121	100	96.5	74.0-126			3.78	20
Toluene	0.125	0.123	0.119	98.5	95.5	75.0-121			3.07	20
Xylenes, Total	0.375	0.384	0.371	102	98.9	72.0-127			3.44	20
(S) Toluene-d8				*107*	*105*	*75.0-131*				
(S) Dibromofluoromethane				*99.7*	*94.0*	*65.0-129*				
(S) 4-Bromofluorobenzene				*102*	*104*	*67.0-138*				
(S) a,a,a-Trifluorotoluene				*103*	*103*	*80.0-120*				

L1040635-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1040635-08 11/05/18 15:47 • (MS) R3356975-4 11/05/18 19:35 • (MSD) R3356975-5 11/05/18 20:07

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.154	U	0.0970	0.0964	61.3	60.9	1.03	10.0-149			0.616	37
Ethylbenzene	0.154	U	0.104	0.0946	65.7	59.8	1.03	10.0-160			9.40	38
Toluene	0.154	U	0.0960	0.0917	60.7	57.9	1.03	10.0-156			4.63	38
Xylenes, Total	0.461	U	0.320	0.308	67.4	64.9	1.03	10.0-160			3.76	38
(S) Toluene-d8					*106*	*102*		*75.0-131*				
(S) Dibromofluoromethane					*99.1*	*103*		*65.0-129*				
(S) 4-Bromofluorobenzene					*107*	*102*		*67.0-138*				
(S) a,a,a-Trifluorotoluene					*101*	*102*		*80.0-120*				

Method Blank (MB)

(MB) R3356847-1 11/05/18 03:33

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Diesel Range Organics (DRO)	U		1.33	4.00
Residual Range Organics (RRO)	U		3.33	10.0
(S) o-Terphenyl	*88.7*			*18.0-148*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3356847-2 11/05/18 03:47 • (LCSD) R3356847-3 11/05/18 04:04

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	25.0	22.6	23.4	90.4	93.6	50.0-150			3.48	20
Residual Range Organics (RRO)	25.0	18.3	19.3	73.2	77.2	50.0-150			5.32	20
(S) o-Terphenyl				*89.6*	*93.5*	*18.0-148*				

L1040102-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1040102-01 11/05/18 07:37 • (MS) R3356847-4 11/05/18 07:54 • (MSD) R3356847-5 11/05/18 08:08

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	27.8	41.4	74.8	79.9	120	139	1	50.0-150			6.60	20
Residual Range Organics (RRO)	27.8	60.4	81.1	94.2	74.4	122	1	50.0-150			15.0	20
(S) o-Terphenyl					*79.9*	*78.8*		*18.0-148*				

Method Blank (MB)

(MB) R3357976-1 11/07/18 21:34

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Diesel Range Organics (DRO)	U		1.33	4.00
Residual Range Organics (RRO)	U		3.33	10.0
(S) o-Terphenyl	*63.8*			*18.0-148*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3357976-4 11/08/18 02:34 • (LCSD) R3357976-5 11/08/18 02:52

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	25.0	16.5	14.4	66.0	57.6	50.0-150			13.6	20
Residual Range Organics (RRO)	25.0	17.6	15.2	70.4	60.8	50.0-150			14.6	20
(S) o-Terphenyl				*69.5*	*65.9*	*18.0-148*				

L1040602-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1040602-01 11/07/18 22:24 • (MS) R3357976-2 11/07/18 22:41 • (MSD) R3357976-3 11/07/18 22:59

Analyte	Spike Amount mg/kg	Original Result	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	25.7		16.7	16.2	47.1	45.2	1	50.0-150	J6	J6	3.04	20
Residual Range Organics (RRO)	25.7		46.2	50.9	37.3	57.1	1	50.0-150	J6		9.68	20
(S) o-Terphenyl					*48.0*	*50.6*		*18.0-148*				

Method Blank (MB)

(MB) R3359287-1 11/13/18 03:22

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Diesel Range Organics (DRO)	U		1.33	4.00
Residual Range Organics (RRO)	U		3.33	10.0
(S) o-Terphenyl	*42.6*			*18.0-148*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3359287-2 11/13/18 16:33 • (LCSD) R3359287-3 11/13/18 16:51

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	25.0	12.9	12.9	51.6	51.6	50.0-150			0.000	20
Residual Range Organics (RRO)	25.0	11.2	11.2	44.8	44.8	50.0-150	J4	J4	0.000	20
(S) o-Terphenyl				*58.7*	*61.0*	*18.0-148*				

Method Blank (MB)

(MB) R3359527-1 11/13/18 15:40

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Diesel Range Organics (DRO)	U		1.33	4.00
Residual Range Organics (RRO)	U		3.33	10.0
(S) o-Terphenyl	*69.1*			*18.0-148*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3359527-2 11/13/18 15:58 • (LCSD) R3359527-3 11/13/18 16:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	25.0	12.7	13.1	50.8	52.4	50.0-150			3.10	20
Residual Range Organics (RRO)	25.0	11.2	11.4	44.8	45.6	50.0-150	J4	J4	1.77	20
(S) o-Terphenyl				*58.3*	*57.4*	*18.0-148*				

Method Blank (MB)

(MB) R3357221-3 11/05/18 19:57

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.000600	0.00600
Acenaphthene	U		0.000600	0.00600
Acenaphthylene	U		0.000600	0.00600
Benzo(a)anthracene	U		0.000600	0.00600
Benzo(a)pyrene	U		0.000600	0.00600
Benzo(b)fluoranthene	U		0.000600	0.00600
Benzo(g,h,i)perylene	U		0.000600	0.00600
Benzo(k)fluoranthene	U		0.000600	0.00600
Chrysene	U		0.000600	0.00600
Dibenz(a,h)anthracene	U		0.000600	0.00600
Fluoranthene	U		0.000600	0.00600
Fluorene	U		0.000600	0.00600
Indeno(1,2,3-cd)pyrene	U		0.000600	0.00600
Naphthalene	U		0.00200	0.0200
Phenanthrene	U		0.000600	0.00600
Pyrene	U		0.000600	0.00600
1-Methylnaphthalene	U		0.00200	0.0200
2-Methylnaphthalene	U		0.00200	0.0200
2-Chloronaphthalene	U		0.00200	0.0200
(S) Nitrobenzene-d5	*91.8*			*14.0-149*
(S) 2-Fluorobiphenyl	*87.1*			*34.0-125*
(S) p-Terphenyl-d14	*75.2*			*23.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3357221-1 11/05/18 19:14 • (LCSD) R3357221-2 11/05/18 19:35

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0800	0.0696	0.0700	87.0	87.5	50.0-126			0.573	20
Acenaphthene	0.0800	0.0659	0.0651	82.4	81.4	50.0-120			1.22	20
Acenaphthylene	0.0800	0.0666	0.0652	83.3	81.5	50.0-120			2.12	20
Benzo(a)anthracene	0.0800	0.0626	0.0629	78.3	78.6	45.0-120			0.478	20
Benzo(a)pyrene	0.0800	0.0554	0.0566	69.3	70.8	42.0-120			2.14	20
Benzo(b)fluoranthene	0.0800	0.0613	0.0639	76.6	79.9	42.0-121			4.15	20
Benzo(g,h,i)perylene	0.0800	0.0620	0.0626	77.5	78.3	45.0-125			0.963	20
Benzo(k)fluoranthene	0.0800	0.0694	0.0671	86.8	83.9	49.0-125			3.37	20
Chrysene	0.0800	0.0697	0.0707	87.1	88.4	49.0-122			1.42	20
Dibenz(a,h)anthracene	0.0800	0.0630	0.0632	78.8	79.0	47.0-125			0.317	20
Fluoranthene	0.0800	0.0743	0.0744	92.9	93.0	49.0-129			0.135	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3357221-1 11/05/18 19:14 • (LCSD) R3357221-2 11/05/18 19:35

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Fluorene	0.0800	0.0642	0.0639	80.3	79.9	49.0-120			0.468	20
Indeno(1,2,3-cd)pyrene	0.0800	0.0635	0.0637	79.4	79.6	46.0-125			0.314	20
Naphthalene	0.0800	0.0642	0.0622	80.3	77.8	50.0-120			3.16	20
Phenanthrene	0.0800	0.0653	0.0656	81.6	82.0	47.0-120			0.458	20
Pyrene	0.0800	0.0600	0.0598	75.0	74.8	43.0-123			0.334	20
1-Methylnaphthalene	0.0800	0.0689	0.0672	86.1	84.0	51.0-121			2.50	20
2-Methylnaphthalene	0.0800	0.0630	0.0613	78.8	76.6	50.0-120			2.74	20
2-Chloronaphthalene	0.0800	0.0679	0.0664	84.9	83.0	50.0-120			2.23	20
(S) Nitrobenzene-d5				*100*	*96.3*	*14.0-149*				
(S) 2-Fluorobiphenyl				*90.5*	*89.0*	*34.0-125*				
(S) p-Terphenyl-d14				*78.8*	*77.3*	*23.0-120*				

L1039823-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1039823-01 11/05/18 20:39 • (MS) R3357221-4 11/05/18 21:00 • (MSD) R3357221-5 11/05/18 21:21

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0845	0.000685	0.0757	0.0705	88.8	82.7	1	10.0-145			7.08	30
Acenaphthene	0.0845	U	0.0664	0.0625	78.6	74.0	1	14.0-127			6.06	27
Acenaphthylene	0.0845	U	0.0674	0.0636	79.8	75.3	1	21.0-124			5.81	25
Benzo(a)anthracene	0.0845	U	0.0667	0.0609	79.0	72.1	1	10.0-139			9.10	30
Benzo(a)pyrene	0.0845	0.00212	0.0689	0.0641	79.0	73.4	1	10.0-141			7.15	31
Benzo(b)fluoranthene	0.0845	0.00161	0.0620	0.0586	71.5	67.5	1	10.0-140			5.60	36
Benzo(g,h,i)perylene	0.0845	0.0199	0.0902	0.0860	83.3	78.3	1	10.0-140			4.80	33
Benzo(k)fluoranthene	0.0845	U	0.0677	0.0639	80.1	75.6	1	10.0-137			5.78	31
Chrysene	0.0845	U	0.0689	0.0640	81.5	75.8	1	10.0-145			7.31	30
Dibenz(a,h)anthracene	0.0845	0.00174	0.0695	0.0646	80.2	74.4	1	10.0-132			7.24	31
Fluoranthene	0.0845	U	0.0797	0.0743	94.4	88.0	1	10.0-153			6.99	33
Fluorene	0.0845	U	0.0642	0.0601	76.0	71.1	1	11.0-130			6.63	29
Indeno(1,2,3-cd)pyrene	0.0845	0.00867	0.0772	0.0730	81.1	76.1	1	10.0-137			5.63	32
Naphthalene	0.0845	0.00470	0.0695	0.0657	76.7	72.2	1	10.0-135			5.63	27
Phenanthrene	0.0845	0.000641	0.0648	0.0607	76.0	71.1	1	10.0-144			6.56	31
Pyrene	0.0845	0.000666	0.0619	0.0565	72.5	66.1	1	10.0-148			9.10	35
1-Methylnaphthalene	0.0845	0.00392	0.0747	0.0693	83.7	77.4	1	10.0-142			7.48	28
2-Methylnaphthalene	0.0845	0.00442	0.0709	0.0644	78.6	71.0	1	10.0-137			9.52	28
2-Chloronaphthalene	0.0845	U	0.0683	0.0646	80.9	76.5	1	29.0-120			5.56	24
(S) Nitrobenzene-d5					*90.3*	*97.8*		*14.0-149*				
(S) 2-Fluorobiphenyl					*82.5*	*87.8*		*34.0-125*				
(S) p-Terphenyl-d14					*73.4*	*78.1*		*23.0-120*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J4	The associated batch QC was outside the established quality control range for accuracy.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

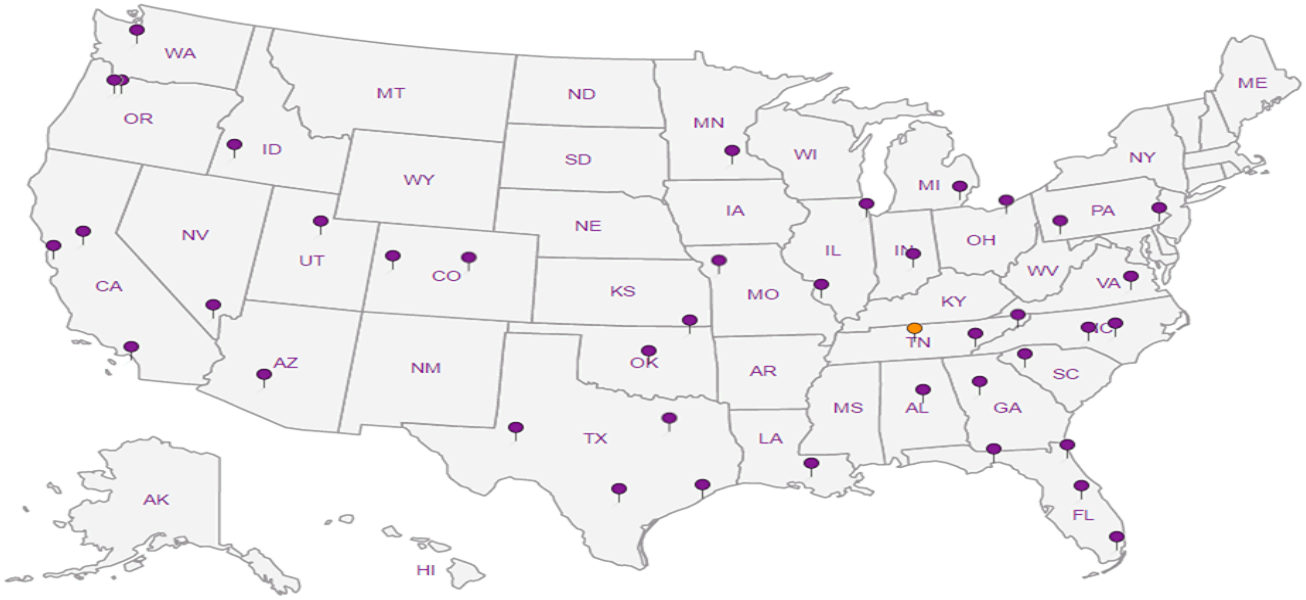
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Company Name/Address:
TRC
19874 141st Place NE
Woodinville, WA 98072

Billing Information:
TRC
ATTN: Keith Woodburne
19874 141st Place NE
Woodinville, WA 98072

Report to: Keith Woodburne

Email To: kwoodburne@trcsolutions.com

Project Description: BNSF - JML

City/State Collected: Cashmere, WA

Phone: 425-489-1938
Fax:

Client Project # 318140

Lab Project #

Collected by (print): A. Meugniot

Site/Facility ID #

P.O. # 128984

Collected by (signature): Amanda M. Meugniot
Immediately Packed on Ice N ____ Y ✓

Rush? (Lab MUST Be Notified)
____ Same Day 200%
____ Next Day 100%
____ Two Day 50%
____ Three Day 25%

Date Results Needed

Email? ___No ✓Yes
FAX? ✓No ___Yes

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	NWTPH-Gx	BTEX by 8260	NWTPH-Dx w/o SGT	NWTPH-Dx w/SGT	PAHS by 8270 SIM	TOC	Rem./Contaminant	Sample # (lab only)
MW-5-16	Grab	SS	16	10/29/2018	1525	4	X	X	X	X	X	X		-01
MW-6-10.5	Grab	SS	10.5	10/29/2018	1140	4	X	X	X	X	X	X		02
MW-6-12.5	Grab	SS	12.5	10/29/2018	1155	4	X	X	X	X	X	X		03
MW-7-10	Grab	SS	10	10/30/2018	1010	4	X	X	X	X	X	X		04
MW-7-12	Grab	SS	12	10/30/2018	1020	4	X	X	X	X	X	X		05

* Matrix: **SS** - Soil **GW** - Groundwater **WW** - WasteWater **DW** - Drinking Water **OT** - Other

RAD SCREEN: <0.5 mR/hr

Remarks: 4196 3259 1889

pH ____ Temp ____
Flow ____ Other ____

Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐ ____
Temp: 5.3 °C Bottles Received: 20
Date: 11/1/18 Time: 845
Received for lab by: (Signature)

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
E-Signed	10/31/2018	1200	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Hold #
Condition: (lab use only) OK
COC Seal Intact: ✓ Y ___ N ___ NA
pH Checked:
NCF:

Chain of Custody Page 1 of 1

ESC LABORATORY SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1040102
F244

Acctnum:
Template:
Prelogin:
TSR:
PB:
Shipped Via:

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client:	BNSFITRC	SDG#	L1640102
Cooler Received/Opened On: 11/ | /18		Temperature:	5.0
Received By: Alexandra Murtaugh			
Signature:			

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?		✓	
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

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ANALYTICAL REPORT

November 27, 2018

TRC - BNSF Region 1

Sample Delivery Group:	L1043850
Samples Received:	11/13/2018
Project Number:	318140
Description:	BNSF - John Michael Lease Cashmere, WA

Report To: Amanda Meugniot
19874 141st Place NE
Woodinville, WA 98072

Entire Report Reviewed By:

Mark W. Beasley
Project Manager

TABLE OF CONTENTS

MW1-1118 L1043850-01 GW

Collected by: Eric S | Collected date/time: 11/09/18 10:20 | Received date/time: 11/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9060A	WG1198811	1	11/19/18 20:58	11/19/18 20:58	SJM
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1197148	1	11/15/18 12:10	11/15/18 12:10	DWR
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1196438	1	11/14/18 14:23	11/14/18 14:23	BMB
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1196422	1	11/14/18 16:43	11/15/18 17:10	SHG
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1196670	1	11/14/18 16:58	11/15/18 03:17	TH
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1196513	1	11/14/18 17:06	11/15/18 02:45	CJR

MW2-1118 L1043850-02 GW

Collected by: Eric S | Collected date/time: 11/09/18 15:30 | Received date/time: 11/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9060A	WG1198811	1	11/19/18 22:35	11/19/18 22:35	SJM
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1197148	1	11/15/18 12:33	11/15/18 12:33	DWR
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1196438	1	11/14/18 14:42	11/14/18 14:42	BMB
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1196422	1	11/14/18 16:43	11/15/18 07:44	SHG
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1196670	1	11/14/18 16:58	11/15/18 03:37	TH
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1196513	1	11/14/18 17:06	11/15/18 03:07	CJR

MW3-1118 L1043850-03 GW

Collected by: Eric S | Collected date/time: 11/09/18 13:35 | Received date/time: 11/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9060A	WG1198811	1	11/19/18 22:54	11/19/18 22:54	SJM
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1197148	1	11/15/18 12:56	11/15/18 12:56	DWR
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1196438	1	11/14/18 15:02	11/14/18 15:02	BMB
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1196422	1	11/14/18 16:43	11/15/18 08:04	SHG
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1196670	1	11/14/18 16:58	11/15/18 03:57	TH
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1196513	1	11/14/18 17:06	11/15/18 03:29	CJR

MW4-1118 L1043850-04 GW

Collected by: Eric S | Collected date/time: 11/07/18 15:25 | Received date/time: 11/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9060A	WG1198811	1	11/19/18 23:09	11/19/18 23:09	SJM
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1197148	1	11/15/18 13:19	11/15/18 13:19	DWR
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1196438	1	11/14/18 15:21	11/14/18 15:21	BMB
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1196422	1	11/14/18 16:43	11/15/18 08:25	SHG
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1196670	1	11/14/18 16:58	11/15/18 04:17	TH
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1196513	1	11/14/18 17:06	11/15/18 03:51	CJR

MW5-1118 L1043850-05 GW

Collected by: Eric S | Collected date/time: 11/08/18 15:30 | Received date/time: 11/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9060A	WG1198811	1	11/19/18 23:25	11/19/18 23:25	SJM
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1197148	1	11/15/18 13:42	11/15/18 13:42	DWR
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1196438	1	11/14/18 15:40	11/14/18 15:40	BMB
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1196422	1	11/14/18 16:43	11/15/18 08:45	SHG
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1196670	1	11/14/18 16:58	11/15/18 04:38	TH
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1196513	1	11/14/18 17:06	11/15/18 04:13	CJR

MW6-1118 L1043850-06 GW

Collected by: Eric S | Collected date/time: 11/08/18 13:20 | Received date/time: 11/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9060A	WG1198811	1	11/19/18 23:43	11/19/18 23:43	SJM
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1197148	1	11/15/18 14:04	11/15/18 14:04	DWR
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1196438	1	11/14/18 16:00	11/14/18 16:00	BMB
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1196422	1	11/14/18 16:43	11/15/18 09:06	SHG
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1197342	1	11/15/18 18:43	11/16/18 09:45	AAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1196513	1	11/14/18 17:06	11/15/18 04:35	CJR

MW7-1118 L1043850-07 GW

Collected by: Eric S | Collected date/time: 11/08/18 10:20 | Received date/time: 11/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9060A	WG1198811	1	11/19/18 23:58	11/19/18 23:58	SJM
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1197148	1	11/15/18 14:27	11/15/18 14:27	DWR
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1196438	1	11/14/18 16:19	11/14/18 16:19	BMB
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1196422	1	11/14/18 16:43	11/15/18 09:26	SHG
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1196670	1	11/14/18 16:58	11/15/18 05:18	TH
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1196513	1	11/14/18 17:06	11/15/18 04:56	CJR

TRIP BLANK L1043850-08 GW

Collected by: Eric S | Collected date/time: 11/09/18 00:00 | Received date/time: 11/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1196438	1	11/14/18 13:44	11/14/18 13:44	BMB

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Mark W. Beasley
Project Manager

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
TOC (Total Organic Carbon)	2680		1000	1	11/19/2018 20:58	WG1198811

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	11/15/2018 12:10	WG1197148
(S) a,a,a-Trifluorotoluene(FID)	*94.0*		*78.0-120*		*11/15/2018 12:10*	WG1197148

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	11/14/2018 14:23	WG1196438
Toluene	ND		1.00	1	11/14/2018 14:23	WG1196438
Ethylbenzene	ND		1.00	1	11/14/2018 14:23	WG1196438
Total Xylenes	ND		3.00	1	11/14/2018 14:23	WG1196438
(S) Toluene-d8	*105*		*80.0-120*		*11/14/2018 14:23*	WG1196438
(S) Dibromofluoromethane	*87.7*		*75.0-120*		*11/14/2018 14:23*	WG1196438
(S) a,a,a-Trifluorotoluene	*105*		*80.0-120*		*11/14/2018 14:23*	WG1196438
(S) 4-Bromofluorobenzene	*93.0*		*77.0-126*		*11/14/2018 14:23*	WG1196438

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	1760		200	1	11/15/2018 17:10	WG1196422
Residual Range Organics (RRO)	2760		250	1	11/15/2018 17:10	WG1196422
(S) o-Terphenyl	*82.0*		*52.0-156*		*11/15/2018 17:10*	WG1196422

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	703		200	1	11/15/2018 03:17	WG1196670
Residual Range Organics (RRO)	1220	J3	250	1	11/15/2018 03:17	WG1196670
(S) o-Terphenyl	*64.2*		*52.0-156*		*11/15/2018 03:17*	WG1196670

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Anthracene	0.117		0.0500	1	11/15/2018 02:45	WG1196513
Acenaphthene	ND		0.0500	1	11/15/2018 02:45	WG1196513
Acenaphthylene	ND		0.0500	1	11/15/2018 02:45	WG1196513
Benzo(a)anthracene	ND		0.0500	1	11/15/2018 02:45	WG1196513
Benzo(a)pyrene	ND		0.0500	1	11/15/2018 02:45	WG1196513
Benzo(b)fluoranthene	ND		0.0500	1	11/15/2018 02:45	WG1196513
Benzo(g,h,i)perylene	ND		0.0500	1	11/15/2018 02:45	WG1196513
Benzo(k)fluoranthene	ND		0.0500	1	11/15/2018 02:45	WG1196513
Chrysene	ND		0.0500	1	11/15/2018 02:45	WG1196513
Dibenz(a,h)anthracene	ND		0.0500	1	11/15/2018 02:45	WG1196513
Fluoranthene	ND		0.0500	1	11/15/2018 02:45	WG1196513
Fluorene	ND		0.0500	1	11/15/2018 02:45	WG1196513
Indeno(1,2,3-cd)pyrene	ND		0.0500	1	11/15/2018 02:45	WG1196513
Naphthalene	ND		0.250	1	11/15/2018 02:45	WG1196513
Phenanthrene	ND		0.0500	1	11/15/2018 02:45	WG1196513
Pyrene	0.176		0.0500	1	11/15/2018 02:45	WG1196513

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
1-Methylnaphthalene	ND		0.250	1	11/15/2018 02:45	WG1196513
2-Methylnaphthalene	ND		0.250	1	11/15/2018 02:45	WG1196513
2-Chloronaphthalene	ND		0.250	1	11/15/2018 02:45	WG1196513
(S) Nitrobenzene-d5	*91.1*		*31.0-160*		*11/15/2018 02:45*	WG1196513
(S) 2-Fluorobiphenyl	*82.6*		*48.0-148*		*11/15/2018 02:45*	WG1196513
(S) p-Terphenyl-d14	*90.5*		*37.0-146*		*11/15/2018 02:45*	WG1196513

Wet Chemistry by Method 9060A

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
TOC (Total Organic Carbon)	1470		1000	1	11/19/2018 22:35	WG1198811

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	11/15/2018 12:33	WG1197148
(S) a,a,a-Trifluorotoluene(FID)	*93.6*		*78.0-120*		*11/15/2018 12:33*	WG1197148

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	11/14/2018 14:42	WG1196438
Toluene	ND		1.00	1	11/14/2018 14:42	WG1196438
Ethylbenzene	ND		1.00	1	11/14/2018 14:42	WG1196438
Total Xylenes	ND		3.00	1	11/14/2018 14:42	WG1196438
(S) Toluene-d8	*105*		*80.0-120*		*11/14/2018 14:42*	WG1196438
(S) Dibromofluoromethane	*94.5*		*75.0-120*		*11/14/2018 14:42*	WG1196438
(S) a,a,a-Trifluorotoluene	*108*		*80.0-120*		*11/14/2018 14:42*	WG1196438
(S) 4-Bromofluorobenzene	*90.3*		*77.0-126*		*11/14/2018 14:42*	WG1196438

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	11/15/2018 07:44	WG1196422
Residual Range Organics (RRO)	ND		250	1	11/15/2018 07:44	WG1196422
(S) o-Terphenyl	*84.0*		*52.0-156*		*11/15/2018 07:44*	WG1196422

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	11/15/2018 03:37	WG1196670
Residual Range Organics (RRO)	ND	J3	250	1	11/15/2018 03:37	WG1196670
(S) o-Terphenyl	*52.6*		*52.0-156*		*11/15/2018 03:37*	WG1196670

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Anthracene	ND		0.0500	1	11/15/2018 03:07	WG1196513
Acenaphthene	ND		0.0500	1	11/15/2018 03:07	WG1196513
Acenaphthylene	ND		0.0500	1	11/15/2018 03:07	WG1196513
Benzo(a)anthracene	ND		0.0500	1	11/15/2018 03:07	WG1196513
Benzo(a)pyrene	ND		0.0500	1	11/15/2018 03:07	WG1196513
Benzo(b)fluoranthene	ND		0.0500	1	11/15/2018 03:07	WG1196513
Benzo(g,h,i)perylene	ND		0.0500	1	11/15/2018 03:07	WG1196513
Benzo(k)fluoranthene	ND		0.0500	1	11/15/2018 03:07	WG1196513
Chrysene	ND		0.0500	1	11/15/2018 03:07	WG1196513
Dibenz(a,h)anthracene	ND		0.0500	1	11/15/2018 03:07	WG1196513
Fluoranthene	ND		0.0500	1	11/15/2018 03:07	WG1196513
Fluorene	ND		0.0500	1	11/15/2018 03:07	WG1196513
Indeno(1,2,3-cd)pyrene	ND		0.0500	1	11/15/2018 03:07	WG1196513
Naphthalene	ND		0.250	1	11/15/2018 03:07	WG1196513
Phenanthrene	ND		0.0500	1	11/15/2018 03:07	WG1196513
Pyrene	ND		0.0500	1	11/15/2018 03:07	WG1196513

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1-Methylnaphthalene	ND		0.250	1	11/15/2018 03:07	WG1196513
2-Methylnaphthalene	ND		0.250	1	11/15/2018 03:07	WG1196513
2-Chloronaphthalene	ND		0.250	1	11/15/2018 03:07	WG1196513
(S) Nitrobenzene-d5	*93.2*		*31.0-160*		*11/15/2018 03:07*	WG1196513
(S) 2-Fluorobiphenyl	*87.4*		*48.0-148*		*11/15/2018 03:07*	WG1196513
(S) p-Terphenyl-d14	*89.5*		*37.0-146*		*11/15/2018 03:07*	WG1196513

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
TOC (Total Organic Carbon)	2400		1000	1	11/19/2018 22:54	WG1198811

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	11/15/2018 12:56	WG1197148
(S) a,a,a-Trifluorotoluene(FID)	*93.7*		*78.0-120*		*11/15/2018 12:56*	WG1197148

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	11/14/2018 15:02	WG1196438
Toluene	ND		1.00	1	11/14/2018 15:02	WG1196438
Ethylbenzene	ND		1.00	1	11/14/2018 15:02	WG1196438
Total Xylenes	ND		3.00	1	11/14/2018 15:02	WG1196438
(S) Toluene-d8	*102*		*80.0-120*		*11/14/2018 15:02*	WG1196438
(S) Dibromofluoromethane	*92.1*		*75.0-120*		*11/14/2018 15:02*	WG1196438
(S) a,a,a-Trifluorotoluene	*107*		*80.0-120*		*11/14/2018 15:02*	WG1196438
(S) 4-Bromofluorobenzene	*91.6*		*77.0-126*		*11/14/2018 15:02*	WG1196438

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	ND		200	1	11/15/2018 08:04	WG1196422
Residual Range Organics (RRO)	ND		250	1	11/15/2018 08:04	WG1196422
(S) o-Terphenyl	*80.5*		*52.0-156*		*11/15/2018 08:04*	WG1196422

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	ND		200	1	11/15/2018 03:57	WG1196670
Residual Range Organics (RRO)	ND	J3	250	1	11/15/2018 03:57	WG1196670
(S) o-Terphenyl	*54.2*		*52.0-156*		*11/15/2018 03:57*	WG1196670

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Anthracene	ND		0.0500	1	11/15/2018 03:29	WG1196513
Acenaphthene	ND		0.0500	1	11/15/2018 03:29	WG1196513
Acenaphthylene	ND		0.0500	1	11/15/2018 03:29	WG1196513
Benzo(a)anthracene	ND		0.0500	1	11/15/2018 03:29	WG1196513
Benzo(a)pyrene	ND		0.0500	1	11/15/2018 03:29	WG1196513
Benzo(b)fluoranthene	ND		0.0500	1	11/15/2018 03:29	WG1196513
Benzo(g,h,i)perylene	ND		0.0500	1	11/15/2018 03:29	WG1196513
Benzo(k)fluoranthene	ND		0.0500	1	11/15/2018 03:29	WG1196513
Chrysene	ND		0.0500	1	11/15/2018 03:29	WG1196513
Dibenz(a,h)anthracene	ND		0.0500	1	11/15/2018 03:29	WG1196513
Fluoranthene	ND		0.0500	1	11/15/2018 03:29	WG1196513
Fluorene	ND		0.0500	1	11/15/2018 03:29	WG1196513
Indeno(1,2,3-cd)pyrene	ND		0.0500	1	11/15/2018 03:29	WG1196513
Naphthalene	ND		0.250	1	11/15/2018 03:29	WG1196513
Phenanthrene	ND		0.0500	1	11/15/2018 03:29	WG1196513
Pyrene	ND		0.0500	1	11/15/2018 03:29	WG1196513

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1-Methylnaphthalene	ND		0.250	1	11/15/2018 03:29	WG1196513
2-Methylnaphthalene	ND		0.250	1	11/15/2018 03:29	WG1196513
2-Chloronaphthalene	ND		0.250	1	11/15/2018 03:29	WG1196513
(S) Nitrobenzene-d5	*93.2*		*31.0-160*		*11/15/2018 03:29*	WG1196513
(S) 2-Fluorobiphenyl	*87.4*		*48.0-148*		*11/15/2018 03:29*	WG1196513
(S) p-Terphenyl-d14	*48.4*		*37.0-146*		*11/15/2018 03:29*	WG1196513

Wet Chemistry by Method 9060A

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
TOC (Total Organic Carbon)	1790		1000	1	11/19/2018 23:09	WG1198811

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	11/15/2018 13:19	WG1197148
(S) a,a,a-Trifluorotoluene(FID)	*93.8*		*78.0-120*		*11/15/2018 13:19*	WG1197148

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	11/14/2018 15:21	WG1196438
Toluene	ND		1.00	1	11/14/2018 15:21	WG1196438
Ethylbenzene	ND		1.00	1	11/14/2018 15:21	WG1196438
Total Xylenes	ND		3.00	1	11/14/2018 15:21	WG1196438
(S) Toluene-d8	*103*		*80.0-120*		*11/14/2018 15:21*	WG1196438
(S) Dibromofluoromethane	*92.9*		*75.0-120*		*11/14/2018 15:21*	WG1196438
(S) a,a,a-Trifluorotoluene	*105*		*80.0-120*		*11/14/2018 15:21*	WG1196438
(S) 4-Bromofluorobenzene	*89.8*		*77.0-126*		*11/14/2018 15:21*	WG1196438

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	11/15/2018 08:25	WG1196422
Residual Range Organics (RRO)	ND		250	1	11/15/2018 08:25	WG1196422
(S) o-Terphenyl	*89.5*		*52.0-156*		*11/15/2018 08:25*	WG1196422

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	11/15/2018 04:17	WG1196670
Residual Range Organics (RRO)	ND	J3	250	1	11/15/2018 04:17	WG1196670
(S) o-Terphenyl	*53.2*		*52.0-156*		*11/15/2018 04:17*	WG1196670

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Anthracene	ND		0.0500	1	11/15/2018 03:51	WG1196513
Acenaphthene	ND		0.0500	1	11/15/2018 03:51	WG1196513
Acenaphthylene	ND		0.0500	1	11/15/2018 03:51	WG1196513
Benzo(a)anthracene	ND		0.0500	1	11/15/2018 03:51	WG1196513
Benzo(a)pyrene	ND		0.0500	1	11/15/2018 03:51	WG1196513
Benzo(b)fluoranthene	ND		0.0500	1	11/15/2018 03:51	WG1196513
Benzo(g,h,i)perylene	ND		0.0500	1	11/15/2018 03:51	WG1196513
Benzo(k)fluoranthene	ND		0.0500	1	11/15/2018 03:51	WG1196513
Chrysene	ND		0.0500	1	11/15/2018 03:51	WG1196513
Dibenz(a,h)anthracene	ND		0.0500	1	11/15/2018 03:51	WG1196513
Fluoranthene	ND		0.0500	1	11/15/2018 03:51	WG1196513
Fluorene	ND		0.0500	1	11/15/2018 03:51	WG1196513
Indeno(1,2,3-cd)pyrene	ND		0.0500	1	11/15/2018 03:51	WG1196513
Naphthalene	ND		0.250	1	11/15/2018 03:51	WG1196513
Phenanthrene	ND		0.0500	1	11/15/2018 03:51	WG1196513
Pyrene	ND		0.0500	1	11/15/2018 03:51	WG1196513

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
1-Methylnaphthalene	ND		0.250	1	11/15/2018 03:51	WG1196513
2-Methylnaphthalene	ND		0.250	1	11/15/2018 03:51	WG1196513
2-Chloronaphthalene	ND		0.250	1	11/15/2018 03:51	WG1196513
(S) Nitrobenzene-d5	*93.7*		*31.0-160*		*11/15/2018 03:51*	WG1196513
(S) 2-Fluorobiphenyl	*89.5*		*48.0-148*		*11/15/2018 03:51*	WG1196513
(S) p-Terphenyl-d14	*90.5*		*37.0-146*		*11/15/2018 03:51*	WG1196513

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
TOC (Total Organic Carbon)	1560		1000	1	11/19/2018 23:25	WG1198811

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	11/15/2018 13:42	WG1197148
(S) a,a,a-Trifluorotoluene(FID)	*93.9*		*78.0-120*		*11/15/2018 13:42*	WG1197148

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	11/14/2018 15:40	WG1196438
Toluene	ND		1.00	1	11/14/2018 15:40	WG1196438
Ethylbenzene	ND		1.00	1	11/14/2018 15:40	WG1196438
Total Xylenes	ND		3.00	1	11/14/2018 15:40	WG1196438
(S) Toluene-d8	*105*		*80.0-120*		*11/14/2018 15:40*	WG1196438
(S) Dibromofluoromethane	*91.4*		*75.0-120*		*11/14/2018 15:40*	WG1196438
(S) a,a,a-Trifluorotoluene	*106*		*80.0-120*		*11/14/2018 15:40*	WG1196438
(S) 4-Bromofluorobenzene	*93.3*		*77.0-126*		*11/14/2018 15:40*	WG1196438

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	ND		200	1	11/15/2018 08:45	WG1196422
Residual Range Organics (RRO)	ND		250	1	11/15/2018 08:45	WG1196422
(S) o-Terphenyl	*82.0*		*52.0-156*		*11/15/2018 08:45*	WG1196422

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	ND		200	1	11/15/2018 04:38	WG1196670
Residual Range Organics (RRO)	ND	J3	250	1	11/15/2018 04:38	WG1196670
(S) o-Terphenyl	*54.7*		*52.0-156*		*11/15/2018 04:38*	WG1196670

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Anthracene	ND		0.0500	1	11/15/2018 04:13	WG1196513
Acenaphthene	ND		0.0500	1	11/15/2018 04:13	WG1196513
Acenaphthylene	ND		0.0500	1	11/15/2018 04:13	WG1196513
Benzo(a)anthracene	ND		0.0500	1	11/15/2018 04:13	WG1196513
Benzo(a)pyrene	ND		0.0500	1	11/15/2018 04:13	WG1196513
Benzo(b)fluoranthene	ND		0.0500	1	11/15/2018 04:13	WG1196513
Benzo(g,h,i)perylene	ND		0.0500	1	11/15/2018 04:13	WG1196513
Benzo(k)fluoranthene	ND		0.0500	1	11/15/2018 04:13	WG1196513
Chrysene	ND		0.0500	1	11/15/2018 04:13	WG1196513
Dibenz(a,h)anthracene	ND		0.0500	1	11/15/2018 04:13	WG1196513
Fluoranthene	ND		0.0500	1	11/15/2018 04:13	WG1196513
Fluorene	ND		0.0500	1	11/15/2018 04:13	WG1196513
Indeno(1,2,3-cd)pyrene	ND		0.0500	1	11/15/2018 04:13	WG1196513
Naphthalene	ND		0.250	1	11/15/2018 04:13	WG1196513
Phenanthrene	ND		0.0500	1	11/15/2018 04:13	WG1196513
Pyrene	ND		0.0500	1	11/15/2018 04:13	WG1196513

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
1-Methylnaphthalene	ND		0.250	1	11/15/2018 04:13	WG1196513
2-Methylnaphthalene	ND		0.250	1	11/15/2018 04:13	WG1196513
2-Chloronaphthalene	ND		0.250	1	11/15/2018 04:13	WG1196513
(S) Nitrobenzene-d5	*93.2*		*31.0-160*		*11/15/2018 04:13*	WG1196513
(S) 2-Fluorobiphenyl	*88.9*		*48.0-148*		*11/15/2018 04:13*	WG1196513
(S) p-Terphenyl-d14	*91.6*		*37.0-146*		*11/15/2018 04:13*	WG1196513

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
TOC (Total Organic Carbon)	2140		1000	1	11/19/2018 23:43	WG1198811

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	11/15/2018 14:04	WG1197148
(S) a,a,a-Trifluorotoluene(FID)	*93.8*		*78.0-120*		*11/15/2018 14:04*	WG1197148

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	11/14/2018 16:00	WG1196438
Toluene	ND		1.00	1	11/14/2018 16:00	WG1196438
Ethylbenzene	ND		1.00	1	11/14/2018 16:00	WG1196438
Total Xylenes	ND		3.00	1	11/14/2018 16:00	WG1196438
(S) Toluene-d8	*106*		*80.0-120*		*11/14/2018 16:00*	WG1196438
(S) Dibromofluoromethane	*92.2*		*75.0-120*		*11/14/2018 16:00*	WG1196438
(S) a,a,a-Trifluorotoluene	*106*		*80.0-120*		*11/14/2018 16:00*	WG1196438
(S) 4-Bromofluorobenzene	*90.6*		*77.0-126*		*11/14/2018 16:00*	WG1196438

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	ND		200	1	11/15/2018 09:06	WG1196422
Residual Range Organics (RRO)	ND		250	1	11/15/2018 09:06	WG1196422
(S) o-Terphenyl	*78.0*		*52.0-156*		*11/15/2018 09:06*	WG1196422

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	ND		200	1	11/16/2018 09:45	WG1197342
Residual Range Organics (RRO)	ND		250	1	11/16/2018 09:45	WG1197342
(S) o-Terphenyl	*62.1*		*52.0-156*		*11/16/2018 09:45*	WG1197342

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Anthracene	ND		0.0500	1	11/15/2018 04:35	WG1196513
Acenaphthene	ND		0.0500	1	11/15/2018 04:35	WG1196513
Acenaphthylene	ND		0.0500	1	11/15/2018 04:35	WG1196513
Benzo(a)anthracene	ND		0.0500	1	11/15/2018 04:35	WG1196513
Benzo(a)pyrene	ND		0.0500	1	11/15/2018 04:35	WG1196513
Benzo(b)fluoranthene	ND		0.0500	1	11/15/2018 04:35	WG1196513
Benzo(g,h,i)perylene	ND		0.0500	1	11/15/2018 04:35	WG1196513
Benzo(k)fluoranthene	ND		0.0500	1	11/15/2018 04:35	WG1196513
Chrysene	ND		0.0500	1	11/15/2018 04:35	WG1196513
Dibenz(a,h)anthracene	ND		0.0500	1	11/15/2018 04:35	WG1196513
Fluoranthene	ND		0.0500	1	11/15/2018 04:35	WG1196513
Fluorene	ND		0.0500	1	11/15/2018 04:35	WG1196513
Indeno(1,2,3-cd)pyrene	ND		0.0500	1	11/15/2018 04:35	WG1196513
Naphthalene	ND		0.250	1	11/15/2018 04:35	WG1196513
Phenanthrene	ND		0.0500	1	11/15/2018 04:35	WG1196513
Pyrene	ND		0.0500	1	11/15/2018 04:35	WG1196513

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
1-Methylnaphthalene	ND		0.250	1	11/15/2018 04:35	WG1196513
2-Methylnaphthalene	ND		0.250	1	11/15/2018 04:35	WG1196513
2-Chloronaphthalene	ND		0.250	1	11/15/2018 04:35	WG1196513
(S) Nitrobenzene-d5	*99.5*		*31.0-160*		*11/15/2018 04:35*	WG1196513
(S) 2-Fluorobiphenyl	*92.6*		*48.0-148*		*11/15/2018 04:35*	WG1196513
(S) p-Terphenyl-d14	*93.7*		*37.0-146*		*11/15/2018 04:35*	WG1196513

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
TOC (Total Organic Carbon)	2010		1000	1	11/19/2018 23:58	WG1198811

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	11/15/2018 14:27	WG1197148
(S) a,a,a-Trifluorotoluene(FID)	*93.8*		*78.0-120*		*11/15/2018 14:27*	WG1197148

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	11/14/2018 16:19	WG1196438
Toluene	ND		1.00	1	11/14/2018 16:19	WG1196438
Ethylbenzene	ND		1.00	1	11/14/2018 16:19	WG1196438
Total Xylenes	ND		3.00	1	11/14/2018 16:19	WG1196438
(S) Toluene-d8	*104*		*80.0-120*		*11/14/2018 16:19*	WG1196438
(S) Dibromofluoromethane	*92.3*		*75.0-120*		*11/14/2018 16:19*	WG1196438
(S) a,a,a-Trifluorotoluene	*105*		*80.0-120*		*11/14/2018 16:19*	WG1196438
(S) 4-Bromofluorobenzene	*91.9*		*77.0-126*		*11/14/2018 16:19*	WG1196438

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	743		200	1	11/15/2018 09:26	WG1196422
Residual Range Organics (RRO)	707		250	1	11/15/2018 09:26	WG1196422
(S) o-Terphenyl	*86.5*		*52.0-156*		*11/15/2018 09:26*	WG1196422

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	200		200	1	11/15/2018 05:18	WG1196670
Residual Range Organics (RRO)	ND	J3	250	1	11/15/2018 05:18	WG1196670
(S) o-Terphenyl	*66.3*		*52.0-156*		*11/15/2018 05:18*	WG1196670

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Anthracene	ND		0.0500	1	11/15/2018 04:56	WG1196513
Acenaphthene	ND		0.0500	1	11/15/2018 04:56	WG1196513
Acenaphthylene	ND		0.0500	1	11/15/2018 04:56	WG1196513
Benzo(a)anthracene	ND		0.0500	1	11/15/2018 04:56	WG1196513
Benzo(a)pyrene	ND		0.0500	1	11/15/2018 04:56	WG1196513
Benzo(b)fluoranthene	ND		0.0500	1	11/15/2018 04:56	WG1196513
Benzo(g,h,i)perylene	ND		0.0500	1	11/15/2018 04:56	WG1196513
Benzo(k)fluoranthene	ND		0.0500	1	11/15/2018 04:56	WG1196513
Chrysene	ND		0.0500	1	11/15/2018 04:56	WG1196513
Dibenz(a,h)anthracene	ND		0.0500	1	11/15/2018 04:56	WG1196513
Fluoranthene	ND		0.0500	1	11/15/2018 04:56	WG1196513
Fluorene	ND		0.0500	1	11/15/2018 04:56	WG1196513
Indeno(1,2,3-cd)pyrene	ND		0.0500	1	11/15/2018 04:56	WG1196513
Naphthalene	ND		0.250	1	11/15/2018 04:56	WG1196513
Phenanthrene	ND		0.0500	1	11/15/2018 04:56	WG1196513
Pyrene	0.203		0.0500	1	11/15/2018 04:56	WG1196513

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1-Methylnaphthalene	ND		0.250	1	11/15/2018 04:56	WG1196513
2-Methylnaphthalene	ND		0.250	1	11/15/2018 04:56	WG1196513
2-Chloronaphthalene	ND		0.250	1	11/15/2018 04:56	WG1196513
(S) Nitrobenzene-d5	*96.3*		*31.0-160*		*11/15/2018 04:56*	WG1196513
(S) 2-Fluorobiphenyl	*89.5*		*48.0-148*		*11/15/2018 04:56*	WG1196513
(S) p-Terphenyl-d14	*95.3*		*37.0-146*		*11/15/2018 04:56*	WG1196513

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	11/14/2018 13:44	WG1196438
Toluene	ND		1.00	1	11/14/2018 13:44	WG1196438
Ethylbenzene	ND		1.00	1	11/14/2018 13:44	WG1196438
Total Xylenes	ND		3.00	1	11/14/2018 13:44	WG1196438
(S) Toluene-d8	*106*		*80.0-120*		*11/14/2018 13:44*	WG1196438
(S) Dibromofluoromethane	*91.2*		*75.0-120*		*11/14/2018 13:44*	WG1196438
(S) a,a,a-Trifluorotoluene	*105*		*80.0-120*		*11/14/2018 13:44*	WG1196438
(S) 4-Bromofluorobenzene	*89.9*		*77.0-126*		*11/14/2018 13:44*	WG1196438

Method Blank (MB)

(MB) R3361193-1 11/19/18 09:57

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
TOC (Total Organic Carbon)	U		102	1000

L1044902-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1044902-01 11/19/18 11:18 • (DUP) R3361193-3 11/19/18 11:31

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
TOC	ND	967	1	0.000		20

L1043765-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1043765-09 11/19/18 20:24 • (DUP) R3361193-6 11/19/18 20:44

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
TOC	2750	2780	1	1.01		20

Laboratory Control Sample (LCS)

(LCS) R3361193-2 11/19/18 10:40

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
TOC	75000	83500	111	85.0-115	

L1043765-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1043765-05 11/19/18 17:11 • (MS) R3361193-4 11/19/18 18:53 • (MSD) R3361193-5 11/19/18 19:13

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TOC	50000	2880	55600	55900	105	106	1	80.0-120			0.502	20

L1043850-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1043850-07 11/19/18 23:58 • (MS) R3361193-7 11/20/18 00:24 • (MSD) R3361193-8 11/20/18 00:46

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TOC	50000	2010	57900	57500	112	111	1	80.0-120			0.780	20

Method Blank (MB)

(MB) R3361004-3 11/15/18 11:22

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	58.4	J	31.6	100
(S) a,a,a-Trifluorotoluene(FID)	*93.9*			*78.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3361004-2 11/15/18 10:36 • (LCSD) R3361004-1 11/15/18 09:56

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5500	4860	5630	88.4	102	70.0-124			14.6	20
(S) a,a,a-Trifluorotoluene(FID)				*98.5*	*100*	*78.0-120*				

Method Blank (MB)

(MB) R3360334-3 11/14/18 10:10

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.331	1.00
Ethylbenzene	U		0.384	1.00
Toluene	U		0.412	1.00
Xylenes, Total	U		1.06	3.00
(S) Toluene-d8	*105*			*80.0-120*
(S) Dibromofluoromethane	*86.6*			*75.0-120*
(S) a,a,a-Trifluorotoluene	*105*			*80.0-120*
(S) 4-Bromofluorobenzene	*93.9*			*77.0-126*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3360334-1 11/14/18 08:53 • (LCSD) R3360334-2 11/14/18 09:12

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	25.0	22.7	22.7	90.8	90.7	70.0-123			0.0961	20
Ethylbenzene	25.0	28.3	28.9	113	116	79.0-123			1.94	20
Toluene	25.0	26.8	27.1	107	108	79.0-120			0.986	20
Xylenes, Total	75.0	86.0	86.0	115	115	79.0-123			0.000	20
(S) Toluene-d8				*102*	*103*	*80.0-120*				
(S) Dibromofluoromethane				*90.7*	*88.7*	*75.0-120*				
(S) a,a,a-Trifluorotoluene				*104*	*104*	*80.0-120*				
(S) 4-Bromofluorobenzene				*92.1*	*92.5*	*77.0-126*				

Method Blank (MB)

(MB) R3360147-1 11/15/18 02:13

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Diesel Range Organics (DRO)	U		66.7	200
Residual Range Organics (RRO)	U		83.3	250
(S) o-Terphenyl	*82.0*			*52.0-156*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3360147-2 11/15/18 02:33 • (LCSD) R3360147-3 11/15/18 02:54

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	750	867	901	116	120	50.0-150			3.85	20
Residual Range Organics (RRO)	750	732	771	97.6	103	50.0-150			5.19	20
(S) o-Terphenyl				*100*	*103*	*52.0-156*				

Method Blank (MB)

(MB) R3360187-1 11/15/18 07:40

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Diesel Range Organics (DRO)	U		66.7	200
Residual Range Organics (RRO)	U		83.3	250
(S) o-Terphenyl	*56.5*			*52.0-156*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3360187-2 11/15/18 08:00 • (LCSD) R3360187-3 11/15/18 09:13

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Diesel Range Organics (DRO)	750	629	692	83.9	92.3	50.0-150			9.54	20
Residual Range Organics (RRO)	750	608	845	81.1	113	50.0-150		J3	32.6	20
(S) o-Terphenyl				*67.0*	*71.5*	*52.0-156*				

Method Blank (MB)

(MB) R3360535-1 11/16/18 07:19

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Diesel Range Organics (DRO)	U		66.7	200
Residual Range Organics (RRO)	U		83.3	250
(S) o-Terphenyl	*70.5*			*52.0-156*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3360535-2 11/16/18 07:39 • (LCSD) R3360535-3 11/16/18 08:00

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	750	723	719	96.4	95.9	50.0-150			0.555	20
Residual Range Organics (RRO)	750	642	661	85.6	88.1	50.0-150			2.92	20
(S) o-Terphenyl				*79.0*	*84.5*	*52.0-156*				

Method Blank (MB)

(MB) R3360021-3 11/14/18 22:24

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Anthracene	U		0.0140	0.0500
Acenaphthene	U		0.0100	0.0500
Acenaphthylene	U		0.0120	0.0500
Benzo(a)anthracene	U		0.00410	0.0500
Benzo(a)pyrene	U		0.0116	0.0500
Benzo(b)fluoranthene	U		0.00212	0.0500
Benzo(g,h,i)perylene	U		0.00227	0.0500
Benzo(k)fluoranthene	U		0.0136	0.0500
Chrysene	U		0.0108	0.0500
Dibenz(a,h)anthracene	U		0.00396	0.0500
Fluoranthene	U		0.0157	0.0500
Fluorene	U		0.00850	0.0500
Indeno(1,2,3-cd)pyrene	U		0.0148	0.0500
Naphthalene	U		0.0198	0.250
Phenanthrene	U		0.00820	0.0500
Pyrene	U		0.0117	0.0500
1-Methylnaphthalene	U		0.00821	0.250
2-Methylnaphthalene	U		0.00902	0.250
2-Chloronaphthalene	U		0.00647	0.250
(S) Nitrobenzene-d5	*89.5*			*31.0-160*
(S) 2-Fluorobiphenyl	*82.5*			*48.0-148*
(S) p-Terphenyl-d14	*91.5*			*37.0-146*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3360021-1 11/14/18 21:40 • (LCSD) R3360021-2 11/14/18 22:02

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	2.00	1.88	1.79	94.0	89.5	67.0-150			4.90	20
Acenaphthene	2.00	1.60	1.54	80.0	77.0	65.0-138			3.82	20
Acenaphthylene	2.00	1.66	1.61	83.0	80.5	66.0-140			3.06	20
Benzo(a)anthracene	2.00	1.58	1.51	79.0	75.5	61.0-140			4.53	20
Benzo(a)pyrene	2.00	1.80	1.73	90.0	86.5	60.0-143			3.97	20
Benzo(b)fluoranthene	2.00	1.70	1.62	85.0	81.0	58.0-141			4.82	20
Benzo(g,h,i)perylene	2.00	1.77	1.67	88.5	83.5	52.0-153			5.81	20
Benzo(k)fluoranthene	2.00	1.84	1.77	92.0	88.5	58.0-148			3.88	20
Chrysene	2.00	1.72	1.66	86.0	83.0	64.0-144			3.55	20
Dibenz(a,h)anthracene	2.00	1.73	1.64	86.5	82.0	52.0-155			5.34	20
Fluoranthene	2.00	1.94	1.86	97.0	93.0	69.0-153			4.21	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3360021-1 11/14/18 21:40 • (LCSD) R3360021-2 11/14/18 22:02

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Fluorene	2.00	1.52	1.46	76.0	73.0	64.0-136			4.03	20
Indeno(1,2,3-cd)pyrene	2.00	1.79	1.70	89.5	85.0	54.0-153			5.16	20
Naphthalene	2.00	1.64	1.58	82.0	79.0	61.0-137			3.73	20
Phenanthrene	2.00	1.63	1.55	81.5	77.5	62.0-137			5.03	20
Pyrene	2.00	1.64	1.56	82.0	78.0	60.0-142			5.00	20
1-Methylnaphthalene	2.00	1.82	1.83	91.0	91.5	66.0-142			0.548	20
2-Methylnaphthalene	2.00	1.66	1.66	83.0	83.0	62.0-136			0.000	20
2-Chloronaphthalene	2.00	1.63	1.60	81.5	80.0	64.0-140			1.86	20
(S) Nitrobenzene-d5				*91.5*	*89.5*	*31.0-160*				
(S) 2-Fluorobiphenyl				*81.5*	*78.0*	*48.0-148*				
(S) p-Terphenyl-d14				*95.5*	*89.5*	*37.0-146*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

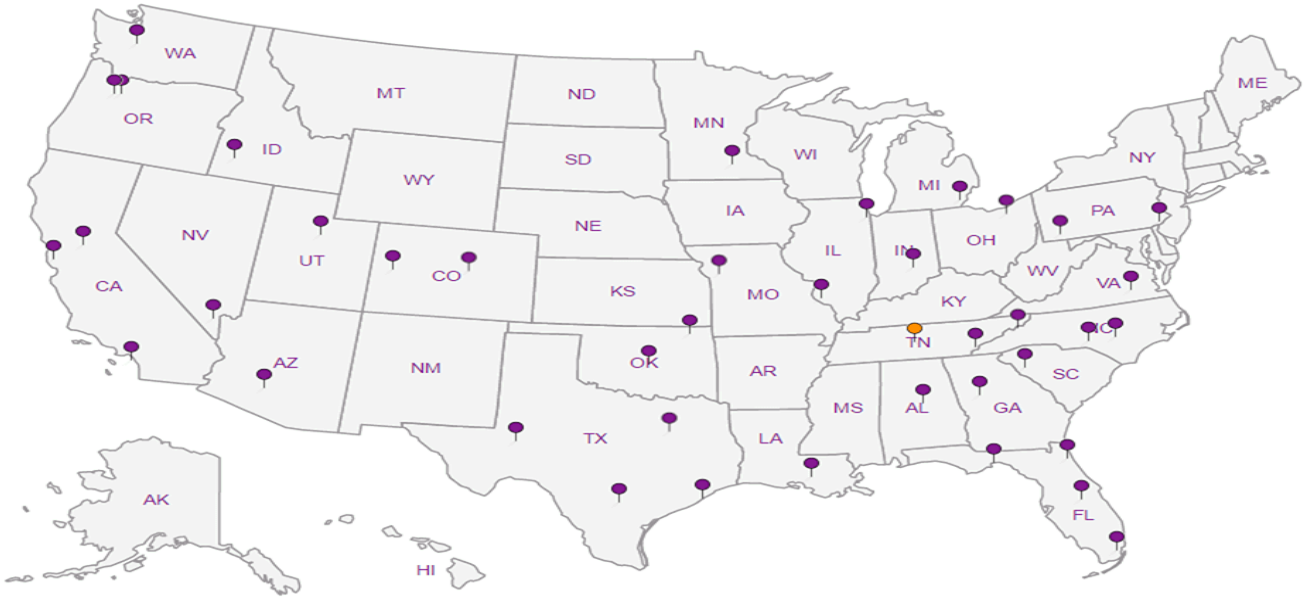
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



TRC - BNSF Region 1

19874 141st Place NE
Woodinville, WA 98072

Billing Information:
Accounts Payable
19874 141st Place NE
Woodinville, WA 98072

Report to: Amanda Meugniot

Email To: AMeugniot@trcsolutions.com, alesher@trcsolutions.com

Project Description: BNSF - John Michael Lease Cashmere, WA

City/State Collected: Cashmere, WA

Phone: 425-489-1938
Fax:

Client Project # 318140

Lab Project # BNSF1TRC-JML

Collected by (print): Eric Stata

Site/Facility ID #

P.O. # 128984

Collected by (signature): Amanda Mo Meug for E. Stata
Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	NWTPHDXLVI w/ SGT 40mlAmb-HCl-BT	NWTPHDXLVI w/o SGT 40mlAmb-HCl-BT	NWTPHGX 40mlAmb HCl	PAHSIMLVID 40mlAmb-NoPres-WT	TOC 250mlAmb-HCl	V8260BTEXC 40mlAmb-HCl	Remarks	Sample # (lab only)
MW1-1118	Grab	GW	N/A	11/9/18	1020	13	X	X	X	X	X	X		01
MW2-1118		GW		11/9/18	1530	13	X	X	X	X	X	X		02
MW3-1118		GW		11/9/18	1335	13	X	X	X	X	X	X		03
MW4-1118		GW		11/7/18	1525	13	X	X	X	X	X	X		04
MW5-1118		GW		11/8/18	1530	13	X	X	X	X	X	X		05
~~MW6~~ -1118		GW		11/8/18	1320	13	X	X	X	X	X	X		06
MW7-1118		GW		11/8/18	1020	13	X	X	X	X	X	X		07
		GW										X		
TRIP BLANK		GW				1								08

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks: RAD SCREEN: <0.5 mR/hr

pH ___ Temp ___
Flow ___ Other ___

Samples returned via: __ UPS ✓ FedEx __ Courier __ ___

Tracking # 4510 1660 4974

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Amanda Mo. Meug	11/12/18	1045	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			Mc Farin

Trip Blank Received: Yes / No
HCl / MeoH
TBR
1

Temp: 0.3 °C 1.3 1.0 Bottles Received: 91

Date: 11/13/18 Time: 0845

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Chain of Custody Page 1 of 1

Pace Analytical
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 1043850

H005

Acctnum: BNSF1TRC
Template: T142511
Prelogin: P678874
TSR: 134 - Mark W. Beasley
PB:

Shipped Via:

APPENDIX D

INVESTIGATION DERIVED WASTE MANIFEST

STRAIGHT BILL OF LADING - ORIGINAL - NOT NEGOTIABLE

Tracking No. 73492

NRC 9520 10th Avenue S. Suite 150 Seattle, WA 98108

Carrier _____ SCAC _____ Carrier's No. 134365

RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications and rules that have been established by the carrier and are available to the shipper, on request; and all applicable state and federal regulations:

at Cashmere railyard, date 1/09/2018 from BNSF

the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below which said company (the word company being understood thoughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to delivery at said destination, if on it's route, or otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said Property over all or any portion of said route to destination and as to each party at any time interested in all or any of said Property that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, including the conditions on the back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

TO:		FROM:	
Consignee	PRS	Shipper	BNSF
Street	3003 Taylor Way	Street	5640 Sunset Highway
Destination	Tacoma WA Zip 98421	Origin	Cashmere WA Zip 98115

Route Any

Delivering Carrier NRC | Vehicle Number 1332 | U.S. DOT Hazmat Reg. Number

Number and Type of Packages	HM	I.D. Number	Description of Articles	Hazard Class	Pkg. Grp.	Total Quantity (mass, volume, or activity)	Weight (subject to correction)	Class or Rate
3 55 DM			Materials not regulated by DOT, (IDW SOILS)				3000	
3 55 DM			Materials not regulated by DOT, (IDW Water) PRO - WATER 7268-B				3000	
			JOB: 134365 PIO: 134365, 53406 PRO - 7270-B					

Remit COD to:
Address:
City: State: Zip:

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

COD AMT: $

COD FEE: Prepaid ☐ Collect ☐ $

TOTAL CHARGES: $

FREIGHT CHARGES: ☐ Prepaid ☐ Collect

NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding $ Per

NOTE: Liability Limitation for loss or damage in this shipment may be applicable. See 49 U.S.C. 14706 (c)(1)(A) and (B).

This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. Per

PLACARDS REQUIRED

PLACARDS SUPPLIED ☐ BY SHIPPER ☐ BY CARRIER

DRIVER'S SIGNATURE:

SHIPPER: BNSF
PER: _____ DATE: _____

CARRIER: NRC
PER: Mark Hylton DATE: 1.9.19

EMERGENCY RESPONSE TELEPHONE NUMBER: ( )

Monitored at all times the Hazardous Material is in transportation including storage incidental to transportation (172.604).

1

83948
134365
73492

PRS Group, Inc.

ENTRY LOG FOR NON-HAZARDOUS ITEMS

3003 Taylor Way
Tacoma, WA 98421
Phone: (253)383-4175 Fax: (253)383-4531
prs@prsplant.net

Date:	1/9/2019	**Carrier:**	NRC	**Vehicle #:**	1332
Drivers Signature:		**Plant Employee:**	Colton	**Time:**	3:46 PM

Generator	Profile #	Work Order, BOL, Manifest	% Water:	% Oil / Fuel:	pH:	Flash >140:	x
			50%	0%	7.8	Other Flash:	
			% Solids:	% Other:	Tank # / Area:	Chlor Test NA:	x
			50%	0%	Yard	Chlor <1000:	

Generator	Profile #	Work Order, BOL, Manifest	Used Oil	"A" & "C" Category Waste	Used Oil Filters	Off Spec Fuel	Oil / Water Mix	Oily Solids / Sludge	PCS	Absorbent	Empty Drums	Other
BNSF Cashmere	7268-B	134365.53406					3Drums					O/C
BNSF Cashmere	7270-b	" "						3Drums				O/C

Notes:

* The information contained in this entry log describes your waste as specified in the specific waste profile approved in to the PRS facility.
Please verify the information for accuracy prior to signing.