2021 Groundwater Monitoring Report

Tidewater Fuel Leak Site
2900 Sacajawea Park Road
Pasco, Washington 99301
Facility ID 39378684
Cleanup Site ID 2331

for

Tidewater Terminal Company

December 10, 2021

GeoEngineers
Earth Science + Technology

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File No. 09991-005-00

December 10, 2021

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1.0 INTRODUCTION

This report presents results of the July 2021 groundwater monitoring well repairs and monitoring event conducted at the Tidewater Terminal Company (Tidewater) Fuel Leak Site in Pasco, Washington (herein referred to as "site"). Site groundwater has been contaminated with petroleum hydrocarbons resulting from a July 2000 leak of unleaded gasoline from one of Tidewater's fuel transfer lines located near groundwater monitoring well AR-1. The historical release resulted in localized degradation of groundwater quality within the unconfined groundwater zone beneath the site. Groundwater monitoring has been conducted on an annual basis at the site since execution of a November 22, 2016 Consent Decree (No. 16-250951-11) to observe and document trends in groundwater conditions and quality.

The site is located on a 3-acre easement that crosses the 33-acre Pasco Bulk Terminal currently owned by Marathon Petroleum Corporation (Marathon). The site is located approximately as shown in the Vicinity Map, Figure 1, at 29000 Sacajawea Park Road, Pasco, Washington 99301. Locations of groundwater monitoring wells and groundwater elevations are presented in Site Plan and Groundwater Elevations, July 27, 2021, Figure 2. The 2021 monitoring event was performed in accordance with the Compliance Monitoring Plan (CMP) dated November 30, 2017 (CH2M, 2017) and approved by the Washington Department of Ecology (Ecology) on December 8, 2017.

1.1. Purpose

This data summary report has been prepared by GeoEngineers to document field observations from the July 21, 2021 monitoring well inspection and pump retrieval efforts, and the field measured and chemical analytical results from the July 27 and 28, 2021 groundwater monitoring events conducted at the site. As described in the CMP, the purpose of annual groundwater monitoring at the Site is to monitor indicator substances and secondary indicator parameters for the effectiveness of monitored natural attenuation (MNA) as the selected cleanup action for the site (CH2M, 2017). Indicator substances from the CMP include benzene, toluene, ethylbenzene, and total xylenes (BTEX), and gasoline-, diesel, and heavy oil-range total petroleum hydrocarbons (TPH-G, TPH-D, and TPH-O). Secondary indicator parameters include ferrous iron, manganese, methane, and sulfate, and will be used in conjugation with field parameters dissolved oxygen, oxidation reduction potential, and pH to evaluate effectiveness of MNA at the Site. The CMP provides the cleanup levels for indicator substances for the Site (Table 1 of the CMP). The Sampling and Analysis Plan (Appendix A of the CMP, Table A-2) provides a full list of analytical parameters.

1.2. Objectives

As required by the Consent Decree and defined in the Cleanup Action Plan (CAP), the CMP describes the monitoring locations, methods, frequency, analytical parameters, and reporting obligations required to ensure that the Ecology-selected cleanup objectives established in the CAP are eventually met (i.e., monitored natural attenuation, coupled with passive bioventing and institutional controls). To this end, this annual report summarizes required changes to the site's groundwater monitoring locations and the results of protection/performance water quality monitoring within and surrounding localized areas of residual contamination near the historical release. The sampling approach is described in the Sampling and Analysis Plan (Appendix A) of the CMP (CH2M, 2017) and was designed to collect samples from compliance wells located within the site monitoring network (Figure 2).

This data summary report includes a summary of field activities, sampling methods and field observations, and a summary of analytical results. All fieldwork and laboratory analyses were performed in general accordance with the Sampling and Analysis Plan as included in the 2017 CMP.

2.0 GROUNDWATER MONITORING PROGRAM

The Tidewater compliance monitoring network includes one upgradient monitoring location (AR-11), three sentinel wells (MW-4, MW6, and MW-8), and two interior plume source area well (AR-4 and AR-8). Annual groundwater monitoring activities generally include measuring the depth to groundwater in the eleven (11) site monitoring wells listed in Table 1 Groundwater Elevations and Field Parameter Readings, measuring water quality parameters, collecting samples from the six (6) compliance monitoring wells, submitting samples to an analytical laboratory for chemical analysis, interpreting data and trends on field and laboratory findings, and preparing this report.

During the 2020 groundwater monitoring event, the upper portion of a polyvinyl chloride (PVC) casing in compliance monitoring well AR-4 broke, which caused a submersible sampling pump to become stuck in the bottom of this 88-foot deep well. As documented in the 2020 monitoring report (Jacobs, 2021), efforts to retrieve the pump were unsuccessful which necessitated recommendations to include well AR-1 in the CMP. Well AR-1 meets the definition of an interior plume source area well as it is located at the source of the historic release and subsequent plume.

On July 21, 2021, representatives of GeoEngineers, Tidewater, and Environmental West Exploration (drilling subcontractor) assessed the condition and integrity of wells AR-1 and AR-4. Details of these well inspections, pump recovery, and well repairs efforts are presented in Section 2.1. Following Ecology's approval, well AR-1 was sampled in place of AR-4 during the 2021 event.

2.1. Well Inspections and Repair

On July 21, 2021, representatives of GeoEngineers and Tidewater observed video camera deployment into wells AR-1 and AR-4 by Environmental West Exploration of Spokane, Washington. Above the water table, the well casing and screened intervals in both wells appeared to be intact. The video in AR-4 showed a crack in the PVC casing at approximately 5 feet below ground surface (bgs). While the crack was not significant, the upper portion of its PVC casing is unprotected and exposed to direct sunlight. Subsequently, an aboveground steel monument set in concrete was constructed overtop of AR-4 by Environmental West Exploration, a Washington licensed well driller, to ensure its long-term use for groundwater level monitoring.

Groundwater was observed at approximately 80 and 83 feet bgs in AR-1 and AR-4, respectively. The water was too turbid in both wells to assess casing conditions below the water level. However, GeoEngineers was able to confirm that the total depth of casing in both wells was generally consistent with prior monitoring events. A caliper survey showed that the AR-1 casing was intact and generally straight throughout. The screened interval inside AR-1 was redeveloped by initially surging the screen interval and then bailing using a new disposable polyethylene bailer attached to new nylon rope. Approximately five well volumes (7 gallons) of groundwater were removed from AR-1 while surging its screened interval. Initially the water removed from AR-1 was observed to be turbid, nearly black in color, and contained a degraded petroleum odor. The water became less turbid after approximately 4 gallons and relatively clear after removing 6 gallons. The presence of the petroleum odor also seemed to decrease with continued bailing. The purge

and decontamination water generated during the well inspection and repair activities was temporarily stored in a labeled steel drum pending disposal at Tidewater's Snake River Terminal.

Other well repair activities included the construction a flush-grade steel monument over the top of the exposed PVC riser at AR-8. During the July 21, 2021 site visit, GeoEngineers, Tidewater, and Environmental West Exploration determined that the site's remaining water level monitoring wells that lack steel monuments (e.g., AR -7 and AR-12) are sufficiently protected against the elements and/or terminal activities. Some of the AR wells with exposed PVC risers had T-connections just below ground surface, which were part of the original design of the wells for vapor extraction that precluded the installation of a protective steel casing without significantly altering the well.

On July 23, 2021, GeoEngineers notified Ecology on the condition of AR-4 and recommended switching its compliance monitoring role with well AR-1 (i.e., AR-1 to be used for compliance sampling and AR-4 used for water level monitoring only). On July 26, 2021, Ecology approved replacing AR-4 with AR-1 for compliance sampling via email.

2.2. Groundwater Measurements and Elevations

GeoEngineers returned to the site on July 27, 2021 to conduct groundwater monitoring activities. Groundwater levels in all CMP wells were measured prior to any pumping and sampling so as not to influence the flat groundwater gradient at the site. Groundwater measurements were collected from 11 wells as listed in Table 1 of the CMP. Wells that have had historic measurable sheen, or historic high concentrations of indicator substances, were measured for the presence of sheen using an oil-water interface probe. No sheen was detected in the wells monitored as part of the July 2021 monitoring event.

Groundwater levels were measured from the top of casing of each well. Groundwater measurements are provided in Table 1. Groundwater measurements were recorded on the groundwater field forms in Appendix A Field Forms. Depths to water for all measured wells at the site ranged from 79.28 feet below top of casing in MW-4 to 84.23 feet bgs in MW-7. Well AR-12 was dry in July 2021.

Based on depth to water measurements, groundwater elevations were calculated and are shown in Table 1. Groundwater elevations at the Site ranged from 343.00 feet above mean seal level (AMSL) in MW-5 to 343.16 feet AMSL in AR-1.

The groundwater gradient for the site is flat with less than 0.001 foot/feet (ft/ft) variation between upgradient and downgradient wells. These groundwater elevations are consistent with historical measurements. Groundwater elevations measured in the 2021 monitoring event were approximately 1 foot lower than were measured in June 2020. The groundwater flow direction to the south was inferred based on the 2021 measurements and historical groundwater elevations and groundwater plume geometry. Historical groundwater elevations are included in Appendix B.

Note that groundwater elevations are calculated from field depth to water measurements and surveyed top of well casing data. During the 2021 monitoring event, GeoEngineers field staff checked the top of casing elevation at AR-4 relative to the surrounding wells using a tripod-mounted transit and survey rod. It was determined that it's the top of casing elevation had been raised 0.04 foot in response to the July 21, 2021 well repairs described below in Section 2.3. The new AR-4 top of casing elevation was used to determine

its groundwater elevation as noted in Table 1 and Appendix B (Historical Groundwater Elevation Measurements).

2.3. Groundwater Monitoring

Groundwater samples were collected from the six CMP network wells (Table 2 of the CMP) after groundwater levels were measured. Groundwater samples were collected using a nominal 2-inch diameter portable submersible pump powered by a direct current (DC) power car battery with disposable polyethylene tubing. Prior to use in each well, the submersible pump was decontaminated using a phosphate-free detergent and rinsed with de-ionized water.

Wells were sampled in order based on historical concentrations of petroleum hydrocarbons and starting with the lowest historical concentrations of petroleum hydrocarbons and moving to the highest. Wells sampled during the July 2021 monitoring event are listed in Table 2 of the CMP and include AR-1, AR-8, AR-11, MW-4, MW-6, and MW-8.

Well sampling was performed in accordance with the SAP using low-flow sampling techniques. Field parameters recorded on field forms for each well and are summarized in Table 1. Well Sampling Forms are provided in Appendix A of this report. Sampling occurred when stabilization of field parameters was indicated over three consecutive 5-minute intervals. Groundwater samples were collected in laboratory-provided sample containers. Ferrous iron field measurements were collected during groundwater collection activities and recorded on the Well Sampling Forms (Appendix A) and are summarized in Table 2 Groundwater Quality Data.

As per the Quality Assurance Project Plan (QAPP) (Appendix B of the CMP), field duplicates (FDs), matrix spike/matrix spike duplicate (MS/MSDs), and equipment blank (EBs) were collected for quality control and verification of field and laboratory procedures. An FD and an MS/MSD sample were collected from AR-8. Purge water was collected during sampling activities, contained in a labeled 55-gallon drum, and stored at the site within a secured area pending characterization by groundwater results and disposal at the Tidewater Snake River Terminal.

3.0 RESULTS

Groundwater samples collected on July 27 and 28, 2021 were submitted to Anatek Laboratories (Anatek) in Spokane, Washington. Groundwater samples were analyzed for the parameters listed in Table 2 of the CMP.

3.1. Analytical Results

Groundwater results for indicator substances for the July 2021 monitoring event are listed for each well below. Analytical results are provided in Table 2. Analytical reports are provided in Appendix C.

- AR-11—Petroleum hydrocarbons were not detected above laboratory method detection limits (MDL). AR-11 is considered the upgradient well for the site.
- MW-4—Petroleum hydrocarbons were not detected above laboratory MDLs. MW-4 is considered the down-gradient perimeter well for the site.
- MW-6—Petroleum hydrocarbons were not detected above laboratory MDLs.

- MW-8—TPH-G was detected at a concentration of 11,300 micrograms per liter (µg/L), greater than the Model Toxics Control Act (MTCA) cleanup level of 800 µg/L. Toluene and ethylbenzene were detected at concentrations less than corresponding MTCA cleanup levels. Total xylenes were detected at a concentration of 1,357 µg/L, greater than the MTCA cleanup level of 1,000 µg/L.
- AR-8—TPH-G was detected at a concentration of 4,500 µg/L, greater than the MTCA cleanup level of 800 µg/L. Ethylbenzene and total xylenes were detected at concentrations less than corresponding MTCA cleanup levels.
- AR-1—TPH-G, TPH-D and TPH-O and BTEX constituents were detected in AR-1 at concentrations greater than MTCA cleanup levels. AR-1 is located within the center of the petroleum hydrocarbon plume directly downgradient from the release. Detected concentrations are listed below:
    - TPH-G was detected at 4,520 µg/L and exceeded the MTCA cleanup level of 800 µg/L.
    - TPH-D was detected at 2,700 µg/L and exceeded the MTCA cleanup level of 500 µg/L.
    - TPH-O was detected at 1,200 µg/L and exceeded the MTCA cleanup level of 500 µg/L.
    - Benzene was detected at 1,530 µg/L and exceeded the MTCA cleanup level of 5 µg/L.
    - Toluene was detected at 3,550 µg/L and exceeded the MTCA cleanup level of 1,000 µg/L.
    - Ethylbenzene was detected at 730 µg/L and exceeded the MTCA cleanup level of 700 µg/L.
    - Total xylenes were detected at 4,850 µg/L exceeding the MTCA cleanup level of 1,000 ug/L.

Additionally, manganese, sulfate, nitrate, methane and ferrous iron were analyzed to determine if MNA processes are still occurring at the site. Natural attenuation analytes are provided in Table 2. A short summary of MNA parameters is below:

- Manganese—Manganese was detected in each of the wells sampled in July 2021. Manganese concentrations were highest in wells AR-1 and AR-8 at 1.08 milligrams per liter (mg/L) and 1.79 mg/L, respectively. The highest manganese concentration was detected in well AR-1 with the highest detected groundwater petroleum concentrations.
- Sulfate—Sulfate concentrations ranged from highs of 129 mg/L (MW-4), 127 mg/L (MW-6), and 123 mg/L (AR-11) to lows of 26.7 mg/L (AR-1), and 30.6 mg/L (AR-8). Sulfate concentrations are lower in samples from wells with petroleum concentrations.
- Nitrate—Concentrations of nitrate ranged from 33.6 mg/L (MW-6), 33.5 (MW-4) and 32.1 (AR-11) to not detected in well AR-8 and 1.63 mg/l in AR-1. Concentrations of nitrate are lower in wells with higher groundwater petroleum hydrocarbon concentrations.
- Methane—Methane was detected at concentrations of 7.42 µg/L (AR-8) and 283 (AR-1) in the wells with the highest groundwater petroleum concentrations. Methane was not detected in the remaining wells tested.
- Iron—Ferrous iron was not detected in any of the July 2021 groundwater samples using laboratory Standard Method (SM) 3500. Field measurements of soluble ferrous iron are discussed in Section 3.3.

3.2. Quality Assurance Summary

Quality assurance samples were collected by GeoEngineers in the field (e.g., field duplicates, equipment blank, and trip blanks). Additionally, the analytical laboratory performed quality assurance on samples during analysis.

3.2.1. Field Quality Assurance Samples

A field duplicate was collected from AR-8 during the July 2021 event. The relative percent difference (RPD) for the field duplicate sample collected at AR-8 was within acceptable limits for all analytes. An equipment blank sample (EB-1) was also collected by GeoEngineers field staff from the submersible pump during the sampling event as a quality check of the effectiveness of field decontamination procedures. No analytes were detected for the equipment blank, indicating decontamination procedures were generally effective and no cross contamination is suspected. No analytes were detected in two trip blanks.

3.2.2. Field Quality Assurance Samples

Laboratory performance criteria for calibration, precision (as measured by laboratory duplicate samples), and accuracy (as measured by spike and surrogate recovery and laboratory control sample analysis) were reviewed. Laboratory quality assurance results indicate laboratory quality control requirements were generally met for the analyses performed with the following exceptions:

- Anatek Report WBG1082— Samples MW-4 and AR-11— The initial analyses for Nitrate were performed within the recommended hold time but reanalysis for the required dilution was past holding time.
- Anatek Report WBG1116— Samples AR-8 and Field Duplicate—Sample analysis for benzene and toluene required dilution due to matrix.
- Anatek Report WBG1116— Sample AR-1—Diesel and lube oil detections are tentatively identified as heavy fuel oil.
- Anatek Report WBG1117— Sample MW-6—The initial analysis for nitrate was performed within the recommended hold time but reanalysis for the required dilution was past holding time.
- Anatek Report WBG1117—Sample MW-8—Sample analysis for benzene required dilution due to matrix.

3.2.3. Assessment

Based on our review of the laboratory quality assurance results, no data were rejected.

3.3. Water Quality Field Parameters

During groundwater sampling, field parameters were recorded to provide additional details of water quality. Dissolved oxygen (DO), pH, oxidation-reduction potential (ORP) and soluble ferrous iron were recorded and provide additional data as to if biodegradation processes are occurring. Negative ORP field values, which indicate the potential of reducing conditions, were recorded in AR-1, AR-8, and MW-8. Low DO readings, which indicate increasing anaerobic conditions, were recorded in AR-1 and AR-8. Field pH readings ranged from 7.51 (AR-1) to 7.78 (AR-11 and MW-6). Field concentrations of ferrous iron ranged from 0.63 mg/L in AR-8 to not detected in well AR-11. Field concentrations of iron were generally higher in wells with higher groundwater petroleum hydrocarbon concentrations. Field parameters are recorded on the well sampling field sheets in Appendix A and are provided in Table 1.

4.0 CONCLUSIONS

No petroleum hydrocarbons were detected in wells AR-11, MW-4 and MW-6 for the July 2021 monitoring event. These data support the conclusion that the petroleum hydrocarbon plume continues to be contained within the monitoring network.

Well AR-1, sampled in place of AR-4 and located within the center of the petroleum hydrocarbon plume directly downgradient for the release area, has the most MTCA cleanup level exceedances for the site with BTEX exceeding cleanup levels. The sampling pump lost in the base of AR-4 during the 2020 monitoring event could not be retrieved. Following video inspection and a caliper survey, AR-1 replaced AR-4 as the source area compliance monitoring well. In our opinion AR-1 meets the Point of Compliance definition (CMP Section 2.2.2) and also meets the CMP monitoring objectives (CMP Section 3.1). Steel monuments were installed over wells AR-4 and AR-8 during the July 2021 monitoring event.

Detected concentrations of TPH-G, and toluene, ethylbenzene and total xylenes were higher in wells MW-8 and AR-8 during the July 2021 monitoring event as compared to the June 2020 event. Field parameter data indicate that wells with historic and existing petroleum hydrocarbon detections showed negative ORP values (indicating potential for reducing conditions), lower DO readings (indicating presence of anaerobic conditions), and lower pH. Historical groundwater monitoring results are provided in Appendix D. Time series plots for benzene and TPH-g are provided in Appendix E.

A qualitative assessment of the potential for biodegradation of contaminants was performed using geochemical parameters of groundwater samples collected from monitoring wells located within the former free product plume area (AR-1 and MW-8) and comparing those results with the results of similar analyses from groundwater samples collected from upgradient (MW-11) and downgradient wells (MW-4, MW-8 and MW-6). Specifically, increased microbial activity tends to result in decreased ORP and DO concentrations in groundwater within source areas relative to upgradient and downgradient areas. Anaerobic microbial respiration also can cause a decrease in nitrate and sulfate concentrations, and an increase in dissolved manganese, ferrous iron, and methane. MNA constituents indicate that biodegradation of petroleum indicator substances is occurring in groundwater at the site. Specifically, manganese and methane concentrations were higher in wells with petroleum hydrocarbons as opposed to wells that have not had petroleum hydrocarbon detections. Conversely, sulfate concentrations were noticeably lower in wells AR-1, AR-8, and MW-8, than wells where petroleum hydrocarbons were historically not detected. Biodegradation processes associated with natural attenuation have been shown to reduce nitrates as well as petroleum hydrocarbons as illustrated by the low levels of nitrates in AR-1 and AR-8 (and historically in AR 4) when compared to other wells at the Site.

The results of the July 2021 monitoring event continue to support the conclusions presented in the September 2011 Remedial Investigation/Feasibility Study Report (CH2M/URS, 2011) as follows:

- The hydraulic gradient at the site is relatively flat with limited fluctuations.
- The petroleum hydrocarbon source has been addressed through remedial activities.
- Residual dissolved-phase petroleum hydrocarbons remain on site and within localized areas of the former free product plume. These areas include monitoring wells AR-1, AR-4, AR-8, and MW-8.
- The lateral extent of the dissolved-phase plume has been stable since active remedial actions were discontinued.

- Measured concentrations of field parameters and analytical results of natural attenuation constituents, as well as the stable lateral extent and concentration of petroleum hydrocarbons in sampled wells, suggest that biodegradation processes continue at the site.

5.0 RECOMMENDATIONS (YEAR 2022)

We recommend continuing to monitor according to the CMP, including the continuation of AR-1 compliance sampling in place of AR-4. The next groundwater monitoring event is scheduled for June 2022.

6.0 LIMITATIONS

GeoEngineers has prepared this report for use by Tidewater Terminal Company for the Fuel Leak Site in Pasco, Washington. Our services were conducted in general accordance with our proposal dated June 28, 2021 and authorized by Tidewater on June 30, 2021.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices in the field of environmental monitoring in this area at the time this report was prepared. No warranty or other conditions express or implied should be understood. Report limitations and guidelines for use are included in Appendix F.

We appreciate the opportunity to provide these continued services to Tidewater. Please call Kurt Harrington, PE at 503.502.1831 if you have questions regarding the contents of this report.

7.0 REFERENCES

CH2M/URS 2011. Remedial Investigation/Feasibility Study Report for the NWTC Pasco Terminal, Pasco, Washington. September 29.

CH2M 2017. Compliance Monitoring Plan for The Tidewater Fuel Leak Site, Pasco. October 3.

JACOBS 2020. FINAL—Data Summary Report for Annual Groundwater Monitoring for the Tidewater Fuel Leak Site, Pasco, Washington. January 2021.

Washington Department of Ecology 2016. State of Washington, Department of Ecology v. Tidewater Terminal Company, Inc., Consent Decree No. 16-250951-11. November 22.

TABLES

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Table 1. Groundwater Elevations and Field Parameter Readings

Tidewater Fuel Leak Site Compliance Monitoring Program

Well	Date Measured [1]	Reference Point Elevation (ft)	Depth to Water (ft btc)	Groundwater Elevation (ft)	Temp (°C)	pH	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Ferrous Iron (mg/L)	Conductivity (mS/cm)	Turbidity (NTU)	Comments
AR-1	7/27/2021	423.99	80.83	343.16	17.7	7.51	2.39	-163.1	0.11	0.713	8.2	--
AR-8	7/27/2021	423.02	80.01	343.01	18.8	7.67	2.37	-172.6	0.63	0.504	15.1	Also collected Field Duplicate and MS/MSD Lab QC Sample
AR-11	7/27/2021	422.62	79.59	343.03	18.0	7.78	8.78	50.6	ND	0.676	14.7	--
MW-4	7/27/2021	422.29	79.28	343.01	17.3	7.67	8.15	44.2	0.02	0.698	0.7	--
MW-6	7/27/2021	422.50	79.47	343.03	17.5	7.78	8.80	31.6	0.10	0.669	3.1	--
MW-8	7/27/2021	427.15	84.13	343.02	20.5	7.59	6.07	-93.1	0.46	0.585	2.9	--
Water Levels Only												
AR-4	7/27/2021	426.51 [2]	83.47	343.04	--	--	--	--		--	--	--
AR-7	7/27/2021	425.44	82.39	343.05	--	--	--	--		--	--	--
AR-12	7/27/2021	425.50	Dry	--	--	--	--	--		--	--	--
MW-5	7/27/2021	425.02	82.02	343.00	--	--	--	--		--	--	--
MW-7	7/27/2021	427.25	84.23	343.02	--	--	--	--		--	--	--

Notes:

1 - Water level measurements were collected on July 27, 2021. Groundwater samples were collected on July 27 and 28, 2021.

2 - Reference point elevation was resurveyed on July 27, 2021.

" -- " = Not applicable, not available, and/or not measured.

Reference point elevation is top of PVC casing; all elevations are in feet above mean sea level (NAVD88).

Field parameter readings represent final stabilized readings obtained during low-flow purge immediately prior to collection of water-quality sample.

ft = feet

ft btc = feet below top of casing

°C = degrees celcius

mg/L = milligrams per liter

mV = millivolts

mS/cm = millisiemens per centimeter

NTU = Nephelometric Turbidity Units

Table 2. Groundwater Quality Data

Tidewater Fuel Leak Site Compliance Monitoring Program

Well Sample ID Sample Date				AR-11 AR11-2107 7/28/21	MW-4 MW4-2107 7/28/21	MW-6 MW6-2107 7/28/21	MW-8 MW8-2107 7/28/21	AR-8 AR8-2107 7/28/21	FD (AR-8) FD-2107 7/28/21	AR-1 AR1-2107 7/28/21	Equipment Blank
Field Parameters	**Method**	**Units**	**MTCA CUL [1]**								
pH	Field Probe	units	--	7.78	7.67	7.78	7.59	7.67	--	7.51	--
Temperature	Field Probe	°C	--	18.0	17.3	17.5	20.5	18.8	--	17.7	--
Spec. Conductance	Field Probe	mS/cm	--	0.676	0.698	0.669	0.585	0.504	--	0.713	--
Dissolved Oxygen	Field Probe	mg/L	--	8.78	8.15	8.80	6.07	2.37	--	2.39	--
Oxygen Red. Potential	Field Probe	mV	--	50.6	44.2	31.6	-93.1	-172.6	--	-163.1	--
Turbidity	Field Probe	NTU	--	14.7	0.7	3.1	2.9	15.1	--	8.2	--
Ferrous Iron	Field Screen	mg/L	--	--	0.02	0.10	0.46	0.63	--	0.11	--
Petroleum Hydrocarbons											
Benzene	EPA 624.1	µg/L	5	<0.500	<0.500	<0.500	<12.5	<2.50	<2.50	**1,530**	<0.500
Toluene	EPA 624.1	µg/L	1,000	<0.500	<0.500	<0.500	15.5	<2.50	<2.50	**3,550**	<0.500
Ethylbenzene	EPA 624.1	µg/L	700	<0.500	<0.500	<0.500	120	119	112	**730**	<0.500
Total Xylenes	EPA 624.1	µg/L	1,000	<0.500	<0.500	<0.500	**1,357**	121.5	129.6	**4,850**	<0.500
TPH-Gasoline Range	NWTPH-Gx	µg/L	800	<100	<100	<100	**11,300**	**4,500**	**4,720**	**4,520**	<100
TPH-Diesel Range	NWTPH-Dx	µg/L	500	<160	<160	<160	<160	<160	<160	**2,700**	<160
TPH-Heavy Range	NWTPH-Dx	µg/L	500	<400	<400	<400	<400	<400	<400	**1,200**	<400
MNA Parameters											
Manganese	EPA 200.8	mg/L	--	0.0268	0.00494	0.0286	0.470	1.08	1.07	1.79	--
Sulfate	EPA 300.0	mg/L	--	123	129	127	92	30.6	30.3	26.7	--
Nitrate	EPA 300.0	mg/L	--	32.1	33.5	33.6	21.2	<0.100	<0.100	1.63	--
Methane	RSK-175 MOD	µg/L	--	<0.65	<0.65	<0.65	<0.65	7.42	6.60	283	--
Ferrous Iron	SM-3500	mg/L	--	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	--

Notes:

[1] From the November 2016 Cleanup Action Plan Table 1.

MNA field parameter readings represent final stabilized readings obtained during low-flow purge immediately prior to collection of water-quality sample.

BOLD = Detection

Grey shading = Exceeds MTCA Cleanup Level

Non-detect values reported as "<" laboratory method detection limit.

" -- " = Not applicable, not available, and/or not measured.

MTCA CUL = Model Toxics Control Act Cleanup Level

°C = degrees celcius

µg/L = micrograms per liter

mg/L = milligrams per liter

mV = millivolts

mS/cm = millisiemens per centimeter

NTU = Nephelometric Turbidity Units

FIGURES

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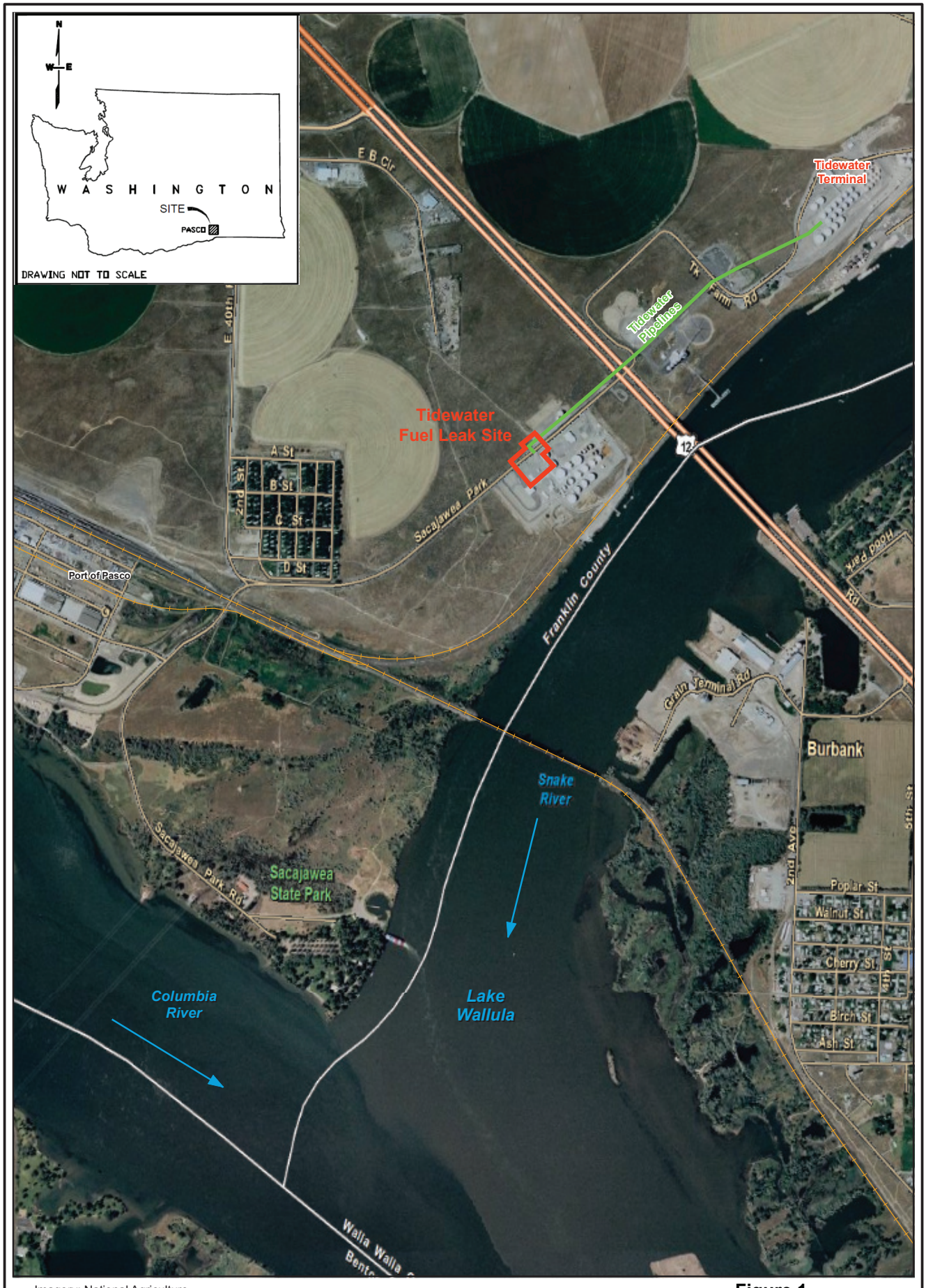


Figure 1
Site Location
Compliance Monitoring
Tidewater Fuel Leak Site
Pasco, WA

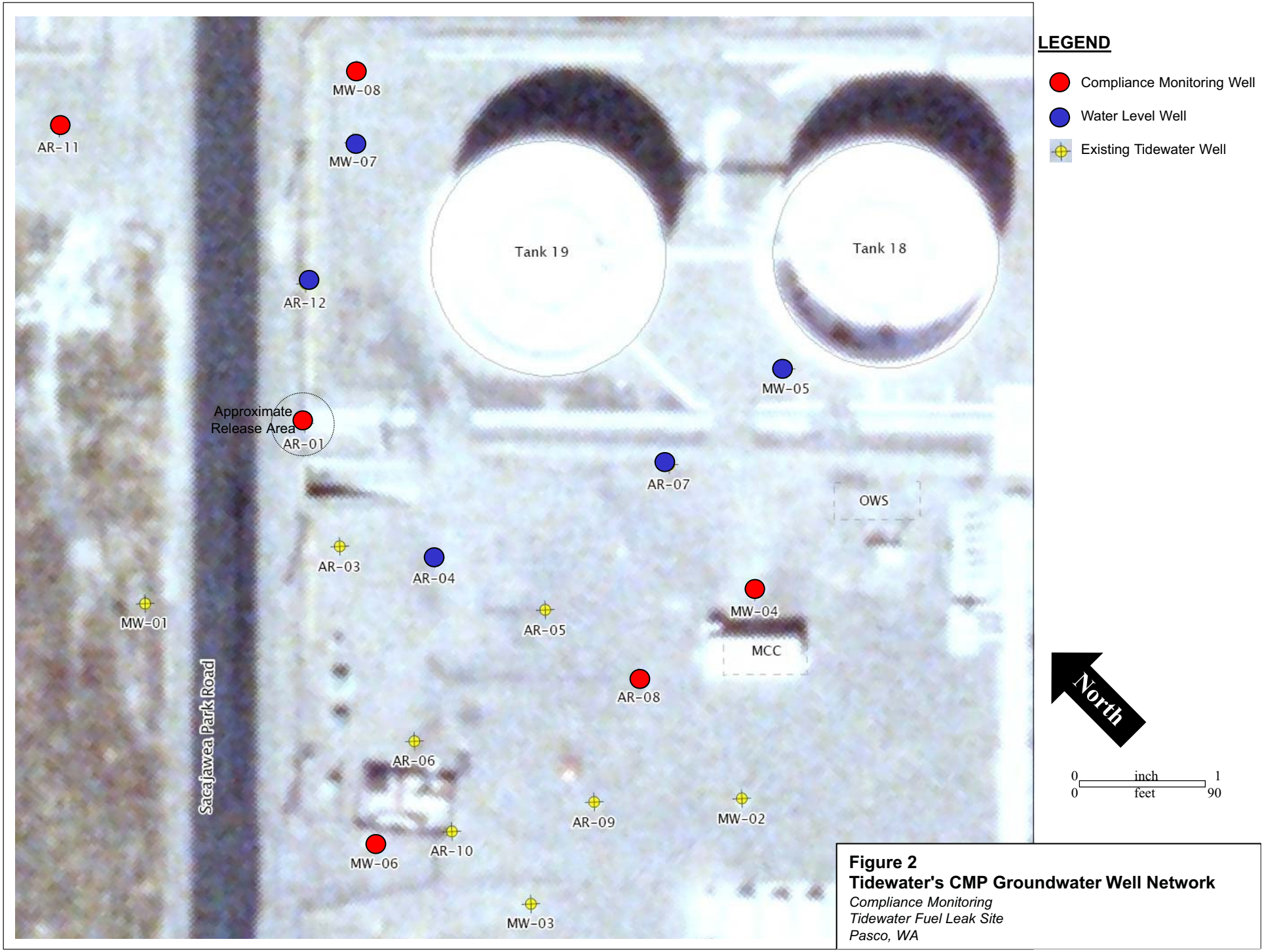


Figure 2
Tidewater's CMP Groundwater Well Network
Compliance Monitoring
Tidewater Fuel Leak Site
Pasco, WA

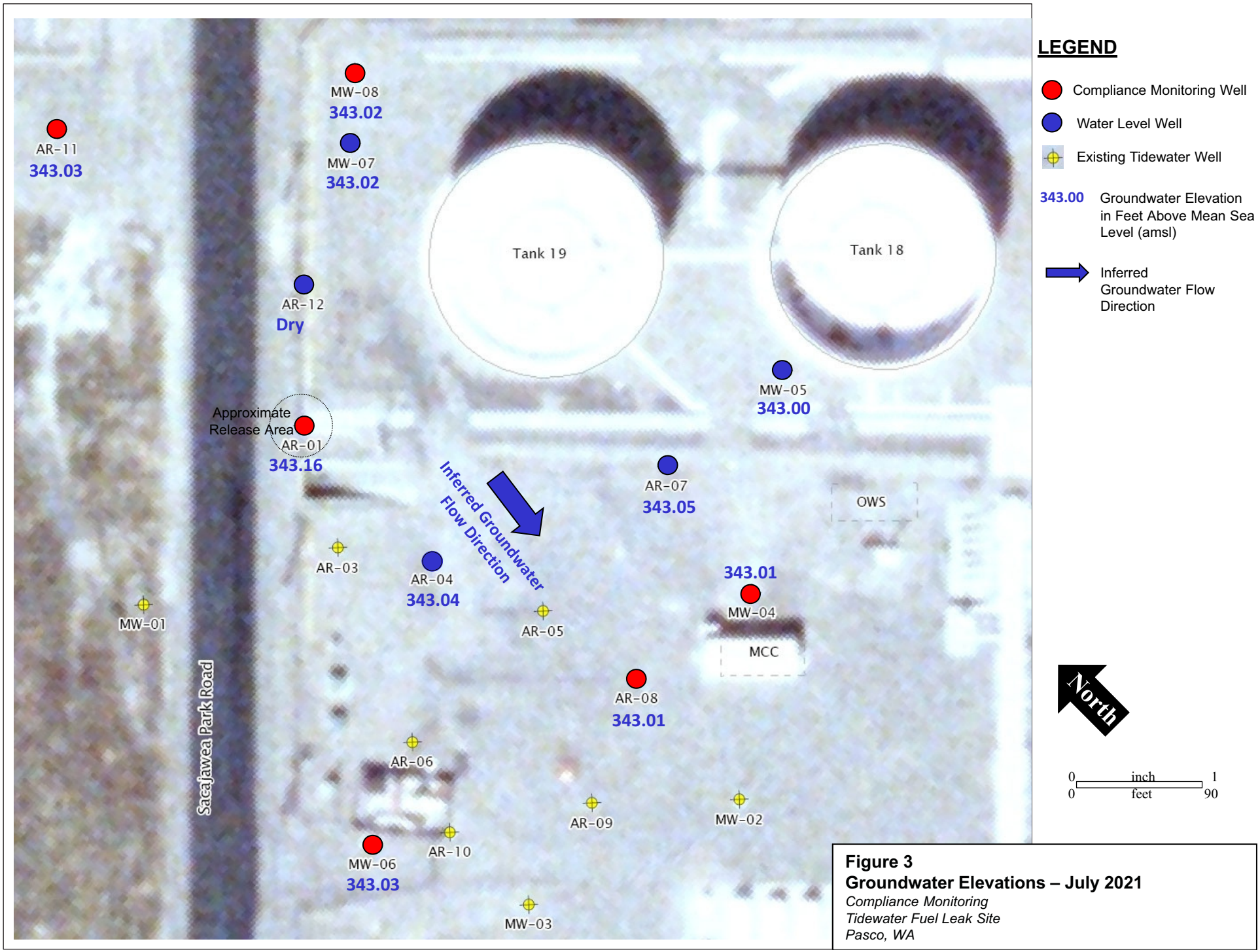
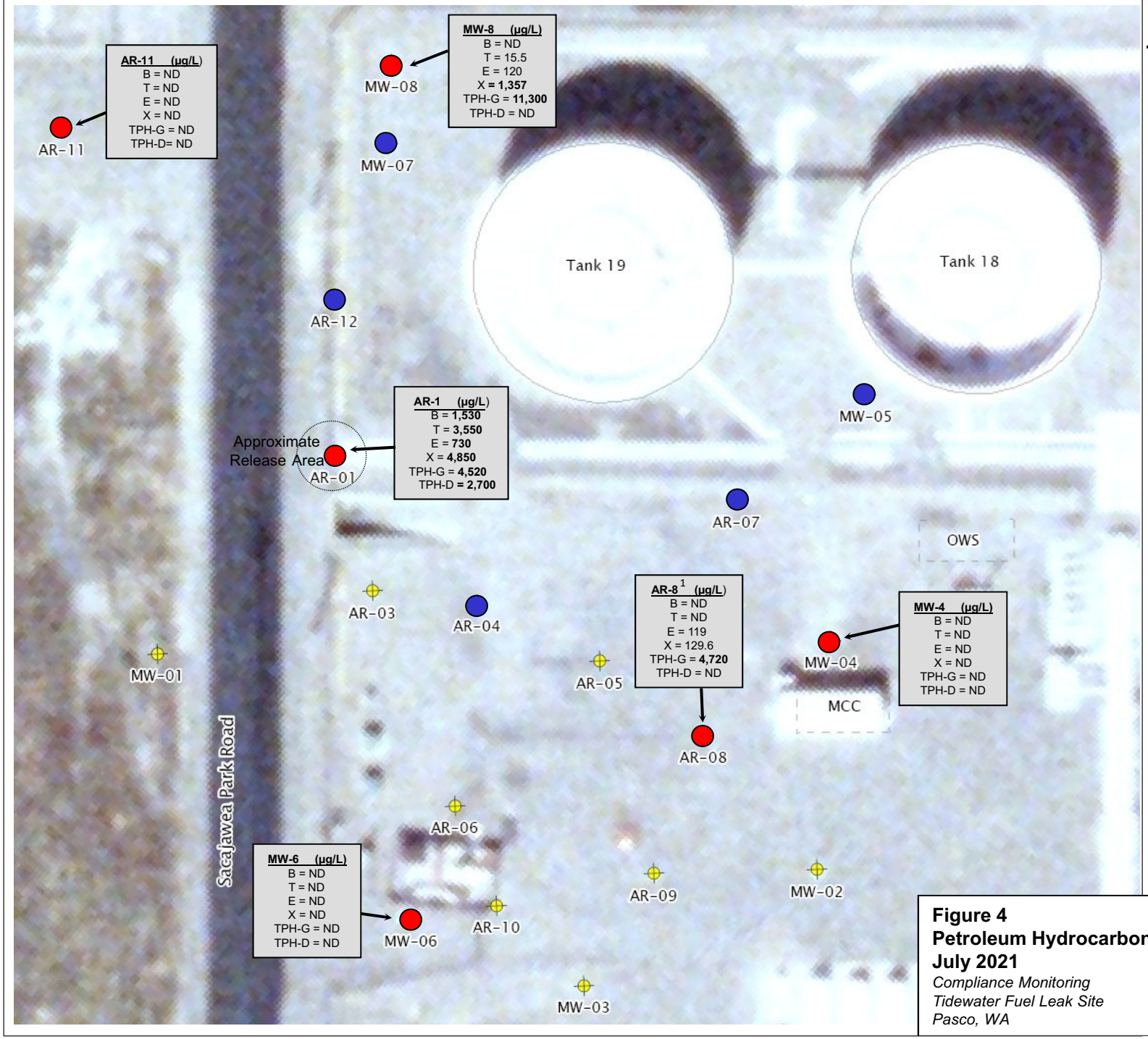


Figure 3
Groundwater Elevations – July 2021
Compliance Monitoring
Tidewater Fuel Leak Site
Pasco, WA



LEGEND

- Compliance Monitoring Well
- Water Level Well
- Existing Tidewater Well

µg/L – micrograms per liter
BOLD = MCL exceedance
ND = Analyte not detected

B = Benzene
T = Toluene
E = Ethylbenzene
X = Total xylenes
TPH-G = Gasoline
TPH-D = Diesel

1 - Highest reported concentration between original sample and field duplicate.

North

0 inch 1
0 feet 90

Figure 4
Petroleum Hydrocarbons in Groundwater
July 2021
Compliance Monitoring
Tidewater Fuel Leak Site
Pasco, WA

APPENDICES

GeoEngineers

APPENDIX A
Field Forms

Project: Pasco Terminal
Client: Tidewater
Sampler: AW/AC

Date: 7/27
Permit:

Well ID:	Time:	DTP:	DTW:	~~Product~~ Thickness:	DTB Notes: ~~DT~~
AR-11	0933	-	79.59	86.42	1 bolt, out of 3
MW-4	0943	-	79.28	89.25	No bolts, missing 2
MW-6	0949	-	79.47	89.88	Missing 1 bolt out of 2
MW-5	0956	-	82.02	91.31	~~New monument~~ AC
AR-8	1001	-	80.01	85.05	New monument
AR-4	1007	-	83.47	89.5	
MW-3	1018	-	84.13	93.78	
MW-7	1022	-	84.23	94.60	
AR-12	1027	-	Dry	82.82	
AR-7	1033	-	82.39	91.58	
AR-1	1048	-	80.83	87.68	New well cap needed.

GeoEngineers

WELL PURGING- FIELD WATER QUALITY MEASUREMENTS FORM

Location (Project/Site Name): Tidewater-Fuel Leak Site/Tesoro Logistics Pasco Terminal Date: 07-27-21

Well Number: AR-11 Well Depth: 80.12 btoc Well Dia: 2" Screened Interval: 73-88 ft bgs

Field Personnel: Alicia Candelaria and Jonathon Weatherford Project Number: 09991-005-00

Equipment: Monsoon Pro, YSI Pro DSS # 11G104827, HACH Dr 890

Regulator Setting: 16.6 V

Notes: HACH Ferrous Iron => read error, no color was observed

Initial Water Depth (Below TOC) 79.59 Start Sample Time: 1210

Min.	Time	Purge Rate (L/min)	Volume Removed (L)	Water Level (bmp)	pH ± 0.1	Spec. Cond. (mS/cm) ± 3%	ORP (mV) ± 10% or 10 mV	DO (mg/L) ± 10%	Turbidity (NTU) ± 10% or 10 NTU	Temp. (°C) ± 3%	Comments
0	1123	Begin Pumping.									
12	1135	0.6		79.60	7.78	1079	79.2	8.91	161.3	18.7	
17	1140	0.3		79.60	7.79	1079	102.9	8.80	18.1	17.6	
22	1145	0.3		79.60	7.79	1079	50.3	8.88	16.3	17.2	clear, no oder
27	1150	0.4		79.60	7.78	1077	52.6	8.85	9.16	18.0	
32	1155	0.4		79.60	7.78	1076	54.3	8.82	14.4	17.7	
37	1200	0.3		79.60	7.78	1074	52.6	8.80	15.5	18.4	
42	1205	0.3		79.60	7.78	1076	50.6	8.78	14.7	18.0	
47	1210	Sample									

Calculations:

Samples Collected AR11-2107 BTEX, NWTPH-Gx, Dx, Rx, SO_4, NO_3, Mn, Methane, Ferrous Iron

FP Signature:

GeoEngineers

WELL PURGING- FIELD WATER QUALITY MEASUREMENTS FORM

Location (Project/Site Name): Tidewater-Fuel Leak Site/Tesoro Logistics Pasco Terminal Date: 07-27-21

Well Number: MW-4 Well Depth: 89.25 Well Dia: 2" Screened Interval: 75-90 ft bgs

Field Personnel: Alicia Candelaria and Jonathon Weatherford Project Number: 09991-005-00

Equipment: Monsoon Pro, YSI Pro DSS #16G104827 HACH Dr 890

Regulator Setting: 15.6V

Notes: HACH Ferrous Iron = 0.02 mg/L

Initial Water Depth (Below TOC) 79.31 Start Sample Time: 1340

Min.	Time	Purge Rate (L/min)	Volume Removed (L)	Water Level (bmp)	pH ±0.1	Spec. Cond. (mS/cm) ±3%	ORP (mV) ± 10% or 10 mV	DO (mg/L) ± 10%	Turbidity (NTU) ± 10% or 10 NTU	Temp. (°C) ±3%	Comments
0	1300	Pump On									
5	1305	0.6	3.0	79.31	7.70	1094	92.5	8.41	100.0	19.1	
10	1310	0.3	4.5	79.31	7.68	1097	73.1	8.22	5.8	17.7	clear
15	1315	0.3	6.0	79.31	7.70	1097	73.4	8.28	7.7	18.6	no odor
20	1320	0.4	8.0	79.31	7.67	1098	69.2	8.17	3.6	17.3	
25	1325	0.4	10.0	79.31	7.67	1098	46.1	8.16	0.6	17.2	
30	1330	0.3	11.5	79.31	7.67	1098	43.2	8.15	0.4	17.2	
35	1335	0.3	13.0	79.31	7.67	1098	44.2	8.15	0.7	17.3	
40	1340	Sampled									

Calculations:

Samples Collected MW4-2107 BTEX, NWTPH-Gx, Dx, Rx, SO_4, NO_3, Mn, Methane, Ferrous Iron

FP Signature:

GeoEngineers

WELL PURGING- FIELD WATER QUALITY MEASUREMENTS FORM

Location (Project/Site Name): Tidewater-Fuel Leak Site/Tesoro Logistics Pasco Terminal Date: 7-28-21

Well Number: MW-10 Well Depth: 89.88 ft btoc Well Dia: 2" Screened Interval: 75-90 ft bgs

Field Personnel: Alicia Candelaria and Jonathon Weatherford Project Number: 09991-005-00

Equipment: Monsoon Pro, YSI Pro DSS # 16G104827, HACH Dr 890

Regulator Setting: 116.2 V

Notes: HACH Ferrous Iron Fe = 0.10 mg/L

Initial Water Depth (Below TOC) 79.49 Start Sample Time: 0935

Min.	Time	Purge Rate (L/min)	Volume Removed (L)	Water Level (bmp)	pH ± 0.1	Spec. Cond. (mS/cm) ± 3%	ORP (mV) ± 10% or 10 mV	DO (mg/L) ± 10%	Turbidity (NTU) ± 10% or 10 NTU	Temp. (°C) ± 3%	Comments
0	0905	Pump on									
5	0910	0.5	2.5	79.50	7.81	1656	113.0	8.83	81.1	17.2	
10	0915	0.3	4.0	79.50	7.78	1670	32.5	8.80	11.1	17.5	clear
15	0920	0.3	5.5	79.50	7.78	1670	28.7	8.80	6.8	17.6	no oder
20	0925	0.3	7.0	79.50	7.78	1668	27.6	8.79	4.2	18.3	
25	0930	0.3	8.5	79.50	7.78	1669	31.6	8.80	3.1	17.5	
30	0935	Sample Collected									

Calculations:

Samples Collected MW6-2107 and MS/MSD BTEX, NWTPH-Gx, Dx, Rx, SO4, NO3, Mn, Methane, Ferrous Iron FP Signature:

GeoEngineers

WELL PURGING- FIELD WATER QUALITY MEASUREMENTS FORM

Location (Project/Site Name): Tidewater-Fuel Leak Site/Tesoro Logistics Pasco Terminal Date: 07-28-21

Well Number: MW-8 Well Depth: ~~75-90 ft~~ 93.78 ft btoc Well Dia: 2" Screened Interval: 75-90 ft bgs

Field Personnel: Alicia Candelaria and Jonathon Weatherford Project Number: 09991-005-00

Equipment: Monsoon Pro. YSI Pro DSS #16G104827, MACH Dr 890

Regulator Setting: 16.1 V

Notes: MACH Ferrous Iron = 0.41 mg/L

Initial Water Depth (Below TOC) 84.17 Start Sample Time: 1105

Min.	Time	Purge Rate (L/min)	Volume Removed (L)	Water Level (bmp)	pH ±0.1	Spec. Cond. (mS/cm) ±3%	ORP (mV) ±10% or 10 mV	DO (mg/L) ±10%	Turbidity (NTU) ±10% or 10 NTU	Temp. (°C) ±3%	Comments
0	1035	Pump On									Turbid
5	1040	0.3	1.5	84.19	7.55	519	-120.2	4.07	80.9	17.8	
10	1045	0.3	3.0	84.19	7.56	560	-111.3	5.08	72.2	19.6	Slight odor
15	1050	0.3	4.5	84.19	7.57	570	-105.0	5.51	10.9	20.2	
20	1055	0.3	6.0	84.19	7.58	583	-98.4	5.89	4.0	19.8	clear
25	1100	0.3	7.5	84.19	7.59	583	-94.7	6.07	3.4	20.8	
28	1103	0.3	8.4	84.19	7.59	585	-93.1	6.07	2.9	20.5	
30	1105	Sample Collected									

Calculations:

Samples Collected MW8-2107 BTEX, NWTPH-Gx, Dx, Rx, SO_4, NO_3, Mn, Methane, Ferrous Iron

FP Signature:

GeoEngineers

WELL PURGING- FIELD WATER QUALITY MEASUREMENTS FORM

Location (Project/Site Name): Tidewater-Fuel Leak Site/Tesoro Logistics Pasco Terminal Date: 07-28-21

Well Number: AR-8 Well Depth: 85.05 ft btoc Well Dia: 2" Screened Interval: 73-88 ft bgs

Field Personnel: Alicia Candelaria and Jonathon Weatherford Project Number: 09991-005-00

Equipment: Monsoon Pro, YSI Pro #16G104827, HACH Dr 890

Regulator Setting: 15.6 V

Notes: HACH Ferrous Iron = 0.63 mg/L

Initial Water Depth (Below TOC) 79.99 Start Sample Time: AR8 = 1240, FD = 1255

Min.	Time	Purge Rate (L/min)	Volume Removed (L)	Water Level (bmp)	pH ± 0.1	Spec. Cond. (µS/cm) ± 3%	ORP (mV) ± 10% or 10 mV	DO (mg/L) ± 10%	Turbidity (NTU) ± 10% or 10 NTU	Temp. (°C) ± 3%	Comments
	1155	Pump on									
	12.00	0.3	1.5	80.03	7.70	502	+104.4	2.74	33.9	18.4	
	12.05	0.3	3.0	80.06	7.69	505	-169.0	2.54	9.3	18.7	clear
	12.10	0.3	4.5	80.05	7.69	502	-171.1	2.47	9.0	18.8	Slight
	12.15	0.3	6.0	80.05	7.67	507	-173.1	2.38	10.1	19.9	odor
	12.20	0.3	7.5	80.05	7.67	510	-172.7	2.40	12.9	19.5	
	12.25	0.3	9.0	80.05	7.67	507	-173.8	2.36	15.3	19.6	
	12.30	0.3	10.5	80.05	7.67	503	-172.8	2.39	15.5	18.7	
	1235	0.3	12.0	80.05	7.67	504	-172.6	2.37	15.1	18.8	
	1240	Sampled									
	1255	Sampled field duplicate									

Calculations:

Samples Collected AR8-2107, FD-2107 BTEX, NWTPH-Gx, Dx, Rx, SO4, NO3, Mn, Methane, Ferrous Iron

FP Signature:

GeoEngineers

WELL PURGING- FIELD WATER QUALITY MEASUREMENTS FORM

Location (Project/Site Name): Tidewater-Fuel Leak Site/Tesoro Logistics Pasco Terminal Date: 07-28-21

Well Number: AR-1 Well Depth: 87.08 Well Dia: 2" Screened Interval: 73-88 ft bgs

Field Personnel: Alicia Candelaria and Jonathon Weatherford Project Number: 09991-005-00

Equipment: Monsoon Pro, YSI Pro # 16G104827, HACH Dr 890

Regulator Setting: 16.0 V

Notes: HACH Ferrous Iron = 0.11 mg/L

Initial Water Depth (Below TOC) 80.88 Start Sample Time: 1405

Min.	Time	Purge Rate (L/min)	Volume Removed (L)	Water Level (bmp)	pH ± 0.1	Spec. Cond. (~~mS~~/cm) 1 ± 3%	ORP (mV) ± 10% or 10 mV	DO (mg/L) ± 10%	Turbidity (NTU) ± 10% or 10 NTU	Temp. (°C) ± 3%	Comments
0	1328	Pump	On								
2	1330	0.25	0.5	80.88	7.64	720	-138.0	2.82	45.1	18.5	Very turbid
7	1335	0.25	1.75	80.89	7.65	719	-154.8	2.49	27.4	18.5	Strong odor
12	1340	0.3	2.75	80.95	7.58	713	-157.0	2.44	15.7	17.9	
17	1345	0.3	4.25	80.91	7.55	715	-160.9	2.33	103.1	18.5	
22	1350	0.3	5.75	80.92	7.53	714	-163.8	2.33	20.7	18.6	
27	1355	0.3	7.25	80.92	7.52	713	-162.7	2.36	10.0	18.0	
30	1358	0.3	8.15	80.92	7.51	713	-163.1	2.39	8.2	17.7	
35	1405	Sample Collected									

Calculations:

Samples Collected AR1-2107 BTEX, NWTPH-Gx, Dx, Rx, SO_4, NO_3, Mn, Methane, Ferrous Iron FP Signature:

APPENDIX B
Historical Groundwater Elevations

Appendix B - Historical Groundwater Elevation Measurements

Tidewater Fuel Leak Site Compliance Monitoring Program

Well	Date Sampled	Reference Point Elevation (feet NGVD)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet NGVD)	Groundwater Elevation Change in Feet From Previous Reading
MW-1 [a]	6/28/2010	421.82	77.23	0	344.59	--
	12/14/2010		77.72	0	344.1	-0.49
	5/28/2014		77.35	0	344.47	0.37
MW-2 [a]	6/29/2010	422.95	78.37	0	344.58	--
	12/15/2010		78.86	0	344.09	-0.49
	5/28/2014		78.49	0	344.46	0.37
MW-3 [a]	6/29/2010	422.37	77.84	0	344.53	--
	12/15/2010		78.33	0	344.04	-0.49
	5/28/2014		77.92	0	344.45	0.41
MW-4	6/29/2010	422.29	77.72	0	344.57	--
	12/15/2010		78.22	0	344.07	-0.5
	5/29/2014		77.82	0	344.47	0.4
	5/1/2018		77.80	0	344.49	0.02
	6/25/2019		78.52	0	343.77	-0.72
	6/24/2020		78.24	0	344.05	0.28
MW-5	6/29/2010	425.02	80.48	0	344.54	--
	12/15/2010		80.95	0	344.07	-0.47
	5/29/2014		80.59	0	344.43	0.36
	5/1/2018		80.51	0	344.51	0.08
	6/25/2019		81.29	0	343.73	-0.78
	6/24/2020		80.97	0	344.05	0.32
MW-6	6/28/2010	422.5	77.92	0	344.58	--
	12/14/2010		78.41	0	344.09	-0.49
	5/28/2014		77.99	0	344.51	0.42
	5/1/2018		77.98	0	344.52	0.01
	6/25/2019		78.72	0	343.78	-0.74
	6/24/2020		78.44	0	344.06	0.28
MW-7	6/29/2010	427.25	82.74	sheen	344.51	--
	12/16/2010		83.19	0	344.06	-0.45
	5/29/2014		82.79	0	344.46	0.4
	5/1/2018		82.78	0	344.47	0.01
	6/25/2019		83.55	0	343.7	-0.77
	6/24/2020		83.26	0	343.99	0.29
MW-8	6/29/2010	427.15	82.62	sheen	344.53	--
	12/16/2010		83.09	0	344.06	-0.47
	5/29/2014		82.69	0	344.46	0.4
	5/1/2018		82.61	0	344.54	0.08
	6/25/2019		83.44	0	343.71	-0.83
	6/24/2020		83.16	0	343.99	0.28

Appendix B - Historical Groundwater Elevation Measurements

Tidewater Fuel Leak Site Compliance Monitoring Program

Well	Date Sampled	Reference Point Elevation (feet NGVD)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet NGVD)	Groundwater Elevation Change in Feet From Previous Reading
AR-1	6/29/2010	425.80	81.28	0.01	344.52	--
	12/16/2010		81.70	sheen	344.10	-0.42
	5/28/2014		79.56	sheen	346.24	2.14
	5/1/2018 [b]	423.99	79.38	0	344.61	-1.63
	6/25/2019		80.13	0	343.86	-0.75
	6/24/2020		79.83	0	344.16	0.30
AR-2 [a]	6/29/2010	NA	NA	NA	NA	--
	12/16/2010		NA	NA	NA	NA
	5/28/2014		NA	NA	NA	NA
AR-3 [a]	6/29/2010	428.01	NA	NA	NA	--
	12/15/2010		NA	NA	NA	NA
	5/28/2014		NA	NA	NA	NA
AR-4	6/29/2010	426.47	81.90	0	344.57	--
	12/15/2010		82.38	0	344.09	-0.48
	5/29/2014		81.99	0	344.48	0.39
	5/1/2018		81.93	0	344.54	0.06
	6/25/2019		82.76	0	343.71	-0.83
	6/24/2020		82.52	0	343.95	0.24
AR-5 [a]	6/29/2010	423.08	78.52	0	344.56	--
	12/15/2010		79.00	0	344.08	-0.48
	5/29/2014		78.62	0	344.46	0.38
AR-6 [a]	6/29/2010	425.17	80.61	0	344.56	--
	12/15/2010		81.11	0	344.06	-0.5
	5/29/2014		80.72	0	344.45	0.39
AR-7	6/29/2010	425.44	80.82	sheen	344.62	--
	12/16/2010		81.33	sheen	344.11	-0.51
	5/29/2014		80.96	0	344.48	0.37
	5/1/2018		80.92	0	344.52	0.04
	6/25/2019		81.68	0	343.76	-0.76
	6/24/2020		81.41	0	344.03	0.27
AR-8	6/29/2010	423.02	78.43	0	344.59	--
	12/15/2010		78.94	0	344.08	-0.51
	5/29/2014		78.50	0	344.52	0.44
	5/1/2018		78.43	0	344.59	0.07
	6/25/2019		79.29	0	343.73	-0.86
	6/24/2020		78.99	0	344.03	0.30
AR-9 [a]	6/29/2010	423.05	78.46	0	344.59	--
	12/15/2010		78.95	0	344.1	-0.49
	5/29/2014		78.60		344.45	0.35

Appendix B - Historical Groundwater Elevation Measurements

Tidewater Fuel Leak Site Compliance Monitoring Program

Well	Date Sampled	Reference Point Elevation (feet NGVD)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet NGVD)	Groundwater Elevation Change in Feet From Previous Reading
AR-10 [a]	6/29/2010	422.59	78.01	0	344.58	--
	12/14/2010		78.50	0	344.09	-0.49
	5/28/2014		78.13		344.46	0.37
AR-11	6/28/2010	422.62	78.00	0	344.62	--
	12/14/2010		78.49	0	344.13	-0.49
	5/28/2014		78.15	0	344.47	0.34
	5/1/2018		78.09	0	344.53	0.06
	6/25/2019		78.83	0	343.79	-0.74
	6/24/2020		78.54	0	344.08	0.29
AR-12	6/29/2010	425.50	80.96	sheen	344.54	--
	12/15/2010		dry	NA	NA	NA
	5/28/2014		dry	NA	NA	NA
	5/1/2018		81.02	0	344.48	NA
	6/25/2019		dry	NA	NA	NA
	6/24/2020		81.50	0	344.00	NA

Notes:

a - Well not part of CMP program

b - Well AR-1 was re-surveyed in December 2018 and is applied to calculating GW elevations starting in May 2018

NGVD = National Geodetic Vertical Datum of 1929

N/A = Not applicable or not available

APPENDIX C
Laboratory Data Reports

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Client:	GeoEngineers-Kennewick	Work Order:	WBG1082
Address:	8019 W Quinault Ave, Suite 201	Project:	Tidewater 009991-005-00
	Kennewick, WA 99336	Reported:	8/12/2021 19:11
Attn:	Kurt Harrington		

Analytical Results Report

Sample Location:	AR11-2107		
Lab/Sample Number:	WBG1082-01	Collect Date:	07/27/21 12:10
Date Received:	07/28/21 08:05	Collected By:	Alicia Candelaria
Matrix:	Water		

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Nitrate-N	32.1	mg/L	1.00	7/29/21 18:24	BAS	EPA 300.0	H2
Sulfate	123	mg/L	1.00	7/29/21 18:24	BAS	EPA 300.0	
Total Metals							
Iron (II)	ND	mg/L	0.0100	7/29/21 9:30	ARS	SM 3500-Fe B	*
Metals by ICP-MS							
Manganese	0.0268	mg/L	0.00100	8/6/21 12:57	TRC	EPA 200.8	
Hydrocarbons							
Diesel	ND	mg/L	0.160	8/9/21 19:09	ARC	NWTPH-Dx	
Lube Oil	ND	mg/L	0.400	8/9/21 19:09	ARC	NWTPH-Dx	
Mineral Oil	ND	mg/L	0.160	8/9/21 19:09	ARC	NWTPH-Dx	
Surrogate: n-Hexacosane	*109%*		*50-150*	*8/9/21 19:09*	*ARC*	*NWTPH-Dx*	
Volatiles							
Benzene	ND	ug/L	0.500	7/30/21 12:50	TEC	EPA 8260D	*
Ethylbenzene	ND	ug/L	0.500	7/30/21 12:50	TEC	EPA 8260D	*
m/p Xylenes (MCL for total)	ND	ug/L	0.500	7/30/21 12:50	TEC	EPA 8260D	*
o-Xylene (MCL for total)	ND	ug/L	0.500	7/30/21 12:50	TEC	EPA 8260D	*
Toluene	ND	ug/L	0.500	7/30/21 12:50	TEC	EPA 8260D	*
Surrogate: 1,2-Dichlorobenzene-d4	*105%*		*70-130*	*7/30/21 12:50*	*TEC*	*EPA 8260D*	
Surrogate: 4-Bromofluorobenzene	*95.7%*		*70-130*	*7/30/21 12:50*	*TEC*	*EPA 8260D*	
Surrogate: Toluene-d8	*98.7%*		*70-130*	*7/30/21 12:50*	*TEC*	*EPA 8260D*	
Gasoline	ND	mg/L	0.100	7/29/21 13:23	ARC	NWTPH-Gx	
Surrogate: 4-Bromofluorobenzene	*102%*		*50-150*	*7/29/21 13:23*	*ARC*	*NWTPH-Gx*	

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Analytical Results Report

(Continued)

Sample Location: MW4-2107
Lab/Sample Number: WBG1082-02 Collect Date: 07/27/21 13:40
Date Received: 07/28/21 08:05 Collected By: Alicia Candelaria
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Nitrate-N	33.5	mg/L	1.00	7/29/21 18:40	BAS	EPA 300.0	H2
Sulfate	129	mg/L	1.00	7/29/21 18:40	BAS	EPA 300.0	
Total Metals							
Iron (II)	ND	mg/L	0.0100	7/29/21 9:30	ARS	SM 3500-Fe B	*
Metals by ICP-MS							
Manganese	0.00494	mg/L	0.00100	8/6/21 12:59	TRC	EPA 200.8	
Hydrocarbons							
Diesel	ND	mg/L	0.160	8/9/21 20:05	ARC	NWTPH-Dx	
Lube Oil	ND	mg/L	0.400	8/9/21 20:05	ARC	NWTPH-Dx	
Mineral Oil	ND	mg/L	0.160	8/9/21 20:05	ARC	NWTPH-Dx	
Surrogate: n-Hexacosane	*109%*		*50-150*	*8/9/21 20:05*	*ARC*	*NWTPH-Dx*	
Volatiles							
Benzene	ND	ug/L	0.500	7/30/21 17:05	TEC	EPA 8260D	*
Ethylbenzene	ND	ug/L	0.500	7/30/21 17:05	TEC	EPA 8260D	*
m/p Xylenes (MCL for total)	ND	ug/L	0.500	7/30/21 17:05	TEC	EPA 8260D	*
o-Xylene (MCL for total)	ND	ug/L	0.500	7/30/21 17:05	TEC	EPA 8260D	*
Toluene	ND	ug/L	0.500	7/30/21 17:05	TEC	EPA 8260D	*
Surrogate: 1,2-Dichlorobenzene-d4	*106%*		*70-130*	*7/30/21 17:05*	*TEC*	*EPA 8260D*	
Surrogate: 4-Bromofluorobenzene	*95.3%*		*70-130*	*7/30/21 17:05*	*TEC*	*EPA 8260D*	
Surrogate: Toluene-d8	*99.6%*		*70-130*	*7/30/21 17:05*	*TEC*	*EPA 8260D*	
Gasoline	ND	mg/L	0.100	7/29/21 14:01	ARC	NWTPH-Gx	
Surrogate: 4-Bromofluorobenzene	*103%*		*50-150*	*7/29/21 14:01*	*ARC*	*NWTPH-Gx*	

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Analytical Results Report

(Continued)

Sample Location: Trip Blank
Lab/Sample Number: WBG1082-03 Collect Date: 07/27/21 13:40
Date Received: 07/28/21 08:05 Collected By: Alicia Candelaria
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Volatiles							
1,1,1,2-Tetrachloroethane	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
1,1,1-Trichloroethane	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
1,1,2,2-Tetrachloroethane	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
1,1,2-Trichlorethane	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
1,1-Dichloroethane	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
1,1-Dichloroethylene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
1,1-Dichloropropene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
1,2,3-Trichlorobenzene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
1,2,3-Trichloropropane	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
1,2,4-Trichlorobenzene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
1,2,4-Trimethylbenzene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
1,2-Dichlorobenzene (ortho-Dichlorobenzene)	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
1,2-Dichloroethane	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
1,2-Dichloropropane	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
1,3,5-Trimethylbenzene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
1,3-Dichloropropane	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
1,4-Dichlorobenzene (para-Dichlorobenzene)	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
2,2-Dichloropropane	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
2-Chloroethyl vinyl ether	ND	ug/L	2.50	7/30/21 16:32	TEC	EPA 8260D	*
2-hexanone	ND	ug/L	2.50	7/30/21 16:32	TEC	EPA 8260D	*
Acetone	ND	ug/L	2.50	7/30/21 16:32	TEC	EPA 8260D	*
Acrolein	ND	ug/L	2.50	7/30/21 16:32	TEC	EPA 8260D	*
Acrylonitrile	ND	ug/L	2.50	7/30/21 16:32	TEC	EPA 8260D	*
Benzene	ND	ug/L	0.200	7/30/21 16:32	TEC	EPA 8260D	*
Bromobenzene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
Bromochloromethane	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
Bromodichloromethane	ND	ug/L	0.200	7/30/21 16:32	TEC	EPA 8260D	*
Bromoform	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
Bromomethane	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
Carbon disulfide	ND	ug/L	2.50	7/30/21 16:32	TEC	EPA 8260D	*
Carbon Tetrachloride	ND	ug/L	0.200	7/30/21 16:32	TEC	EPA 8260D	*
Chlorobenzene (Monochlorobenzene)	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
Chloroethane	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
Chloroform	ND	ug/L	0.200	7/30/21 16:32	TEC	EPA 8260D	*
Chloromethane	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
cis-1,2-Dichloroethylene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
cis-1,3-Dichloropropene	ND	ug/L	0.200	7/30/21 16:32	TEC	EPA 8260D	*
DBCP (screening)	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
Dibromochloromethane	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
Dibromomethane	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
Dichlorodifluoromethane	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
EDB (screening)	ND	ug/L	0.200	7/30/21 16:32	TEC	EPA 8260D	*
Ethylbenzene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
Hexachlorobutadiene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
Isopropylbenzene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*

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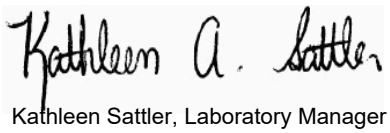
Analytical Results Report

(Continued)

Sample Location:	Trip Blank		
Lab/Sample Number:	WBG1082-03	Collect Date:	07/27/21 13:40
Date Received:	07/28/21 08:05	Collected By:	Alicia Candelaria
Matrix:	Water		

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Volatiles (Continued)							
m/p Xylenes (MCL for total)	ND	ug/L	1.00	7/30/21 16:32	TEC	EPA 8260D	*
m-Dichlorobenzene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
Methyl ethyl ketone (MEK)	ND	ug/L	2.50	7/30/21 16:32	TEC	EPA 8260D	*
Methyl isobutyl ketone (MIBK)	ND	ug/L	2.50	7/30/21 16:32	TEC	EPA 8260D	*
Methylene Chloride (Dichloromethane)	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
methyl-t-butyl ether (MTBE)	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
Naphthalene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
n-Butylbenzene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
n-Propylbenzene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
o-Chlorotoluene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
o-Xylene (MCL for total)	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
p-Chlorotoluene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
p-isopropyltoluene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
sec-Butylbenzene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
Styrene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
tert-Butylbenzene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
Tetrachloroethylene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
Toluene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
Total Xylenes	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
trans-1,2 Dichloroethylene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
trans-1,3-Dichloropropene	ND	ug/L	0.200	7/30/21 16:32	TEC	EPA 8260D	*
trans-1-4-Dichloro-2-butene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
Trichloroethene	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
Trichloroflouromethane	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
Vinyl acetate	ND	ug/L	0.500	7/30/21 16:32	TEC	EPA 8260D	*
Vinyl Chloride	ND	ug/L	0.200	7/30/21 16:32	TEC	EPA 8260D	*
Surrogate: 1,2-Dichlorobenzene-d4	*106%*		*70-130*	*7/30/21 16:32*	*TEC*	*EPA 8260D*	
Surrogate: 4-Bromofluorobenzene	*94.7%*		*70-130*	*7/30/21 16:32*	*TEC*	*EPA 8260D*	
Surrogate: Toluene-d8	*99.4%*		*70-130*	*7/30/21 16:32*	*TEC*	*EPA 8260D*	

Authorized Signature,



Kathleen Sattler, Laboratory Manager

H2	Initial analysis within holding time, Reanalysis for the required dilution was past holding time.
PQL	Practical Quantitation Limit
ND	Not Detected
MCL	EPA's Maximum Contaminant Level
Dry	Sample results reported on a dry weight basis
*	Not a state-certified analyte

RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was spiked or duplicated.

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Certifications

Code	Description	Facility	Number
W WA DOE	Washington Department of Ecology	Anatek-Spokane, WA	C585

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Quality Control Data

Inorganics

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBG0968 - W Ions										
Blank (BBG0968-BLK1)					Prepared & Analyzed: 7/29/2021					
Nitrate-N	ND		0.100	mg/L						
Sulfate	ND		0.100	mg/L						
Blank (BBG0968-BLK2)					Prepared & Analyzed: 7/30/2021					
Nitrate-N	ND		0.100	mg/L						
Sulfate	ND		0.100	mg/L						
LCS (BBG0968-BS1)					Prepared & Analyzed: 7/29/2021					
Nitrate-N	3.79			mg/L	4.00		94.6	90-110		
Sulfate	3.72			mg/L	4.00		93.0	90-110		
LCS (BBG0968-BS2)					Prepared & Analyzed: 7/30/2021					
Nitrate-N	3.98			mg/L	4.00		99.4	90-110		
Sulfate	3.92			mg/L	4.00		98.0	90-110		

Quality Control Data

Metals by ICP-MS

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0068 - W 3010 Digest										
Blank (BBH0068-BLK1)					Prepared: 8/3/2021 Analyzed: 8/6/2021					
Manganese	ND		0.00100	mg/L						
LCS (BBH0068-BS1)					Prepared: 8/3/2021 Analyzed: 8/6/2021					
Manganese	0.0525		0.00100	mg/L	0.0500		105	85-115		
Matrix Spike (BBH0068-MS1)		**Source: WBG1116-01**			Prepared: 8/3/2021 Analyzed: 8/6/2021					
Manganese	1.29		0.00500	mg/L	0.250	1.08	82.0	70-130		
Matrix Spike (BBH0068-MS2)		**Source: WBG1117-01**			Prepared: 8/3/2021 Analyzed: 8/6/2021					
Manganese	0.278		0.00500	mg/L	0.250	0.0286	99.9	70-130		
Matrix Spike Dup (BBH0068-MSD1)		**Source: WBG1116-01**			Prepared: 8/3/2021 Analyzed: 8/6/2021					
Manganese	1.29		0.00500	mg/L	0.250	1.08	84.9	70-130	0.561	20
Matrix Spike Dup (BBH0068-MSD2)		**Source: WBG1117-01**			Prepared: 8/3/2021 Analyzed: 8/6/2021					
Manganese	0.285		0.00500	mg/L	0.250	0.0286	102	70-130	2.26	20

Quality Control Data

Hydrocarbons

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0189 - W TPH-Dx										
Blank (BBH0189-BLK1)					Prepared & Analyzed: 8/9/2021					
Diesel	ND		0.160	mg/L						
Lube Oil	ND		0.400	mg/L						

Quality Control Data
(Continued)

Hydrocarbons (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0189 - W TPH-Dx (Continued)										
Blank (BBH0189-BLK1)					Prepared & Analyzed: 8/9/2021					
Mineral Oil	ND		0.160	mg/L						
Surrogate: n-Hexacosane			*55.2*	*ppm*	*50.1*		*110*	*50-150*		
LCS (BBH0189-BS1)					Prepared & Analyzed: 8/9/2021					
Diesel	1.04		0.160	mg/L	1.00		103	70-130		
Lube Oil	ND		0.400	mg/L				70-130		
Surrogate: n-Hexacosane			*56.2*	*ppm*	*50.1*		*112*	*50-150*		
LCS Dup (BBH0189-BSD1)					Prepared: 8/9/2021 Analyzed: 8/10/2021					
Diesel	1.03		0.160	mg/L	1.00		102	70-130	0.838	20
Lube Oil	ND		0.400	mg/L				70-130		20
Surrogate: n-Hexacosane			*54.3*	*ppm*	*50.1*		*108*	*50-150*		
Duplicate (BBH0189-DUP1)		**Source: WBG1082-02**			Prepared & Analyzed: 8/9/2021					
Diesel	ND		0.160	mg/L		ND				20
Lube Oil	ND		0.400	mg/L		ND				20
Mineral Oil	ND		0.160	mg/L		ND				20
Surrogate: n-Hexacosane			*54.5*	*ppm*	*50.1*		*109*	*50-150*		
Matrix Spike (BBH0189-MS1)		**Source: WBG1117-01**			Prepared & Analyzed: 8/9/2021					
Diesel	0.999		0.160	mg/L	1.00	ND	99.4	70-130		
Lube Oil	ND		0.400	mg/L		ND		70-130		
Surrogate: n-Hexacosane			*53.2*	*ppm*	*50.1*		*106*	*50-150*		
Matrix Spike Dup (BBH0189-MSD1)		**Source: WBG1117-01**			Prepared & Analyzed: 8/9/2021					
Diesel	0.991		0.160	mg/L	1.00	ND	98.7	70-130	0.736	20
Lube Oil	ND		0.400	mg/L		ND		70-130		20
Surrogate: n-Hexacosane			*52.7*	*ppm*	*50.1*		*105*	*50-150*		

Quality Control Data
(Continued)

Volatiles

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBG0972 - VOC										
Blank (BBG0972-BLK1)					Prepared & Analyzed: 7/30/2021					
Benzene	ND		0.500	ug/L						
Ethylbenzene	ND		0.500	ug/L						
m/p Xylenes (MCL for total)	ND		0.500	ug/L						
o-Xylene (MCL for total)	ND		0.500	ug/L						
Toluene	ND		0.500	ug/L						
Surrogate: 4-Bromofluorobenzene			*24.2*	*ug/L*	*25.0*		*97.0*	*70-130*		
Surrogate: Toluene-d8			*24.6*	*ug/L*	*25.0*		*98.5*	*70-130*		
Surrogate: 1,2-Dichlorobenzene-d4			*19.5*	*ug/L*	*19.0*		*102*	*70-130*		
LCS (BBG0972-BS1)					Prepared & Analyzed: 7/30/2021					
o-Xylene (MCL for total)	10.2		0.500	ug/L	10.0		102	80-120		
Benzene	10.2		0.500	ug/L	10.0		102	80-120		
m/p Xylenes (MCL for total)	20.4		0.500	ug/L	20.0		102	80-120		

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Quality Control Data
(Continued)

Volatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBG0972 - VOC (Continued)										
LCS (BBG0972-BS1)					Prepared & Analyzed: 7/30/2021					
Toluene	10.2		0.500	ug/L	10.0		102	80-120		
Ethylbenzene	10.0		0.500	ug/L	10.0		100	80-120		
Surrogate: 4-Bromofluorobenzene			*25.1*	*ug/L*	*25.0*		*100*	*70-130*		
Surrogate: Toluene-d8			*25.1*	*ug/L*	*25.0*		*101*	*70-130*		
Surrogate: 1,2-Dichlorobenzene-d4			*19.0*	*ug/L*	*19.0*		*99.8*	*70-130*		
Matrix Spike (BBG0972-MS1)		**Source: WBG1082-01**			Prepared & Analyzed: 7/30/2021					
Benzene	9.62		0.500	ug/L	10.0	ND	96.2	70-130		
Ethylbenzene	9.44		0.500	ug/L	10.0	ND	94.4	70-130		
m/p Xylenes (MCL for total)	18.4		0.500	ug/L	20.0	ND	91.8	70-130		
o-Xylene (MCL for total)	9.27		0.500	ug/L	10.0	ND	92.7	70-130		
Toluene	9.67		0.500	ug/L	10.0	ND	96.7	70-130		
Surrogate: Toluene-d8			*25.3*	*ug/L*	*25.0*		*101*	*70-130*		
Surrogate: 4-Bromofluorobenzene			*24.6*	*ug/L*	*25.0*		*98.4*	*70-130*		
Surrogate: 1,2-Dichlorobenzene-d4			*19.0*	*ug/L*	*19.0*		*100*	*70-130*		
Matrix Spike Dup (BBG0972-MSD1)		**Source: WBG1082-01**			Prepared & Analyzed: 7/30/2021					
Benzene	9.55		0.500	ug/L	10.0	ND	95.5	70-130	0.730	20
Ethylbenzene	9.34		0.500	ug/L	10.0	ND	93.4	70-130	1.06	20
m/p Xylenes (MCL for total)	18.2		0.500	ug/L	20.0	ND	91.2	70-130	0.601	20
o-Xylene (MCL for total)	9.33		0.500	ug/L	10.0	ND	93.3	70-130	0.645	20
Toluene	9.65		0.500	ug/L	10.0	ND	96.5	70-130	0.207	20
Surrogate: Toluene-d8			*25.3*	*ug/L*	*25.0*		*101*	*70-130*		
Surrogate: 4-Bromofluorobenzene			*25.1*	*ug/L*	*25.0*		*100*	*70-130*		
Surrogate: 1,2-Dichlorobenzene-d4			*19.0*	*ug/L*	*19.0*		*99.9*	*70-130*		
Batch: BBH0065 - W VOC										
Blank (BBH0065-BLK1)					Prepared & Analyzed: 7/29/2021					
Gasoline	ND		0.100	mg/L						
Surrogate: 4-Bromofluorobenzene			*104*	*ug/L*	*100*		*104*	*50-150*		

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Quality Control Data
(Continued)

Volatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0065 - W VOC (Continued)										
LCS (BBH0065-BS1)					Prepared & Analyzed: 7/29/2021					
Gasoline	2.74		0.100	mg/L	2.94		93.2	80-120		
Surrogate: 4-Bromofluorobenzene			*104*	*ug/L*	*100*		*104*	*50-150*		
LCS Dup (BBH0065-BSD1)					Prepared & Analyzed: 7/29/2021					
Gasoline	3.10		0.100	mg/L	2.94		105	80-120	12.2	20
Surrogate: 4-Bromofluorobenzene			*100*	*ug/L*	*100*		*100*	*50-150*		
Matrix Spike (BBH0065-MS1)		**Source: WBG1116-01**			Prepared & Analyzed: 7/29/2021					
Gasoline	6.90		0.100	mg/L	2.94	4.50	81.7	70-130		
Surrogate: 4-Bromofluorobenzene			*102*	*ug/L*	*100*		*102*	*50-150*		
Matrix Spike Dup (BBH0065-MSD1)		**Source: WBG1116-01**			Prepared & Analyzed: 7/29/2021					
Gasoline	6.98		0.100	mg/L	2.94	4.50	84.3	70-130	1.11	20
Surrogate: 4-Bromofluorobenzene			*104*	*ug/L*	*100*		*104*	*50-150*		

Anatek Labs, Inc.

Chain of Custody Record

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Anatek Log-In #

WBG1082

Due: 08/11/21

Company Name: GeoEngineers Inc.	Project Manager: Kurt Harrington
Address: 8019 West Quinault Ave. Suite 201	Project Name & # : Tidewater 009991-005-00
City: Kennewick State: WA Zip: 99336	Email Address : kharrington@geoengineers.com
Phone: 509-209-2820	Purchase Order #: 009991-005-00
Fax:	Sampler Name & phone: Alicia Candelaria 505-288-0807

Turn Around

Please refer to our normal turn around times at:
http://www.anateklabs.com/services/guidelines/reporting.asp

X Normal
__Next Day*
__2nd Day*
__Other*_____

*All rush order requests must be prior approved.

__Phone
__Mail
__Fax
X Email

Provide Sample Description

List Analyses Requested

Lab ID	Sample Identification	Sampling Date/Time	Matrix	# of Containers	Sample Volume	Preservative:	BTEX 8260D	NWTPH DX	NWTPH GX	Ferrous Fe	Mn	SO_4, NO_3	Inetrquip RSK 175	NWTPH HCID Heavy Oil			
	AR11-2107	7/27/21/1310	water	12			X	X	X	X	X	X	X	X			
	MW4-2107	7-27-21/1340	water	12			X	X	X	X	X	X	X	X			
	Trip Blank			1			X		X								

Note Special Instructions/Comments

Ferrous Fe 24hr hold time
Ferrous Fe 24hr hold time

Inspection Checklist

Received Intact?	Y	N
Labels & Chains Agree?	Y	N
Containers Sealed?	Y	N
VOC Head Space?	Y	N

Temperature (°C): 7.9 / 8.4
Preservative: HCL 2/12 client pos pH 2 00105
Date & Time:
Inspected By: WPS/7/21

	Printed Name	Signature	Company	Date	Time
Relinquished by	Alicia Candelaria		GeoEngineers	7-27-21	1630
Received by	Joseph Pippin		Anatek	7/28/21	805
Relinquished by					
Received by					
Relinquished by					
Received by					

Form COC01.00 - Eff 1 Mar 2015

Analytical Resources, Incorporated
Analytical Chemists and Consultants

09 August 2021

Kathy Sattler
Anatek Labs, Inc.
504 East Sprague, Suite D
Spokane, WA 99202

RE: WBG1082

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
21H0046	N/A

Shelly Fishel

Digitally signed by Shelly Fishel
Date: 2021.08.09 15:33:42 -07'00'

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

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SUBCONTRACT ORDER

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21H0046

Sending Laboratory:

Anatek Labs, Inc.- Spokane
504 E Sprague Ave, Suite D
Spokane, WA 99202
Phone: 509-838-3999
Fax: 509-838-4433

Project Manager: Kathleen Sattler
kathy@anateklabs.com

Subcontracted Laboratory:

Analytical Resources
4611 S. 134th Pl. #100
Tukwila, WA 98168
Phone: (206) 695-6200
Fax:

Work Order: WBG1082

Analysis	Due	Expires	Comments
Lab Sample ID: WBG1082-01 ***Water*** ***Sampled: 07/27/2021 12:10***			
Client Sample Name: AR11-2107			
W Methane	08/09/2021	08/10/2021 12:10	
Containers Supplied:			
G 44mL (J) G 44mL (K) G 44mL (L)			
Lab Sample ID: WBG1082-02 ***Water*** ***Sampled: 07/27/2021 13:40***			
Client Sample Name: MW4-2107			
W Methane	08/09/2021	08/10/2021 13:40	
Containers Supplied:			
G 44mL (J) G 44mL (K) G 44mL (L)			

Released By — Date: 8/2/21

Received By — Date: 08/04/2021 1048

Anatek Labs, Inc.	Project: WBG1082	
504 East Sprague, Suite D	Project Number: [none]	**Reported:**
Spokane WA, 99202	Project Manager: Kathy Sattler	09-Aug-2021 15:32

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AR11-2107	21H0046-01	Water	27-Jul-2021 12:10	04-Aug-2021 10:48
MW4-2107	21H0046-02	Water	27-Jul-2021 13:40	04-Aug-2021 10:48

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Anatek Labs, Inc.	Project: WBG1082	
504 East Sprague, Suite D	Project Number: [none]	**Reported:**
Spokane WA, 99202	Project Manager: Kathy Sattler	09-Aug-2021 15:32

Work Order Case Narrative

Client: Anatek Labs, Inc.
Project: WBG1082
Work Order: 21H0046

Sample receipt

Samples as listed on the preceding page were received 04-Aug-2021 10:48 under ARI work order 21H0046. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatile Gases - Methane by RSK175

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

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WORK ORDER

21H0046

Client: Anatek Labs, Inc.
Project: WBG1082

Project Manager: Shelly Fishel
Project Number: [none]

Report To:
Anatek Labs, Inc.
Kathy Sattler
504 East Sprague, Suite D
Spokane, WA 99202
Phone: (509) 838-3999
Fax: -

Invoice To:
Anatek Labs, Inc.
Cheri Price Accounting Department
1282 Alturas Drive
Moscow, ID 83843
Phone :(208) 883-2839
Fax: -

Date Due: 18-Aug-2021 18:00 (10 day TAT)
Received By: Jacob Walter
Logged In By: Jacob Walter
Date Received: 04-Aug-2021 10:48
Date Logged In: 04-Aug-2021 16:03

Samples Received at: **23.8°C**

Intact, properly signed and dated custody seals attached to outside of cooler(s)	No	Custody papers included with the cooler	Yes
Custody papers properly filled out (in, signed, analyses requested, etc)	Yes	Was a temperature blank included in the cooler	No
Was sufficient ice used (if appropriate)	No	All bottles sealed in individual plastic bags	Yes
All bottles arrived in good condition (unbroken)	Yes	All bottle labels complete and legible	Yes
Number of containers listed on COC match number received	Yes	Bottle labels and tags agree with COC	Yes
Correct bottles used for the requested analyses	Yes	All VOC vials free of air bubbles	No
Analyses/bottles require preservation (attach preservation sheet excluding VOC).	No	Sufficient amount of sample sent in each bottle	Yes
Sample split at ARI	No		

21H0046-01 WBG1082-01 [Water] Sampled 27-Jul-2021 12:10				Methane only version
RSK-175 Dissolved Gases (MEE)	08/18/2021	10	8/10/2021	
21H0046-02 WBG1082-02 [Water] Sampled 27-Jul-2021 13:40				Methane only version
RSK-175 Dissolved Gases (MEE)	08/18/2021	10	8/10/2021	

Preservation Confirmation

Container ID	Container Type	pH
21H0046-01 A	VOA Vial, Amber, 40 mL, HCL	
21H0046-01 B	VOA Vial, Amber, 40 mL, HCL	Bubble
21H0046-01 C	VOA Vial, Amber, 40 mL, HCL	
21H0046-02 A	VOA Vial, Amber, 40 mL, HCL	
21H0046-02 B	VOA Vial, Amber, 40 mL, HCL	
21H0046-02 C	VOA Vial, Amber, 40 mL, HCL	

Preservation Confirmed By

08/04/2021
Date

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Anatek Labs
Project Name: WSB-1082
COC No(s): NA
Delivered by: Fed-Ex UPS Courier Hand Delivered Other:
Assigned ARI Job No: 21H0046
Tracking No: 122049SV0394085758 NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1048 — 23.8

If cooler temperature is out of compliance fill out form 00070F — Temp Gun ID#: DOO 5206

Cooler Accepted by: JS Date: 08/04/2021 Time: 1048

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? melted		YES	NO
What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:			
Was sufficient ice used (if appropriate)?	NA	YES	NO
How were bottles sealed in plastic bags?	Individually	Grouped	Not
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		

Were the sample(s) split by ARI? NA YES Date/Time: Equipment: Split by:

Samples Logged by: JS Date: 08/04/2021 Time: 1552 Labels checked by: JS

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

Vials w/airbubbles marked on preservation sheet, lab to determine sizes.

By: JS Date: 08/04/2021

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Temperature Compliance Form

ARI Work Order: 21H0046

Cooler#: _____ **Temperature(°C):** 23.8

Sample ID	Bottle Count	Bottle Type
Samples received above 6°c		

Cooler#: _____ **Temperature(°C):** _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ **Temperature(°C):** _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ **Temperature(°C):** _____

Sample ID	Bottle Count	Bottle Type

Completed by: _____ Date: 08/04/2021 Time: 1048

Anatek Labs, Inc.	Project: WBG1082	
504 East Sprague, Suite D	Project Number: [none]	**Reported:**
Spokane WA, 99202	Project Manager: Kathy Sattler	09-Aug-2021 15:32

AR11-2107

21H0046-01 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 07/27/2021 12:10

Instrument: FID6 Analyst: LH — Analyzed: 08/05/2021 10:23

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0046-01 A

Preparation Batch: BJH0142 — Sample Size: 10 mL

Prepared: 08/05/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	ND	ug/L	U
Surrogate: Propane			*72-122 %*	*108*	*%*	

Anatek Labs, Inc.	Project: WBG1082	
504 East Sprague, Suite D	Project Number: [none]	**Reported:**
Spokane WA, 99202	Project Manager: Kathy Sattler	09-Aug-2021 15:32

MW4-2107

21H0046-02 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 07/27/2021 13:40

Instrument: FID6 Analyst: LH — Analyzed: 08/05/2021 10:36

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0046-02 A

Preparation Batch: BJH0142 — Sample Size: 10 mL

Prepared: 08/05/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	ND	ug/L	U
Surrogate: Propane			*72-122 %*	*105*	*%*	

Anatek Labs, Inc.	Project: WBG1082	
504 East Sprague, Suite D	Project Number: [none]	**Reported:**
Spokane WA, 99202	Project Manager: Kathy Sattler	09-Aug-2021 15:32

Dissolved Gases - Quality Control

Batch BJH0142 - EPA 5030C (Purge and Trap)

Instrument: FID6 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0142-BLK1)				Prepared: 05-Aug-2021 Analyzed: 05-Aug-2021 08:55						
Methane	ND	0.65	ug/L							U
Surrogate: Propane	1980		ug/L	*1800*		*110*	*72-122*			
LCS (BJH0142-BS1)				Prepared: 05-Aug-2021 Analyzed: 05-Aug-2021 08:01						
Methane	664	0.65	ug/L	656		101	80-120			
Surrogate: Propane	1860		ug/L	*1800*		*103*	*62-122*			
LCS Dup (BJH0142-BSD1)				Prepared: 05-Aug-2021 Analyzed: 05-Aug-2021 08:15						
Methane	673	0.65	ug/L	656		103	80-120	1.25	30	
Surrogate: Propane	1980		ug/L	*1800*		*110*	*62-122*			

Anatek Labs, Inc.	Project: WBG1082	
504 East Sprague, Suite D	Project Number: [none]	**Reported:**
Spokane WA, 99202	Project Manager: Kathy Sattler	09-Aug-2021 15:32

Certified Analyses included in this Report

Analyte	Certifications
EPA RSK-175 in Water	
Methane	NELAP
Ethane	NELAP
Ethene	NELAP
Acetylene	NELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022

Anatek Labs, Inc.	Project: WBG1082	
504 East Sprague, Suite D	Project Number: [none]	**Reported:**
Spokane WA, 99202	Project Manager: Kathy Sattler	09-Aug-2021 15:32

Notes and Definitions

U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

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Client:	GeoEngineers-Kennewick	Work Order:	WBG1116
Address:	8019 W Quinault Ave, Suite 201	Project:	Tidewater 009991-005-00
	Kennewick, WA 99336	Reported:	8/12/2021 19:16
Attn:	Kurt Harrington		

Analytical Results Report

Sample Location:	AR8-2107		
Lab/Sample Number:	WBG1116-01	Collect Date:	07/28/21 12:40
Date Received:	07/29/21 08:07	Collected By:	Alicia Candelaria
Matrix:	Water		

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Nitrate-N	ND	mg/L	0.100	7/29/21 22:31	BAS	EPA 300.0	
Sulfate	30.6	mg/L	0.100	7/29/21 22:31	BAS	EPA 300.0	
Total Metals							
Iron (II)	ND	mg/L	0.0100	7/29/21 16:20	TRC	SM 3500-Fe B	*
Metals by ICP-MS							
Manganese	1.08	mg/L	0.0100	8/6/21 15:11	TRC	EPA 200.8	
Hydrocarbons							
Diesel	ND	mg/L	0.160	8/10/21 9:05	ARC	NWTPH-Dx	
Lube Oil	ND	mg/L	0.400	8/10/21 9:05	ARC	NWTPH-Dx	
Mineral Oil	ND	mg/L	0.160	8/10/21 9:05	ARC	NWTPH-Dx	
Surrogate: n-Hexacosane	*107%*		*50-150*	*8/10/21 9:05*	*ARC*	*NWTPH-Dx*	
Volatiles							
Benzene	ND	ug/L	2.50	8/3/21 12:04	ARC	EPA 624.1	D1
Ethylbenzene	119	ug/L	2.50	8/3/21 12:04	ARC	EPA 624.1	
m/p Xylenes (MCL for total)	42.3	ug/L	2.50	8/3/21 12:04	ARC	EPA 624.1	
o-Xylene (MCL for total)	79.2	ug/L	5.00	8/3/21 12:04	ARC	EPA 624.1	
Toluene	ND	ug/L	2.50	8/3/21 12:04	ARC	EPA 624.1	D1
Surrogate: 1,2-Dichlorobenzene-d4	*101%*		*70-130*	*8/3/21 12:04*	*ARC*	*EPA 624.1*	
Surrogate: 4-Bromofluorobenzene	*100%*		*70-130*	*8/3/21 12:04*	*ARC*	*EPA 624.1*	
Surrogate: Toluene-d8	*99.4%*		*70-130*	*8/3/21 12:04*	*ARC*	*EPA 624.1*	
Gasoline	4.50	mg/L	0.100	7/29/21 15:15	ARC	NWTPH-Gx	
Surrogate: 4-Bromofluorobenzene	*93.0%*		*50-150*	*7/29/21 15:15*	*ARC*	*NWTPH-Gx*	

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Analytical Results Report

(Continued)

Sample Location: FD-2107
Lab/Sample Number: WBG1116-02 Collect Date: 07/28/21 12:55
Date Received: 07/29/21 08:07 Collected By: Alicia Candelaria
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Nitrate-N	ND	mg/L	0.100	7/29/21 21:58	BAS	EPA 300.0	
Sulfate	30.3	mg/L	0.100	7/29/21 21:58	BAS	EPA 300.0	
Total Metals							
Iron (II)	ND	mg/L	0.0100	7/29/21 16:20	TRC	SM 3500-Fe B	*
Metals by ICP-MS							
Manganese	1.07	mg/L	0.0100	8/6/21 15:13	TRC	EPA 200.8	
Hydrocarbons							
Diesel	ND	mg/L	0.160	8/10/21 4:27	ARC	NWTPH-Dx	
Lube Oil	ND	mg/L	0.400	8/10/21 4:27	ARC	NWTPH-Dx	
Mineral Oil	ND	mg/L	0.160	8/10/21 4:27	ARC	NWTPH-Dx	
Surrogate: n-Hexacosane	*109%*		*50-150*	*8/10/21 4:27*	*ARC*	*NWTPH-Dx*	
Volatiles							
Benzene	ND	ug/L	2.50	8/3/21 12:35	ARC	EPA 624.1	D1
Ethylbenzene	112	ug/L	2.50	8/3/21 12:35	ARC	EPA 624.1	
m/p Xylenes (MCL for total)	41.8	ug/L	2.50	8/3/21 12:35	ARC	EPA 624.1	
o-Xylene (MCL for total)	77.8	ug/L	5.00	8/3/21 12:35	ARC	EPA 624.1	
Toluene	ND	ug/L	2.50	8/3/21 12:35	ARC	EPA 624.1	D1
Surrogate: 1,2-Dichlorobenzene-d4	*99.8%*		*70-130*	*8/3/21 12:35*	*ARC*	*EPA 624.1*	
Surrogate: 4-Bromofluorobenzene	*100%*		*70-130*	*8/3/21 12:35*	*ARC*	*EPA 624.1*	
Surrogate: Toluene-d8	*99.0%*		*70-130*	*8/3/21 12:35*	*ARC*	*EPA 624.1*	
Gasoline	4.72	mg/L	0.100	7/29/21 17:47	ARC	NWTPH-Gx	
Surrogate: 4-Bromofluorobenzene	*100%*		*50-150*	*7/29/21 17:47*	*ARC*	*NWTPH-Gx*	

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Analytical Results Report

(Continued)

Sample Location: AR1-2107
Lab/Sample Number: WBG1116-03 Collect Date: 07/28/21 14:05
Date Received: 07/29/21 08:07 Collected By: Alicia Candelaria
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Nitrate-N	1.63	mg/L	0.100	7/29/21 22:15	BAS	EPA 300.0	
Sulfate	26.7	mg/L	0.100	7/29/21 22:15	BAS	EPA 300.0	
Total Metals							
Iron (II)	ND	mg/L	0.0100	7/29/21 16:20	TRC	SM 3500-Fe B	*
Metals by ICP-MS							
Manganese	1.79	mg/L	0.0100	8/6/21 15:15	TRC	EPA 200.8	
Hydrocarbons							
Diesel	2.70	mg/L	0.160	8/10/21 5:22	ARC	NWTPH-Dx	T10
Lube Oil	1.20	mg/L	0.400	8/10/21 5:22	ARC	NWTPH-Dx	T10
Mineral Oil	ND	mg/L	0.160	8/10/21 5:22	ARC	NWTPH-Dx	
Surrogate: n-Hexacosane	*104%*		*50-150*	*8/10/21 5:22*	*ARC*	*NWTPH-Dx*	
Volatiles							
Benzene	1530	ug/L	71.4	8/3/21 14:10	ARC	EPA 624.1	
Ethylbenzene	730	ug/L	71.4	8/3/21 14:10	ARC	EPA 624.1	
m/p Xylenes (MCL for total)	2580	ug/L	71.4	8/3/21 14:10	ARC	EPA 624.1	
o-Xylene (MCL for total)	2270	ug/L	143	8/3/21 14:10	ARC	EPA 624.1	
Toluene	3550	ug/L	71.4	8/3/21 14:10	ARC	EPA 624.1	
Surrogate: 1,2-Dichlorobenzene-d4	*101%*		*70-130*	*8/3/21 14:10*	*ARC*	*EPA 624.1*	
Surrogate: 4-Bromofluorobenzene	*102%*		*70-130*	*8/3/21 14:10*	*ARC*	*EPA 624.1*	
Surrogate: Toluene-d8	*101%*		*70-130*	*8/3/21 14:10*	*ARC*	*EPA 624.1*	
Gasoline	45.2	mg/L	2.50	7/30/21 12:06	ARC	NWTPH-Gx	
Surrogate: 4-Bromofluorobenzene	*103%*		*50-150*	*7/30/21 12:06*	*ARC*	*NWTPH-Gx*	

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Analytical Results Report

(Continued)

Sample Location: Trip Blank
Lab/Sample Number: WBG1116-04 Collect Date: 07/28/21 00:00
Date Received: 07/29/21 08:07 Collected By: Alicia Candelaria
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Volatiles							
1,1,1,2-Tetrachloroethane	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
1,1,1-Trichloroethane	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
1,1,2-Trichlorethane	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
1,1-Dichloroethane	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
1,1-Dichloroethylene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
1,1-Dichloropropene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
1,2,3-Trichlorobenzene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
1,2,3-Trichloropropane	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
1,2,4-Trichlorobenzene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
1,2,4-Trimethylbenzene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
1,2-Dichlorobenzene (ortho-Dichlorobenzene)	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
1,2-Dichloroethane	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
1,2-Dichloropropane	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
1,3,5-Trimethylbenzene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
1,3-Dichloropropane	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
1,4-Dichlorobenzene (para-Dichlorobenzene)	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
2,2-Dichloropropane	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
2-hexanone	ND	ug/L	2.50	8/3/21 13:38	ARC	EPA 624.1	
Acetone	ND	ug/L	2.50	8/3/21 13:38	ARC	EPA 624.1	
Acrolein	ND	ug/L	2.50	8/3/21 13:38	ARC	EPA 624.1	
Acrylonitrile	ND	ug/L	2.50	8/3/21 13:38	ARC	EPA 624.1	
Benzene	ND	ug/L	0.200	8/3/21 13:38	ARC	EPA 624.1	
Bromobenzene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
Bromochloromethane	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
Bromodichloromethane	ND	ug/L	0.200	8/3/21 13:38	ARC	EPA 624.1	
Bromoform	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
Bromomethane	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
Carbon disulfide	ND	ug/L	2.50	8/3/21 13:38	ARC	EPA 624.1	
Carbon Tetrachloride	ND	ug/L	0.200	8/3/21 13:38	ARC	EPA 624.1	
Chlorobenzene (Monochlorobenzene)	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
Chloroethane	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
Chloroform	ND	ug/L	0.200	8/3/21 13:38	ARC	EPA 624.1	
Chloromethane	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
cis-1,2-Dichloroethylene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
cis-1,3-Dichloropropene	ND	ug/L	0.200	8/3/21 13:38	ARC	EPA 624.1	
DBCP (screening)	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
Dibromochloromethane	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
Dibromomethane	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
Dichlorodifluoromethane	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
EDB (screening)	ND	ug/L	0.200	8/3/21 13:38	ARC	EPA 624.1	
Ethylbenzene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
Hexachlorobutadiene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
Iodomethane	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
Isopropylbenzene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	

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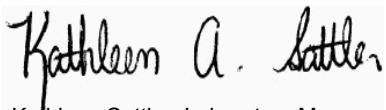
Analytical Results Report

(Continued)

Sample Location:	Trip Blank		
Lab/Sample Number:	WBG1116-04	Collect Date:	07/28/21 00:00
Date Received:	07/29/21 08:07	Collected By:	Alicia Candelaria
Matrix:	Water		

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Volatiles (Continued)							
m/p Xylenes (MCL for total)	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
m-Dichlorobenzene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
Methyl ethyl ketone (MEK)	ND	ug/L	2.50	8/3/21 13:38	ARC	EPA 624.1	
Methyl isobutyl ketone (MIBK)	ND	ug/L	2.50	8/3/21 13:38	ARC	EPA 624.1	
Methylene Chloride (Dichloromethane)	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
methyl-t-butyl ether (MTBE)	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
Naphthalene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
n-Butylbenzene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
n-Propylbenzene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
o-Chlorotoluene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
o-Xylene (MCL for total)	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
p-Chlorotoluene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
p-isopropyltoluene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
sec-Butylbenzene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
Styrene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
tert-Butylbenzene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
Tetrachloroethylene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
Toluene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
Total Xylenes	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
trans-1,2 Dichloroethylene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
trans-1,3-Dichloropropene	ND	ug/L	0.200	8/3/21 13:38	ARC	EPA 624.1	
trans-1-4-Dichloro-2-butene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
Trichloroethene	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
Trichloroflouromethane	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
Vinyl acetate	ND	ug/L	0.500	8/3/21 13:38	ARC	EPA 624.1	
Vinyl Chloride	ND	ug/L	0.200	8/3/21 13:38	ARC	EPA 624.1	
Surrogate: 1,2-Dichlorobenzene-d4	*101%*		*70-130*	*8/3/21 13:38*	*ARC*	*EPA 624.1*	
Surrogate: 4-Bromofluorobenzene	*99.6%*		*70-130*	*8/3/21 13:38*	*ARC*	*EPA 624.1*	
Surrogate: Toluene-d8	*100%*		*70-130*	*8/3/21 13:38*	*ARC*	*EPA 624.1*	

Authorized Signature,



Kathleen Sattler, Laboratory Manager

D1	Sample required dilution due to matrix
T10	Non-target analyte in diesel and lube oil range, tentatively identified as heavy fuel oil.
PQL	Practical Quantitation Limit
ND	Not Detected
MCL	EPA's Maximum Contaminant Level
Dry	Sample results reported on a dry weight basis
*	Not a state-certified analyte

RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was spiked or duplicated.

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Certifications

Code	Description	Facility	Number
W WA DOE	Washington Department of Ecology	Anatek-Spokane, WA	C585

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Quality Control Data

Inorganics

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBG0968 - W Ions										
Blank (BBG0968-BLK1)					Prepared & Analyzed: 7/29/2021					
Nitrate-N	ND		0.100	mg/L						
Sulfate	ND		0.100	mg/L						
Blank (BBG0968-BLK2)					Prepared & Analyzed: 7/30/2021					
Nitrate-N	ND		0.100	mg/L						
Sulfate	ND		0.100	mg/L						
LCS (BBG0968-BS1)					Prepared & Analyzed: 7/29/2021					
Nitrate-N	3.79			mg/L	4.00		94.6	90-110		
Sulfate	3.72			mg/L	4.00		93.0	90-110		
LCS (BBG0968-BS2)					Prepared & Analyzed: 7/30/2021					
Nitrate-N	3.98			mg/L	4.00		99.4	90-110		
Sulfate	3.92			mg/L	4.00		98.0	90-110		

Quality Control Data

Metals by ICP-MS

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0068 - W 3010 Digest										
Blank (BBH0068-BLK1)					Prepared: 8/3/2021 Analyzed: 8/6/2021					
Manganese	ND		0.00100	mg/L						
LCS (BBH0068-BS1)					Prepared: 8/3/2021 Analyzed: 8/6/2021					
Manganese	0.0525		0.00100	mg/L	0.0500		105	85-115		
Matrix Spike (BBH0068-MS1)		**Source: WBG1116-01**			Prepared: 8/3/2021 Analyzed: 8/6/2021					
Manganese	1.29		0.00500	mg/L	0.250	1.08	82.0	70-130		
Matrix Spike (BBH0068-MS2)		**Source: WBG1117-01**			Prepared: 8/3/2021 Analyzed: 8/6/2021					
Manganese	0.278		0.00500	mg/L	0.250	0.0286	99.9	70-130		
Matrix Spike Dup (BBH0068-MSD1)		**Source: WBG1116-01**			Prepared: 8/3/2021 Analyzed: 8/6/2021					
Manganese	1.29		0.00500	mg/L	0.250	1.08	84.9	70-130	0.561	20
Matrix Spike Dup (BBH0068-MSD2)		**Source: WBG1117-01**			Prepared: 8/3/2021 Analyzed: 8/6/2021					
Manganese	0.285		0.00500	mg/L	0.250	0.0286	102	70-130	2.26	20

Quality Control Data

Hydrocarbons

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0189 - W TPH-Dx										
Blank (BBH0189-BLK1)					Prepared & Analyzed: 8/9/2021					
Diesel	ND		0.160	mg/L						
Lube Oil	ND		0.400	mg/L						

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Quality Control Data
(Continued)

Hydrocarbons (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0189 - W TPH-Dx (Continued)										
Blank (BBH0189-BLK1)					Prepared & Analyzed: 8/9/2021					
Mineral Oil	ND		0.160	mg/L						
Surrogate: n-Hexacosane			*55.2*	*ppm*	*50.1*		*110*	*50-150*		
LCS (BBH0189-BS1)					Prepared & Analyzed: 8/9/2021					
Diesel	1.04		0.160	mg/L	1.00		103	70-130		
Lube Oil	ND		0.400	mg/L				70-130		
Surrogate: n-Hexacosane			*56.2*	*ppm*	*50.1*		*112*	*50-150*		
LCS Dup (BBH0189-BSD1)					Prepared: 8/9/2021 Analyzed: 8/10/2021					
Diesel	1.03		0.160	mg/L	1.00		102	70-130	0.838	20
Lube Oil	ND		0.400	mg/L				70-130		20
Surrogate: n-Hexacosane			*54.3*	*ppm*	*50.1*		*108*	*50-150*		
Duplicate (BBH0189-DUP1)		**Source: WBG1082-02**			Prepared & Analyzed: 8/9/2021					
Diesel	ND		0.160	mg/L		ND				20
Lube Oil	ND		0.400	mg/L		ND				20
Mineral Oil	ND		0.160	mg/L		ND				20
Surrogate: n-Hexacosane			*54.5*	*ppm*	*50.1*		*109*	*50-150*		
Matrix Spike (BBH0189-MS1)		**Source: WBG1117-01**			Prepared & Analyzed: 8/9/2021					
Diesel	0.999		0.160	mg/L	1.00	ND	99.4	70-130		
Lube Oil	ND		0.400	mg/L		ND		70-130		
Surrogate: n-Hexacosane			*53.2*	*ppm*	*50.1*		*106*	*50-150*		
Matrix Spike Dup (BBH0189-MSD1)		**Source: WBG1117-01**			Prepared & Analyzed: 8/9/2021					
Diesel	0.991		0.160	mg/L	1.00	ND	98.7	70-130	0.736	20
Lube Oil	ND		0.400	mg/L		ND		70-130		20
Surrogate: n-Hexacosane			*52.7*	*ppm*	*50.1*		*105*	*50-150*		

Quality Control Data
(Continued)

Volatiles

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0065 - W VOC										
Blank (BBH0065-BLK1)					Prepared & Analyzed: 7/29/2021					
Gasoline	ND		0.100	mg/L						
Surrogate: 4-Bromofluorobenzene			*104*	*ug/L*	*100*		*104*	*50-150*		
LCS (BBH0065-BS1)					Prepared & Analyzed: 7/29/2021					
Gasoline	2.74		0.100	mg/L	2.94		93.2	80-120		
Surrogate: 4-Bromofluorobenzene			*104*	*ug/L*	*100*		*104*	*50-150*		
LCS Dup (BBH0065-BSD1)					Prepared & Analyzed: 7/29/2021					
Gasoline	3.10		0.100	mg/L	2.94		105	80-120	12.2	20
Surrogate: 4-Bromofluorobenzene			*100*	*ug/L*	*100*		*100*	*50-150*		
Matrix Spike (BBH0065-MS1)		**Source: WBG1116-01**			Prepared & Analyzed: 7/29/2021					
Gasoline	6.90		0.100	mg/L	2.94	4.50	81.7	70-130		

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Quality Control Data
(Continued)

Volatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0065 - W VOC (Continued)										
Matrix Spike (BBH0065-MS1)		**Source: WBG1116-01**			Prepared & Analyzed: 7/29/2021					
Surrogate: 4-Bromofluorobenzene			*102*	*ug/L*	*100*		*102*	*50-150*		
Matrix Spike Dup (BBH0065-MSD1)		**Source: WBG1116-01**			Prepared & Analyzed: 7/29/2021					
Gasoline	6.98		0.100	mg/L	2.94	4.50	84.3	70-130	1.11	20
Surrogate: 4-Bromofluorobenzene			*104*	*ug/L*	*100*		*104*	*50-150*		
Batch: BBH0143 - W VOC										
Blank (BBH0143-BLK1)					Prepared & Analyzed: 8/3/2021					
Benzene	ND		0.500	ug/L						
Acetone	ND		2.50	ug/L						
Toluene	ND		0.500	ug/L						
Ethylbenzene	ND		0.500	ug/L						
Acrolein	ND		2.50	ug/L						
o-Xylene (MCL for total)	ND		1.00	ug/L						
Acrylonitrile	ND		2.50	ug/L						
m/p Xylenes (MCL for total)	ND		0.500	ug/L						
Benzene	ND		0.200	ug/L						
Bromochloromethane	ND		0.500	ug/L						
Bromodichloromethane	ND		0.200	ug/L						
Bromoform	ND		0.500	ug/L						
Bromomethane	ND		0.500	ug/L						
Methyl ethyl ketone (MEK)	ND		2.50	ug/L						
Carbon disulfide	ND		2.50	ug/L						
Carbon Tetrachloride	ND		0.200	ug/L						
Chlorobenzene (Monochlorobenzene)	ND		0.500	ug/L						
Chloroethane	ND		0.500	ug/L						
Chloroform	ND		0.200	ug/L						
Chloromethane	ND		0.500	ug/L						
cis-1,2-Dichloroethylene	ND		0.500	ug/L						
cis-1,3-Dichloropropene	ND		0.200	ug/L						
DBCP (screening)	ND		0.500	ug/L						
EDB (screening)	ND		0.200	ug/L						
1,2-Dichlorobenzene (ortho-Dichlorobenzene)	ND		0.500	ug/L						
m-Dichlorobenzene	ND		0.500	ug/L						
1,4-Dichlorobenzene (para-Dichlorobenzene)	ND		0.500	ug/L						
trans-1-4-Dichloro-2-butene	ND		0.500	ug/L						
Dichlorodifluoromethane	ND		0.500	ug/L						
1,1-Dichloroethane	ND		0.500	ug/L						
1,2-Dichloroethane	ND		0.500	ug/L						
1,1-Dichloroethylene	ND		0.500	ug/L						
trans-1,2 Dichloroethylene	ND		0.500	ug/L						
1,2-Dichloropropane	ND		0.500	ug/L						
trans-1,3-Dichloropropene	ND		0.200	ug/L						
Ethylbenzene	ND		0.500	ug/L						
Hexachlorobutadiene	ND		0.500	ug/L						
2-hexanone	ND		2.50	ug/L						
Iodomethane	ND		0.500	ug/L						
Isopropylbenzene	ND		0.500	ug/L						
Methylene Chloride (Dichloromethane)	ND		0.500	ug/L						

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Quality Control Data
(Continued)

Volatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0143 - W VOC (Continued)										
Blank (BBH0143-BLK1)					Prepared & Analyzed: 8/3/2021					
Methyl isobutyl ketone (MIBK)	ND		2.50	ug/L						
Naphthalene	ND		0.500	ug/L						
Styrene	ND		0.500	ug/L						
1,1,1,2-Tetrachloroethane	ND		0.500	ug/L						
1,1,2,2-Tetrachloroethane	ND		0.500	ug/L						
Tetrachloroethylene	ND		0.500	ug/L						
Toluene	ND		0.500	ug/L						
1,2,4-Trichlorobenzene	ND		0.500	ug/L						
1,1,1-Trichloroethane	ND		0.500	ug/L						
1,1,2-Trichlorethane	ND		0.500	ug/L						
Trichloroethene	ND		0.500	ug/L						
1,2,3-Trichloropropane	ND		0.500	ug/L						
Vinyl acetate	ND		0.500	ug/L						
Vinyl Chloride	ND		0.200	ug/L						
m/p Xylenes (MCL for total)	ND		0.500	ug/L						
o-Xylene (MCL for total)	ND		0.500	ug/L						
Total Xylenes	ND		0.500	ug/L						
1,1-Dichloropropene	ND		0.500	ug/L						
1,2,3-Trichlorobenzene	ND		0.500	ug/L						
1,2,4-Trimethylbenzene	ND		0.500	ug/L						
1,3,5-Trimethylbenzene	ND		0.500	ug/L						
1,3-Dichloropropane	ND		0.500	ug/L						
2,2-Dichloropropane	ND		0.500	ug/L						
o-Chlorotoluene	ND		0.500	ug/L						
p-Chlorotoluene	ND		0.500	ug/L						
Bromobenzene	ND		0.500	ug/L						
Dibromochloromethane	ND		0.500	ug/L						
Dibromomethane	ND		0.500	ug/L						
methyl-t-butyl ether (MTBE)	ND		0.500	ug/L						
n-Butylbenzene	ND		0.500	ug/L						
n-Propylbenzene	ND		0.500	ug/L						
p-isopropyltoluene	ND		0.500	ug/L						
sec-Butylbenzene	ND		0.500	ug/L						
tert-Butylbenzene	ND		0.500	ug/L						
Trichloroflouromethane	ND		0.500	ug/L						
Surrogate: Toluene-d8			*5.03*	*ug/L*	*5.00*		*101*	*70-130*		
Surrogate: 4-Bromofluorobenzene			*4.97*	*ug/L*	*5.00*		*99.4*	*70-130*		
Surrogate: 1,2-Dichlorobenzene-d4			*5.01*	*ug/L*	*5.00*		*100*	*70-130*		
Surrogate: 1,2-Dichlorobenzene-d4			*5.01*	*ug/L*	*5.00*		*100*	*70-130*		
Surrogate: Toluene-d8			*5.03*	*ug/L*	*5.00*		*101*	*70-130*		
Surrogate: 4-Bromofluorobenzene			*4.97*	*ug/L*	*5.00*		*99.4*	*70-130*		

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Quality Control Data
(Continued)

Volatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0143 - W VOC (Continued)										
LCS (BBH0143-BS1)					Prepared & Analyzed: 8/3/2021					
Benzene	4.28		0.500	ug/L	5.00		85.6	70-130		
Toluene	4.82		0.500	ug/L	5.00		96.4	70-130		
Ethylbenzene	4.77		0.500	ug/L	5.00		95.4	70-130		
o-Xylene (MCL for total)	4.89		1.00	ug/L	5.00		97.8	70-130		
Benzene	4.28		0.200	ug/L	5.00		85.6	70-130		
m/p Xylenes (MCL for total)	9.71		0.500	ug/L	10.0		97.1	70-130		
Chlorobenzene (Monochlorobenzene)	4.69		0.500	ug/L	5.00		93.8	70-130		
Chloroform	3.96		0.200	ug/L	5.00		79.2	70-130		
1,1-Dichloroethylene	5.04		0.500	ug/L	5.00		101	70-130		
Ethylbenzene	4.77		0.500	ug/L	5.00		95.4	70-130		
Tetrachloroethylene	4.35		0.500	ug/L	5.00		87.0	70-130		
Toluene	4.82		0.500	ug/L	5.00		96.4	70-130		
Trichloroethene	4.65		0.500	ug/L	5.00		93.0	70-130		
o-Xylene (MCL for total)	4.89		0.500	ug/L	5.00		97.8	70-130		
Surrogate: Toluene-d8			*5.05*	*ug/L*	*5.00*		*101*	*70-130*		
Surrogate: 4-Bromofluorobenzene			*5.09*	*ug/L*	*5.00*		*102*	*70-130*		
Surrogate: 1,2-Dichlorobenzene-d4			*5.03*	*ug/L*	*5.00*		*101*	*70-130*		
Surrogate: 1,2-Dichlorobenzene-d4			*5.03*	*ug/L*	*5.00*		*101*	*70-130*		
Surrogate: Toluene-d8			*5.05*	*ug/L*	*5.00*		*101*	*70-130*		
Surrogate: 4-Bromofluorobenzene			*5.09*	*ug/L*	*5.00*		*102*	*70-130*		

WBG1116

Due: 08/12/21

Anatek Labs, Inc.

Chain of Custody Record

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504 E Sprague Ste D, Spokane WA 99202 (509) 838-3999 FAX 838-4433

Anatek Log-In #

Company Name: GeoEngineers Inc.	Project Manager: Kurt Harrington
Address: 8019 West Quinault Ave. Suite 201	Project Name & #: Tidewater 009991-005-00
City: Kennewick State: WA Zip: 99336	Email Address: kharrington@geoengineers.com
Phone: 509-209-2820	Purchase Order #: 009991-005-00
Fax:	Sampler Name & phone: Alicia Candelaria 505-288-0807

Turn Around

Please refer to our normal turn around times at: http://www.anateklabs.com/services/guidelines/reporting.asp

X Normal
__Next Day*
__2nd Day*
__Other*_____

*All rush order requests must be prior approved.

__Phone
__Mail
__Fax
X Email

Provide Sample Description / List Analyses Requested

Lab ID	Sample Identification	Sampling Date/Time	Matrix	# of Containers	Sample Volume	Preservative: BTEX 8260D	NWTPH-Dx	NWTPH-HCID	Ferrous Fe	Mn	SO_4, NO_3	Methane, Ethane, Ethene RSK 175	NWTPH-Dx Heavy Oil	
	AR8-2107	07-28-21 1240	water	12		X	X	X	X	X	X	X	X	Strong oder
	FD-2107	07-28-21 1255	water	12		X	X	X	X	X	X	X	X	Strong oder
	AR1-2107	07-28-21 1405	water	12		X	X	X	X	X	X	X	X	Strong oder
	Trip Blank			1		X		X						

Note Special Instructions/Comments: Ferrous Iron has a short hold time (24 hr)

	Printed Name	Signature	Company	Date	Time
Relinquished by	Alicia Candelaria		GeoEngineers	07-28-21	1600
Received by	Kathy Sattler	Kathy Sattler	Anatek Labs	7-29-21	0807
Relinquished by					
Received by					
Relinquished by					
Received by					

Inspection Checklist

Received Intact?	(Y)	N
Labels & Chains Agree?	(Y)	N
Containers Sealed?	(Y)	N
VOC Head Space?	Y	(N)

Cooler / Ice / UPS

Temperature (°C): 12.4 12.1

Preservative: —

Date & Time: 835 7/29/21

Inspected By:

Form COC01.00 - Eff 1 Mar 2015

Analytical Resources, Incorporated
Analytical Chemists and Consultants

09 August 2021

Kathy Sattler
Anatek Labs, Inc.
504 East Sprague, Suite D
Spokane, WA 99202

RE: WBG1116

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
21H0045	N/A

Shelly Fishel

Digitally signed by Shelly Fishel
Date: 2021.08.09 15:25:58 -07'00'

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

21H0045

SUBCONTRACT ORDER

Anatek Labs, Inc.

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Sending Laboratory:

Anatek Labs, Inc.- Spokane
504 E Sprague Ave, Suite D
Spokane, WA 99202
Phone: 509-838-3999
Fax: 509-838-4433

Project Manager: Kathleen Sattler
kathy@anateklabs.com

Subcontracted Laboratory:

Analytical Resources
4611 S. 134th Pl. #100
Tukwila, WA 98168
Phone: (206) 695-6200
Fax:

Work Order: WBG1116

Analysis	Due	Expires	Comments
Lab Sample ID: WBG1116-01 *Water* ***Sampled: 07/28/2021 12:40***			
Client Sample Name: AR8-2107			
W Methane	08/10/2021	08/11/2021 12:40	
Containers Supplied:			
G 44mL (J) G 44mL (K) G 44mL (L)			
Lab Sample ID: WBG1116-02 *Water* ***Sampled: 07/28/2021 12:55***			
Client Sample Name: FD-2107			
W Methane	08/10/2021	08/11/2021 12:55	
Containers Supplied:			
G 44mL (J) G 44mL (K) G 44mL (L)			
Lab Sample ID: WBG1116-03 *Water* ***Sampled: 07/28/2021 14:05***			
Client Sample Name: AR1-2107			
W Methane	08/10/2021	08/11/2021 14:05	
Containers Supplied:			
G 44mL (J) G 44mL (K) G 44mL (L)			

Released By 8/2/21 Date

Received By 08/04/2021 1048 Date

Anatek Labs, Inc.	Project: WBG1116	
504 East Sprague, Suite D	Project Number: [none]	**Reported:**
Spokane WA, 99202	Project Manager: Kathy Sattler	09-Aug-2021 15:23

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AR8-2107	21H0045-01	Water	28-Jul-2021 12:40	04-Aug-2021 10:48
FD-2107	21H0045-02	Water	28-Jul-2021 12:55	04-Aug-2021 10:48
AR1-2107	21H0045-03	Water	28-Jul-2021 14:05	04-Aug-2021 10:48

Anatek Labs, Inc.	Project: WBG1116	
504 East Sprague, Suite D	Project Number: [none]	**Reported:**
Spokane WA, 99202	Project Manager: Kathy Sattler	09-Aug-2021 15:23

Work Order Case Narrative

Client: Anatek Labs, Inc.
Project: WBG1116
Work Order: 21H0045

Sample receipt

Samples as listed on the preceding page were received 04-Aug-2021 10:48 under ARI work order 21H0045. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatile Gases - Methane by RSK175

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

The duplicate (DUP) relative percent difference (RPD) was within advisory control limits.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Anatek Labs
Project Name: WBL-1116
COC No(s): _____ (NA)
Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____
Assigned ARI Job No: 21H0045
Tracking No: 1Z20A95V0394085758 NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler? YES (NO)
Were custody papers included with the cooler? (YES) NO
Were custody papers properly filled out (ink, signed, etc.) (YES) NO
Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)
Time 1048 23.8
If cooler temperature is out of compliance fill out form 00070F
Temp Gun ID#: D00 5206
Cooler Accepted by: _____ Date: 08/04/2021 Time: 1048

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? melted YES (NO)
What kind of packing material was used? (Bubble Wrap) (Wet Ice) Gel Packs (Baggies) Foam Block Paper Other: _____
Was sufficient ice used (if appropriate)? NA YES (NO)
How were bottles sealed in plastic bags? Individually (Grouped) Not
Did all bottles arrive in good condition (unbroken)? (YES) NO
Were all bottle labels complete and legible? (YES) NO
Did the number of containers listed on COC match with the number of containers received? (YES) NO
Did all bottle labels and tags agree with custody papers? (YES) NO
Were all bottles used correct for the requested analyses? (YES) NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) (NA) YES NO
Were all VOC vials free of air bubbles? NA (YES) NO
Was sufficient amount of sample sent in each bottle? (YES) NO
Date VOC Trip Blank was made at ARI (NA) _____
Were the sample(s) split by ARI? (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: DL Date: 08/04/21 (DL) Time: 1554 Labels checked by: _____

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Temperature Compliance Form

ARI Work Order: _____

Cooler#: _____ Temperature(°C): 23.8

Sample ID	Bottle Count	Bottle Type
Samples received above 6°c		

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Completed by: _____ Date: 08/04/2021 Time: 1048

Anatek Labs, Inc.	Project: WBG1116	
504 East Sprague, Suite D	Project Number: [none]	**Reported:**
Spokane WA, 99202	Project Manager: Kathy Sattler	09-Aug-2021 15:23

AR8-2107

21H0045-01 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 07/28/2021 12:40

Instrument: FID6 Analyst: LH — Analyzed: 08/05/2021 09:30

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0045-01 C

Preparation Batch: BJH0142 — Sample Size: 10 mL

Prepared: 08/05/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	7.42	ug/L	
Surrogate: Propane			*72-122 %*	*109*	*%*	

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Anatek Labs, Inc.	Project: WBG1116	
504 East Sprague, Suite D	Project Number: [none]	**Reported:**
Spokane WA, 99202	Project Manager: Kathy Sattler	09-Aug-2021 15:23

FD-2107

21H0045-02 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 07/28/2021 12:55

Instrument: FID6 Analyst: LH — Analyzed: 08/05/2021 09:44

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0045-02 B

Preparation Batch: BJH0142 — Sample Size: 10 mL

Prepared: 08/05/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	6.60	ug/L	
Surrogate: Propane			*72-122 %*	*107*	*%*	

Anatek Labs, Inc.	Project: WBG1116	
504 East Sprague, Suite D	Project Number: [none]	**Reported:**
Spokane WA, 99202	Project Manager: Kathy Sattler	09-Aug-2021 15:23

AR1-2107

21H0045-03 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 07/28/2021 14:05

Instrument: FID6 Analyst: LH — Analyzed: 08/05/2021 10:10

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0045-03 A

Preparation Batch: BJH0142 — Sample Size: 10 mL

Prepared: 08/05/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	283	ug/L	
Surrogate: Propane			*72-122 %*	*107*	*%*	

Anatek Labs, Inc.	Project: WBG1116	
504 East Sprague, Suite D	Project Number: [none]	**Reported:**
Spokane WA, 99202	Project Manager: Kathy Sattler	09-Aug-2021 15:23

Dissolved Gases - Quality Control

Batch BJH0142 - EPA 5030C (Purge and Trap)

Instrument: FID6 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0142-BLK1)			Prepared: 05-Aug-2021 Analyzed: 05-Aug-2021 08:55							
Methane	ND	0.65	ug/L							U
Surrogate: Propane	1980		ug/L	*1800*		*110*	*72-122*			
LCS (BJH0142-BS1)			Prepared: 05-Aug-2021 Analyzed: 05-Aug-2021 08:01							
Methane	664	0.65	ug/L	656		101	80-120			
Surrogate: Propane	1860		ug/L	*1800*		*103*	*62-122*			
LCS Dup (BJH0142-BSD1)			Prepared: 05-Aug-2021 Analyzed: 05-Aug-2021 08:15							
Methane	673	0.65	ug/L	656		103	80-120	1.25	30	
Surrogate: Propane	1980		ug/L	*1800*		*110*	*62-122*			
Duplicate (BJH0142-DUP1)	**Source: 21H0045-02**		Prepared: 05-Aug-2021 Analyzed: 05-Aug-2021 09:57							
Methane	7.25	0.65	ug/L		6.60			9.42	30	
Surrogate: Propane	1960		ug/L	*1800*	*1920*	*109*	*72-122*			

Anatek Labs, Inc.	Project: WBG1116	
504 East Sprague, Suite D	Project Number: [none]	**Reported:**
Spokane WA, 99202	Project Manager: Kathy Sattler	09-Aug-2021 15:23

Certified Analyses included in this Report

Analyte	Certifications
EPA RSK-175 in Water	
Methane	NELAP
Ethane	NELAP
Ethene	NELAP
Acetylene	NELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022

Anatek Labs, Inc.	Project: WBG1116	
504 East Sprague, Suite D	Project Number: [none]	**Reported:**
Spokane WA, 99202	Project Manager: Kathy Sattler	09-Aug-2021 15:23

Notes and Definitions

U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

Anatek Labs, Inc.

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Client:	GeoEngineers-Kennewick	Work Order:	WBG1117
Address:	8019 W Quinault Ave, Suite 201	Project:	Tidewater 009991-005-00
	Kennewick, WA 99336	Reported:	8/12/2021 19:16
Attn:	Kurt Harrington		

Analytical Results Report

Sample Location:	MW6-2107		
Lab/Sample Number:	WBG1117-01	Collect Date:	07/28/21 09:35
Date Received:	07/29/21 08:41	Collected By:	Alicia Candelaria
Matrix:	Water		

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Nitrate-N	33.6	mg/L	1.00	7/30/21 17:10	BAS	EPA 300.0	H2
Sulfate	127	mg/L	1.00	7/30/21 17:10	BAS	EPA 300.0	
Total Metals							
Iron (II)	ND	mg/L	0.0100	7/29/21 16:20	TRC	SM 3500-Fe B	*
Metals by ICP-MS							
Manganese	0.0286	mg/L	0.00100	8/6/21 13:22	TRC	EPA 200.8	
Hydrocarbons							
Diesel	ND	mg/L	0.160	8/9/21 21:56	ARC	NWTPH-Dx	
Lube Oil	ND	mg/L	0.400	8/9/21 21:56	ARC	NWTPH-Dx	
Mineral Oil	ND	mg/L	0.160	8/9/21 21:56	ARC	NWTPH-Dx	
Surrogate: n-Hexacosane	*105%*		*50-150*	*8/9/21 21:56*	*ARC*	*NWTPH-Dx*	
Volatiles							
Benzene	ND	ug/L	0.500	8/9/21 20:12	ARC	EPA 624.1	
Ethylbenzene	ND	ug/L	0.500	8/9/21 20:12	ARC	EPA 624.1	
m/p Xylenes (MCL for total)	ND	ug/L	0.500	8/9/21 20:12	ARC	EPA 624.1	
o-Xylene (MCL for total)	ND	ug/L	1.00	8/9/21 20:12	ARC	EPA 624.1	
Toluene	ND	ug/L	0.500	8/9/21 20:12	ARC	EPA 624.1	
Surrogate: 1,2-Dichlorobenzene-d4	*103%*		*70-130*	*8/9/21 20:12*	*ARC*	*EPA 624.1*	
Surrogate: 4-Bromofluorobenzene	*98.0%*		*70-130*	*8/9/21 20:12*	*ARC*	*EPA 624.1*	
Surrogate: Toluene-d8	*106%*		*70-130*	*8/9/21 20:12*	*ARC*	*EPA 624.1*	
Gasoline	ND	mg/L	0.100	7/29/21 19:02	ARC	NWTPH-Gx	
Surrogate: 4-Bromofluorobenzene	*105%*		*50-150*	*7/29/21 19:02*	*ARC*	*NWTPH-Gx*	

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Analytical Results Report

(Continued)

Sample Location: MW8-2107
Lab/Sample Number: WBG1117-02 Collect Date: 07/28/21 11:05
Date Received: 07/29/21 08:41 Collected By: Alicia Candelaria
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Nitrate-N	21.2	mg/L	0.100	7/29/21 23:04	BAS	EPA 300.0	
Sulfate	92.0	mg/L	1.00	7/30/21 17:27	BAS	EPA 300.0	
Total Metals							
Iron (II)	ND	mg/L	0.0100	7/29/21 16:20	TRC	SM 3500-Fe B	*
Metals by ICP-MS							
Manganese	0.470	mg/L	0.00100	8/6/21 13:38	TRC	EPA 200.8	
Hydrocarbons							
Diesel	ND	mg/L	0.160	8/10/21 2:36	ARC	NWTPH-Dx	
Lube Oil	ND	mg/L	0.400	8/10/21 2:36	ARC	NWTPH-Dx	
Mineral Oil	ND	mg/L	0.160	8/10/21 2:36	ARC	NWTPH-Dx	
Surrogate: n-Hexacosane	*107%*		*50-150*	*8/10/21 2:36*	*ARC*	*NWTPH-Dx*	
Volatiles							
Benzene	ND	ug/L	12.5	8/9/21 21:10	ARC	EPA 624.1	D1
Ethylbenzene	120	ug/L	12.5	8/9/21 21:10	ARC	EPA 624.1	
m/p Xylenes (MCL for total)	871	ug/L	12.5	8/9/21 21:10	ARC	EPA 624.1	
o-Xylene (MCL for total)	486	ug/L	25.0	8/9/21 21:10	ARC	EPA 624.1	
Toluene	15.5	ug/L	12.5	8/9/21 21:10	ARC	EPA 624.1	
Surrogate: 1,2-Dichlorobenzene-d4	*101%*		*70-130*	*8/9/21 21:10*	*ARC*	*EPA 624.1*	
Surrogate: 4-Bromofluorobenzene	*103%*		*70-130*	*8/9/21 21:10*	*ARC*	*EPA 624.1*	
Surrogate: Toluene-d8	*113%*		*70-130*	*8/9/21 21:10*	*ARC*	*EPA 624.1*	
Gasoline	11.3	mg/L	0.500	7/30/21 12:44	ARC	NWTPH-Gx	
Surrogate: 4-Bromofluorobenzene	*99.9%*		*50-150*	*7/30/21 12:44*	*ARC*	*NWTPH-Gx*	

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Analytical Results Report

(Continued)

Sample Location: EB-2107
Lab/Sample Number: WBG1117-03 Collect Date: 07/28/21 10:00
Date Received: 07/29/21 08:41 Collected By: Alicia Candelaria
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Hydrocarbons							
Diesel	ND	mg/L	0.160	8/10/21 1:40	ARC	NWTPH-Dx	
Lube Oil	ND	mg/L	0.400	8/10/21 1:40	ARC	NWTPH-Dx	
Mineral Oil	ND	mg/L	0.160	8/10/21 1:40	ARC	NWTPH-Dx	
Surrogate: n-Hexacosane	*105%*		*50-150*	*8/10/21 1:40*	*ARC*	*NWTPH-Dx*	
Volatiles							
Benzene	ND	ug/L	0.500	8/9/21 20:41	ARC	EPA 624.1	
Ethylbenzene	ND	ug/L	0.500	8/9/21 20:41	ARC	EPA 624.1	
m/p Xylenes (MCL for total)	ND	ug/L	0.500	8/9/21 20:41	ARC	EPA 624.1	
o-Xylene (MCL for total)	ND	ug/L	1.00	8/9/21 20:41	ARC	EPA 624.1	
Toluene	ND	ug/L	0.500	8/9/21 20:41	ARC	EPA 624.1	
Surrogate: 1,2-Dichlorobenzene-d4	*102%*		*70-130*	*8/9/21 20:41*	*ARC*	*EPA 624.1*	
Surrogate: 4-Bromofluorobenzene	*102%*		*70-130*	*8/9/21 20:41*	*ARC*	*EPA 624.1*	
Surrogate: Toluene-d8	*102%*		*70-130*	*8/9/21 20:41*	*ARC*	*EPA 624.1*	
Gasoline	ND	mg/L	0.100	7/29/21 20:17	ARC	NWTPH-Gx	
Surrogate: 4-Bromofluorobenzene	*102%*		*50-150*	*7/29/21 20:17*	*ARC*	*NWTPH-Gx*	

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Analytical Results Report

(Continued)

Sample Location:	Trip Blank		
Lab/Sample Number:	WBG1117-04	Collect Date:	07/29/21 08:41
Date Received:	07/29/21 08:41	Collected By:	Alicia Candelaria
Matrix:	Water		

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Volatiles							
Benzene	ND	ug/L	0.200	8/9/21 19:43	ARC	EPA 624.1	
Ethylbenzene	ND	ug/L	0.500	8/9/21 19:43	ARC	EPA 624.1	
m/p Xylenes (MCL for total)	ND	ug/L	0.500	8/9/21 19:43	ARC	EPA 624.1	
o-Xylene (MCL for total)	ND	ug/L	0.500	8/9/21 19:43	ARC	EPA 624.1	
Toluene	ND	ug/L	0.500	8/9/21 19:43	ARC	EPA 624.1	
Total Xylenes	ND	ug/L	0.500	8/9/21 19:43	ARC	EPA 624.1	
Surrogate: 1,2-Dichlorobenzene-d4	*105%*		*70-130*	*8/9/21 19:43*	*ARC*	*EPA 624.1*	
Surrogate: 4-Bromofluorobenzene	*102%*		*70-130*	*8/9/21 19:43*	*ARC*	*EPA 624.1*	
Surrogate: Toluene-d8	*97.6%*		*70-130*	*8/9/21 19:43*	*ARC*	*EPA 624.1*	

Authorized Signature,

Kathleen A. Sattler

Kathleen Sattler, Laboratory Manager

D1	Sample required dilution due to matrix
H2	Initial analysis within holding time, Reanalysis for the required dilution was past holding time.
PQL	Practical Quantitation Limit
ND	Not Detected
MCL	EPA's Maximum Contaminant Level
Dry	Sample results reported on a dry weight basis
*	Not a state-certified analyte
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was spiked or duplicated.

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Certifications

Code	Description	Facility	Number
W WA DOE	Washington Department of Ecology	Anatek-Spokane, WA	C585

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Quality Control Data

Inorganics

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBG0968 - W Ions										
Blank (BBG0968-BLK1)					Prepared & Analyzed: 7/29/2021					
Nitrate-N	ND		0.100	mg/L						
Blank (BBG0968-BLK2)					Prepared & Analyzed: 7/30/2021					
Nitrate-N	ND		0.100	mg/L						
LCS (BBG0968-BS1)					Prepared & Analyzed: 7/29/2021					
Nitrate-N	3.79			mg/L	4.00		94.6	90-110		
LCS (BBG0968-BS2)					Prepared & Analyzed: 7/30/2021					
Nitrate-N	3.98			mg/L	4.00		99.4	90-110		
Batch: BBH0024 - W Ions										
Blank (BBH0024-BLK1)					Prepared & Analyzed: 7/30/2021					
Nitrate-N	ND		0.100	mg/L						
Sulfate	ND		0.100	mg/L						
Blank (BBH0024-BLK2)					Prepared & Analyzed: 7/30/2021					
Nitrate-N	ND		0.100	mg/L						
Sulfate	ND		0.100	mg/L						
LCS (BBH0024-BS1)					Prepared & Analyzed: 7/30/2021					
Nitrate-N	3.94			mg/L	4.00		98.6	90-110		
Sulfate	4.04			mg/L	4.00		101	90-110		
LCS (BBH0024-BS2)					Prepared & Analyzed: 7/30/2021					
Nitrate-N	3.91			mg/L	4.00		97.7	90-110		
Sulfate	3.89			mg/L	4.00		97.2	90-110		

Quality Control Data

Metals by ICP-MS

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0068 - W 3010 Digest										
Blank (BBH0068-BLK1)					Prepared: 8/3/2021 Analyzed: 8/6/2021					
Manganese	ND		0.00100	mg/L						
LCS (BBH0068-BS1)					Prepared: 8/3/2021 Analyzed: 8/6/2021					
Manganese	0.0525		0.00100	mg/L	0.0500		105	85-115		
Matrix Spike (BBH0068-MS1)		**Source: WBG1116-01**			Prepared: 8/3/2021 Analyzed: 8/6/2021					
Manganese	1.29		0.00500	mg/L	0.250	1.08	82.0	70-130		
Matrix Spike (BBH0068-MS2)		**Source: WBG1117-01**			Prepared: 8/3/2021 Analyzed: 8/6/2021					
Manganese	0.278		0.00500	mg/L	0.250	0.0286	99.9	70-130		
Matrix Spike Dup (BBH0068-MSD1)		**Source: WBG1116-01**			Prepared: 8/3/2021 Analyzed: 8/6/2021					
Manganese	1.29		0.00500	mg/L	0.250	1.08	84.9	70-130	0.561	20
Matrix Spike Dup (BBH0068-MSD2)		**Source: WBG1117-01**			Prepared: 8/3/2021 Analyzed: 8/6/2021					
Manganese	0.285		0.00500	mg/L	0.250	0.0286	102	70-130	2.26	20

Quality Control Data
(Continued)

Metals by ICP-MS (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch: BBH0068 - W 3010 Digest (Continued)

Quality Control Data
(Continued)

Hydrocarbons

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0189 - W TPH-Dx										
Blank (BBH0189-BLK1)					Prepared & Analyzed: 8/9/2021					
Diesel	ND		0.160	mg/L						
Lube Oil	ND		0.400	mg/L						
Mineral Oil	ND		0.160	mg/L						
Surrogate: n-Hexacosane			*55.2*	*ppm*	*50.1*		*110*	*50-150*		
LCS (BBH0189-BS1)					Prepared & Analyzed: 8/9/2021					
Diesel	1.04		0.160	mg/L	1.00		103	70-130		
Lube Oil	ND		0.400	mg/L				70-130		
Surrogate: n-Hexacosane			*56.2*	*ppm*	*50.1*		*112*	*50-150*		
LCS Dup (BBH0189-BSD1)					Prepared: 8/9/2021 Analyzed: 8/10/2021					
Diesel	1.03		0.160	mg/L	1.00		102	70-130	0.838	20
Lube Oil	ND		0.400	mg/L				70-130		20
Surrogate: n-Hexacosane			*54.3*	*ppm*	*50.1*		*108*	*50-150*		
Duplicate (BBH0189-DUP1)		**Source: WBG1082-02**			Prepared & Analyzed: 8/9/2021					
Diesel	ND		0.160	mg/L		ND				20
Lube Oil	ND		0.400	mg/L		ND				20
Mineral Oil	ND		0.160	mg/L		ND				20
Surrogate: n-Hexacosane			*54.5*	*ppm*	*50.1*		*109*	*50-150*		
Matrix Spike (BBH0189-MS1)		**Source: WBG1117-01**			Prepared & Analyzed: 8/9/2021					
Diesel	0.999		0.160	mg/L	1.00	ND	99.4	70-130		
Lube Oil	ND		0.400	mg/L		ND		70-130		
Surrogate: n-Hexacosane			*53.2*	*ppm*	*50.1*		*106*	*50-150*		
Matrix Spike Dup (BBH0189-MSD1)		**Source: WBG1117-01**			Prepared & Analyzed: 8/9/2021					
Diesel	0.991		0.160	mg/L	1.00	ND	98.7	70-130	0.736	20
Lube Oil	ND		0.400	mg/L		ND		70-130		20
Surrogate: n-Hexacosane			*52.7*	*ppm*	*50.1*		*105*	*50-150*		

Quality Control Data
(Continued)

Volatiles

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0065 - W VOC										
Blank (BBH0065-BLK1)					Prepared & Analyzed: 7/29/2021					
Gasoline	ND		0.100	mg/L						
Surrogate: 4-Bromofluorobenzene			*104*	*ug/L*	*100*		*104*	*50-150*		

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Quality Control Data
(Continued)

Volatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0065 - W VOC (Continued)										
LCS (BBH0065-BS1)					Prepared & Analyzed: 7/29/2021					
Gasoline	2.74		0.100	mg/L	2.94		93.2	80-120		
Surrogate: 4-Bromofluorobenzene			*104*	*ug/L*	*100*		*104*	*50-150*		
LCS Dup (BBH0065-BSD1)					Prepared & Analyzed: 7/29/2021					
Gasoline	3.10		0.100	mg/L	2.94		105	80-120	12.2	20
Surrogate: 4-Bromofluorobenzene			*100*	*ug/L*	*100*		*100*	*50-150*		
Matrix Spike (BBH0065-MS1)		**Source: WBG1116-01**			Prepared & Analyzed: 7/29/2021					
Gasoline	6.90		0.100	mg/L	2.94	4.50	81.7	70-130		
Surrogate: 4-Bromofluorobenzene			*102*	*ug/L*	*100*		*102*	*50-150*		
Matrix Spike Dup (BBH0065-MSD1)		**Source: WBG1116-01**			Prepared & Analyzed: 7/29/2021					
Gasoline	6.98		0.100	mg/L	2.94	4.50	84.3	70-130	1.11	20
Surrogate: 4-Bromofluorobenzene			*104*	*ug/L*	*100*		*104*	*50-150*		
Batch: BBH0343 - W VOC										
Blank (BBH0343-BLK1)					Prepared & Analyzed: 8/9/2021					
Benzene	ND		0.500	ug/L						
Toluene	ND		0.500	ug/L						
Ethylbenzene	ND		0.500	ug/L						
o-Xylene (MCL for total)	ND		1.00	ug/L						
Benzene	ND		0.200	ug/L						
m/p Xylenes (MCL for total)	ND		0.500	ug/L						
Ethylbenzene	ND		0.500	ug/L						
Toluene	ND		0.500	ug/L						
m/p Xylenes (MCL for total)	ND		0.500	ug/L						
o-Xylene (MCL for total)	ND		0.500	ug/L						
Total Xylenes	ND		0.500	ug/L						
Surrogate: Toluene-d8			*4.97*	*ug/L*	*5.00*		*99.4*	*70-130*		
Surrogate: 4-Bromofluorobenzene			*5.03*	*ug/L*	*5.00*		*101*	*70-130*		
Surrogate: 1,2-Dichlorobenzene-d4			*5.02*	*ug/L*	*5.00*		*100*	*70-130*		
Surrogate: 1,2-Dichlorobenzene-d4			*5.02*	*ug/L*	*5.00*		*100*	*70-130*		
Surrogate: Toluene-d8			*4.97*	*ug/L*	*5.00*		*99.4*	*70-130*		
Surrogate: 4-Bromofluorobenzene			*5.03*	*ug/L*	*5.00*		*101*	*70-130*		

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Quality Control Data
(Continued)

Volatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0343 - W VOC (Continued)										
LCS (BBH0343-BS1)					Prepared & Analyzed: 8/9/2021					
Benzene	5.51		0.500	ug/L	5.00		110	70-130		
Toluene	6.06		0.500	ug/L	5.00		121	70-130		
Ethylbenzene	5.75		0.500	ug/L	5.00		115	70-130		
o-Xylene (MCL for total)	5.75		1.00	ug/L	5.00		115	70-130		
m/p Xylenes (MCL for total)	11.7		0.500	ug/L	10.0		117	70-130		
Benzene	5.51		0.200	ug/L	5.00		110	70-130		
Ethylbenzene	5.75		0.500	ug/L	5.00		115	70-130		
Toluene	6.06		0.500	ug/L	5.00		121	70-130		
o-Xylene (MCL for total)	5.75		0.500	ug/L	5.00		115	70-130		
Surrogate: Toluene-d8			*5.55*	*ug/L*	*5.00*		*111*	*70-130*		
Surrogate: 4-Bromofluorobenzene			*5.18*	*ug/L*	*5.00*		*104*	*70-130*		
Surrogate: 1,2-Dichlorobenzene-d4			*4.55*	*ug/L*	*5.00*		*91.0*	*70-130*		
Surrogate: 1,2-Dichlorobenzene-d4			*4.55*	*ug/L*	*5.00*		*91.0*	*70-130*		
Surrogate: Toluene-d8			*5.55*	*ug/L*	*5.00*		*111*	*70-130*		
Surrogate: 4-Bromofluorobenzene			*5.18*	*ug/L*	*5.00*		*104*	*70-130*		

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Chain of Custody Record

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Anatek Log-In #

WBG1117

Due: 08/12/21

Company Name: GeoEngineers Inc.	Project Manager: Kurt Harrington
Address: 8019 West Quinault Ave. Suite 201	Project Name & #: Tidewater 009991-005-00
City: Kennewick State: WA Zip: 99336	Email Address: kharrington@geoengineers.com
Phone: 509-209-2820	Purchase Order #: 009991-005-00
Fax:	Sampler Name & phone: Alicia Candelaria 505-288-0807

Turn Around

Please refer to our normal turn around times at:
http://www.anateklabs.com/services/guidelines/reporting.asp

X Normal
__Next Day*
__2nd Day*
__Other*_____

*All rush order requests must be prior approved.

__Phone
__Mail
__Fax
X Email

Provide Sample Description

List Analyses Requested

Note Special Instructions/Comments

Lab ID	Sample Identification	Sampling Date/Time	Matrix	# of Containers	Sample Volume	Preservative	BTEX 8260B	NWTPH-Dx	NWTPH-Gx	Ferrous Fe	Mn	SO_4, NO_3	Methane RSK-175	NWTPH-Dx Heavy Oil			
	MW6-2107	07/28/21 0935	water	18			X	X	X	X	X	X	X	X			MS/MSD
	MW8-2107	07-28-21 1105	water	12			X	X	X	X	X	X	X	X			Ferrous iron 24hr hold time
	EB-2107	07-28-21 1000	water	12 6			X	X	X					X			
	Trip Blank			1			X		X								

Inspection Checklist

Received Intact?	Y	N
Labels & Chains Agree?	Y	N
Containers Sealed?	Y	N
VOC Head Space?	Y	N

Temperature (°C): 6.9 IR
Preservative: client pres HCl 2112
Date & Time:
Inspected By:

	Printed Name	Signature	Company	Date	Time
Relinquished by	Alicia Candelaria		GeoEngineers	07-28-21	1000
Received by	Joseph Hippili		Anatek	7/29/21	841
Relinquished by					
Received by					
Relinquished by					
Received by					

Form COC01.00 - Eff 1 Mar 2015

Anatek Labs, Inc.

Chain of Custody Record

1282 Alturas Drive, Moscow ID 83843 (208) 883-2839 FAX 882-9246
504 E Sprague Ste D, Spokane WA 99202 (509) 838-3999 FAX 838-4433

Anatek Log-In #

WBG1117

Due: 08/12/21

Turn Arc

Company Name: GeoEngineers Inc.	Project Manager: Kurt Harrington
Address: 8019 West Quinault Ave. Suite 201	Project Name & #: Tidewater 009991-005-00
City: Kennewick State: WA Zip: 99336	Email Address: kharrington@geoengineers.com
Phone: 509-209-2820	Purchase Order #: 009991-005-00
Fax:	Sampler Name & phone: Alicia Candelaria 505-288-0807

Please refer to our normal turn around times at:
http://www.anateklabs.com/services/guidelines/reporting.asp

X Normal __Next Day* __2nd Day* __Other*_____ *All rush order requests must be prior approved. __Phone __Mail __Fax X Email

Provide Sample Description

List Analyses Requested

Note Special Instructions/Comments

Lab ID	Sample Identification	Sampling Date/Time	Matrix	# of Containers	Sample Volume	Preservative	BTEX 8260B	NWTPH Dx	NWTPH Gx	Ferrous Fe	Mn	SO_4, NO_3	Methane, Ethane, Ethene RSK-175	NWTPH Dx Heavy Oil		
	MW6-2107	07/28/21 0935	water	18			X	X	X	X	X	X	X	X		MS/MSD
	MW8-2107	07-28-21 1105	water	12			X	X	X	X	X	X	X	X		Ferrous Iron 24hr hold time
	EB-2107	07-28-21 1000	water	6			X	X	X					X		
	Trip Blank			1			X		X							

Inspection Checklist

Received Intact?	Y	N
Labels & Chains Agree?	Y	N
Containers Sealed?	Y	N
VOC Head Space?	Y	N

Temperature (°C): 6.9, IR
Preservative: client pres HCl 2112
Date & Time:
Inspected By:

	Printed Name	Signature	Company	Date	Time
Relinquished by	Alicia Candelaria		GeoEngineers	07-28-21	1000
Received by	Joseph Rippitt		Anatek	7/29/21	841
Relinquished by					
Received by					
Relinquished by					
Received by					

Form COC01.00 - Eff 1 Mar 2015

Samples submitted to Anatek Labs may be subcontracted to other accredited labs if necessary. This message serves as notice of this possibility. Sub-contracted analyses will be clearly noted on the analytical report.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

09 August 2021

Kathy Sattler
Anatek Labs, Inc.
504 East Sprague, Suite D
Spokane, WA 99202

RE: WBG1117

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
21H0047	N/A

Shelly Fishel

Digitally signed by Shelly Fishel
Date: 2021.08.09 16:07:26 -07'00'

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

21H0047

Anatek Labs, Inc.

SUBCONTRACT ORDER

1282 Alturas Drive - Moscow, ID 83843 - (208) 8832839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Sending Laboratory:

Anatek Labs, Inc.- Spokane
504 E Sprague Ave, Suite D
Spokane, WA 99202
Phone: 509-838-3999
Fax: 509-838-4433

Project Manager: Kathleen Sattler
kathy@anateklabs.com

Subcontracted Laboratory:

Analytical Resources
4611 S. 134th Pl. #100
Tukwila, WA 98168
Phone: (206) 695-6200
Fax:

Work Order: WBG1117

Analysis	Due	Expires	Comments
Lab Sample ID: WBG1117-01 ***Water*** ***Sampled: 07/28/2021 09:35***			
Client Sample Name: MW6-2107			
W Methane	08/10/2021	08/11/2021 09:35	
Containers Supplied:			
G 44mL (I) G 44mL (J) G 44mL (K)			
Lab Sample ID: WBG1117-02 ***Water*** ***Sampled: 07/28/2021 11:05***			
Client Sample Name: MW8-2107			
W Methane	08/10/2021	08/11/2021 11:05	
Containers Supplied:			
G 44mL (J) G 44mL (K) G 44mL (L)			

Released By 8/2/21 Date

Received By 08/04 1048 Date

Page 1 of 1

Anatek Labs, Inc.	Project: WBG1117	
504 East Sprague, Suite D	Project Number: [none]	**Reported:**
Spokane WA, 99202	Project Manager: Kathy Sattler	09-Aug-2021 16:03

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW6-2107	21H0047-01	Water	28-Jul-2021 09:35	04-Aug-2021 10:48
MW8-2107	21H0047-02	Water	28-Jul-2021 11:05	04-Aug-2021 10:48

Anatek Labs, Inc.	Project: WBG1117	
504 East Sprague, Suite D	Project Number: [none]	**Reported:**
Spokane WA, 99202	Project Manager: Kathy Sattler	09-Aug-2021 16:03

Work Order Case Narrative

Client: Anatek Labs, Inc.
Project: WBG1117
Work Order: 21H0047

Sample receipt

Samples as listed on the preceding page were received 04-Aug-2021 10:48 under ARI work order 21H0047. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatile Gases - Methane by RSK175

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Anatek Labs
Project Name: WSU-1117
COC No(s): _____ (NA)
Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____
Assigned ARI Job No: 21H0047
Tracking No: 1Z20A95V0394085758 NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1048 — 23.8 _____ _____ _____ _____ _____

If cooler temperature is out of compliance fill out form 00070F — Temp Gun ID#: DOO 5206

Cooler Accepted by: JG Date: 08/04/2021 Time: 1048

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? melted		YES	(NO)
What kind of packing material was used? (Bubble Wrap) (Wet Ice) Gel Packs (Baggies) Foam Block Paper Other: _____			
Was sufficient ice used (if appropriate)?	NA	YES	(NO)
How were bottles sealed in plastic bags?	Individually	(Grouped)	Not
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	(NA)	YES	NO
Were all VOC vials free of air bubbles?	NA	(YES)	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		_____

Were the sample(s) split by ARI? (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JG Date: 08/04/2021 Time: 1617 Labels checked by: JG

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Cooler Temperature Compliance Form

ARI Work Order: 21H0047

Cooler#: _____ Temperature(°C): 23.8

Sample ID	Bottle Count	Bottle Type
Samples received above 6°c		

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Completed by: _____ Date: 08/04/2021 Time: 1048

Anatek Labs, Inc.	Project: WBG1117	
504 East Sprague, Suite D	Project Number: [none]	**Reported:**
Spokane WA, 99202	Project Manager: Kathy Sattler	09-Aug-2021 16:03

MW6-2107

21H0047-01 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 07/28/2021 09:35
Instrument: FID6 Analyst: LH — Analyzed: 08/05/2021 10:50

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0047-01 A
Preparation Batch: BJH0142 — Sample Size: 10 mL
Prepared: 08/05/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	ND	ug/L	U
Surrogate: Propane			*72-122 %*	*108*	*%*	

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Anatek Labs, Inc.	Project: WBG1117	
504 East Sprague, Suite D	Project Number: [none]	**Reported:**
Spokane WA, 99202	Project Manager: Kathy Sattler	09-Aug-2021 16:03

MW8-2107

21H0047-02 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 07/28/2021 11:05

Instrument: FID6 Analyst: LH — Analyzed: 08/05/2021 11:03

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0047-02 A

Preparation Batch: BJH0142 — Sample Size: 10 mL

Prepared: 08/05/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	ND	ug/L	U
Surrogate: Propane			*72-122 %*	*106*	*%*	

Anatek Labs, Inc.	Project: WBG1117	
504 East Sprague, Suite D	Project Number: [none]	**Reported:**
Spokane WA, 99202	Project Manager: Kathy Sattler	09-Aug-2021 16:03

Dissolved Gases - Quality Control

Batch BJH0142 - EPA 5030C (Purge and Trap)

Instrument: FID6 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0142-BLK1)				Prepared: 05-Aug-2021 Analyzed: 05-Aug-2021 08:55						
Methane	ND	0.65	ug/L							U
Surrogate: Propane	1980		ug/L	*1800*		*110*	*72-122*			
LCS (BJH0142-BS1)				Prepared: 05-Aug-2021 Analyzed: 05-Aug-2021 08:01						
Methane	664	0.65	ug/L	656		101	80-120			
Surrogate: Propane	1860		ug/L	*1800*		*103*	*62-122*			
LCS Dup (BJH0142-BSD1)				Prepared: 05-Aug-2021 Analyzed: 05-Aug-2021 08:15						
Methane	673	0.65	ug/L	656		103	80-120	1.25	30	
Surrogate: Propane	1980		ug/L	*1800*		*110*	*62-122*			

Anatek Labs, Inc.	Project: WBG1117	
504 East Sprague, Suite D	Project Number: [none]	**Reported:**
Spokane WA, 99202	Project Manager: Kathy Sattler	09-Aug-2021 16:03

Certified Analyses included in this Report

Analyte	Certifications
EPA RSK-175 in Water	
Methane	NELAP
Ethane	NELAP
Ethene	NELAP
Acetylene	NELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022

Anatek Labs, Inc.	Project: WBG1117	
504 East Sprague, Suite D	Project Number: [none]	**Reported:**
Spokane WA, 99202	Project Manager: Kathy Sattler	09-Aug-2021 16:03

Notes and Definitions

U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

APPENDIX D
Historical Groundwater Monitoring Results

Appendix D
Tidewater Fuel Leak Site Historical Groundwater Monitoring Results
Pasco, Washington

Well ID	Date	Benzene (µg/L) MCL 5	Toluene (µg/L) MCL 1,000	Ethylbenzene (µg/L) MCL 700	Total Xylenes (µg/L) 1,000	TPH-G (µg/L) MCL 800/1,000	TPH-D (µg/L) MCL 500	TPH-D - Heavy Oil (µg/L) MCL 500
AR-1	Feb-03	**191**	**2,130**	153	**4,570**	**31,700**	NA	NA
	Jun-03	**77**	**1,340**	179	**3,590**	**20,000**	NA	NA
	Jun-10	NS	NS	NS	NS	NS	NS	NS
	Dec-10	NS	NS	NS	NS	NS	NS	NS
	May-14	NS	NS	NS	NS	NS	NS	NS
	Jun-20	NS	NS	NS	NS	NS	NS	NS
	Jul-21	**1,530**	**3,550**	**730**	**4,850**	**4,520**	**2,700**	**1,200**
AR-3	Feb-03	**754**	**3,870**	148	**6,350**	**38,900**	NA	NA
	Jun-03	**6,750**	**6,270**	649	**7,170**	**37,400**	NA	NA
	Mar-06	NS	NS	NS	NS	NS	NS	NS
	Nov-07	NS	NS	NS	NS	NS	NS	NS
	Oct-08	NS	NS	NS	NS	NS	NS	NS
	Jun-10	NS	NS	NS	NS	NS	NS	NS
	Dec-10	NS	NS	NS	NS	NS	NS	NS
	May-14	NS	NS	NS	NS	NS	NS	NS
AR-4	Apr-02	**52**	337	13.9	**1,989**	**10,500**	NA	NA
	Jul-02	**90**	816	10.7	705	**6,400**	NA	NA
	Nov-02	**10.3**	118	5.5	345	**3,080**	NA	NA
	Feb-03	*1.0 U*	*1.0 U*	*1.0 U*	4.8	195	NA	NA
	Jun-03	**10.1**	66	10	326	**5,090**	NA	NA
	Sep-03	**797**	70	27	321	**3,430**	NA	NA
	Mar-06	**2,210**	**3,430**	481	**5,600**	**26,600**	**4,400**	NA
	Nov-07	**640**	**2,800**	220	**4,400**	**28,000**	**4,500**	**1,400**
	Oct-08	**340**	**2,100**	170	**2,700**	**17,000**	**2,500**	**5,900**
	Jun-10	**380**	**1,900**	270	**4,400**	**21,000**	**5,300**	**650**
FD (AR-4 Dup)	Jun-10	**370**	**1,800**	250	**4,000**	**20,000**	**3,700**	440
	Dec-10	**350**	**1,400**	230	**3,600**	**17,000**	**3,700**	*260 U*
	May-14	**535**	789	385	**10,290**	**45,900**	*20 U*	*50 U*
	May-18	**141**	15.4	280	**5,450**	**28,100**	*50 U*	*250 U*
	Jun-19	**123**	10.5	305	**4,870**	**22,000**	*100 U*	*500 U*
	Jun-20	**132**	*50 U*	276	**3,780**	**20,100**	*160 U*	*400 U*
AR-5	Jul-02	**379**	**1,010**	17.5	**3,850**	**39,000**	NA	NA
	Nov-02	0.7	10.6	*ND*	124	**2,900**	NA	NA
	Feb-03	4.3	12.2	1	90	**830**	NA	NA
	Jun-03	**15.2**	8.8	3.4	136	**1,740**	NA	NA
	Sep-03	**8.5**	4.6	1.3	33	557	NA	NA
	Dec-03	*1 U*	26.1	14.1	739	**6,010**	NA	NA
	Mar-06	*0.5 U*	*0.5 U*	*0.5 U*	0.57	250	NA	NA
	Nov-07	NS	NS	NS	NS	NS	NS	NS
	Oct-08	*0.9 U*	*0.9 U*	*0.5 U*	10	65	120	*95 U*
	Jun-10	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*120 U*	*250 U*
	Dec-10	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	260	730	*270 U*
	May-14	*1.0 U*	*1.0 U*	*1.0 U*	2.09	*100 U*	*20 U*	*50 U*
AR-6	Nov-01	**29.8**	**402**	82	**2,800**	**2,390**	NA	NA
	Apr-02	**713**	559	27	**2,060**	**17,700**	NA	NA
	Jul-02	**1,820**	**3,100**	85	**4,780**	**24,700**	NA	NA
	Nov-02	**104**	289	67	**2,886**	**11,900**	NA	NA
	Feb-03	**531**	**1,280**	93	**2,900**	**23,700**	NA	NA
	Jun-03	**475**	**2,340**	110	**3,750**	**23,500**	NA	NA
	Sep-03	**221**	**3,140**	241	**4,610**	**25,000**	NA	NA
	Mar-06	*0.5 U*	*0.5 U*	*0.5 U*	6.7	330	260	NA
	Nov-07	0.6	2.5	0.7	73	670	**1,500**	**990**
	Oct-08	NS	NS	NS	NS	NS	NS	NS
	Jun-10	*1.0 U*	*1.0 U*	*1.0 U*	2.4	*50 U*	*120 U*	*250 U*
	Dec-10	*1.0 U*	*1.0 U*	*1.0 U*	8.6	81	*120 U*	*240 U*
	May-14	*1.0 U*	*1.0 U*	21.2	331	**4,640**	*20 U*	*50 U*
AR-7	Mar-06	NS	NS	NS	NS	NS	NS	NS
	Nov-07	NS	NS	NS	NS	NS	NS	NS
	Oct-08	NS	NS	NS	NS	NS	NS	NS
	Jun-10	NS	NS	NS	NS	NS	NS	NS
	Dec-10	NS	NS	NS	NS	NS	NS	NS
AR-7	May-14	*1.0 U*	1.4	21	86	1,280	*20 U*	*50 U*
FD (AR-7 Dup)	May-14	*1.0 U*	*1.0 U*	16	65	883	*20 U*	*50 U*

Appendix D
Tidewater Fuel Leak Site Historical Groundwater Monitoring Results
Pasco, Washington

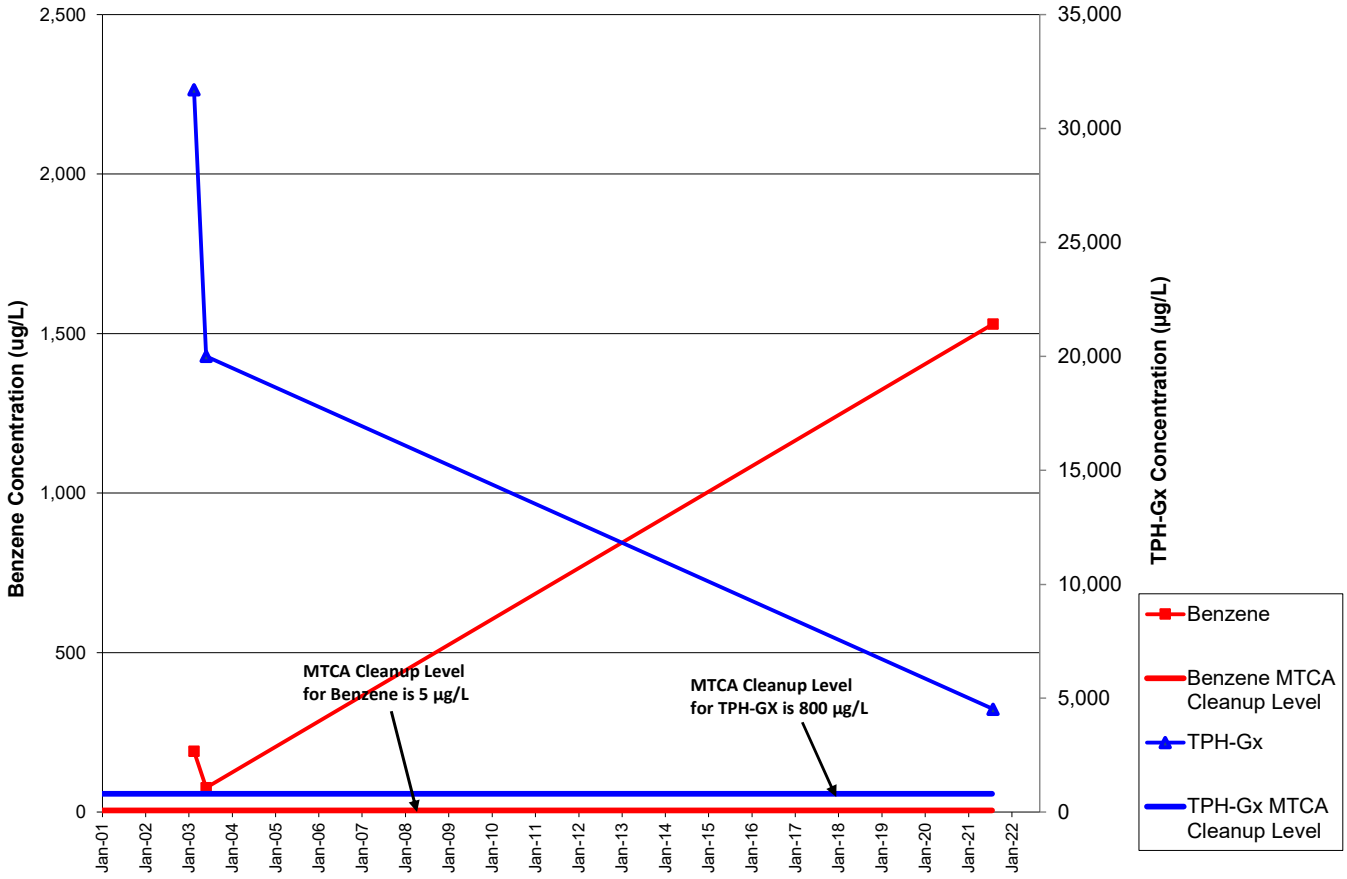
Well ID	Date	Benzene (µg/L) MCL 5	Toluene (µg/L) MCL 1,000	Ethylbenzene (µg/L) MCL 700	Total Xylenes (µg/L) 1,000	TPH-G (µg/L) MCL 800/1,000	TPH-D (µg/L) MCL 500	TPH-D - Heavy Oil (µg/L) MCL 500
AR-8	Jul-02	**47.3**	229	32	918	**5,330**	NA	NA
	Nov-02	**19.2**	**1,070**	384	**4,170**	**57,400**	NA	NA
	Feb-03	**43.8**	577	276	**3,410**	**59,600**	NA	NA
	Jun-03	**1470**	**2,050**	651	**2,760**	**22,700**	NA	NA
	Sep-03	**3,350**	**1,740**	**1,480**	**2,520**	**16,000**	NA	NA
	Nov-07	**8.0**	46	35	610	**7,400**	**23,000**	**<4,700**
	Jun-10	2.0	15	99	420	**3,300**	**2,000**	250
	Dec-10	1.7	26	100	460	**3,700**	**1,500**	*260 U*
FD (AR-8 Dup)	Dec-10	1.7	36	100	590	**3,500**	**1,500**	*280 U*
	May-14	*1.0 U*	11	280	755	**9,570**	*20 U*	*50 U*
FD (AR-8 Dup)	May-14	*1.0 U*	12	312	812	**9,880**	*20 U*	*50 U*
	May-18	*0.5 U*	0.90	145	200	**4,970**	*50 U*	*250 U*
FD (AR-8 Dup)	May-18	*0.5 U*	0.94	150	223	**4,980**	*50 U*	*250 U*
	Jun-19	*0.5 U*	0.53	88.0	157.2	**4,830**	*100 U*	*500 U*
FD (AR-8 Dup)	Jun-19	*0.5 U*	0.53	82.7	147.0	**4,610**	*100 U*	*500 U*
	Jun-20	*1.25 U*	*1.25 U*	61.7	109.7	**3,520**	*160 U*	*400 U*
FD (AR-8 Dup)	Jun-20	*1.25 U*	*1.25 U*	62.6	103.8	**3,220**	*160 U*	*400 U*
	Jul-21	*2.50 U*	*2.50 U*	119	121.5	**4,500**	*160 U*	*400 U*
FD (AR-8 Dup)	Jul-21	*2.50 U*	*2.50 U*	112	129.6	**4,720**	*160 U*	*400 U*
AR-9	Nov-01	*1 U*	*1 U*	*1 U*	*2 U*	*50 U*	NA	NA
FD (AR-9 dup)	Nov-01	*1 U*	*1 U*	*1.1*	*2 U*	*50 U*	NA	NA
	Nov-02	*1 U*	*1 U*	*1 U*	*2 U*	*50 U*	NA	NA
	Dec-03	*1 U*	*1 U*	*1 U*	*2 U*	*50 U*	NA	NA
	Mar-06	*0.5 U*	*0.5 U*	*0.5 U*	*1 U*	*250 U*	*250 U*	NA
	Jun-10	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*120 U*	*240 U*
	Dec-10	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*130 U*	*270 U*
	May-14	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*100 U*	*20 U*	*50 U*
AR-10	Nov-01	**54**	13.7	*ND*	221	311	NA	NA
	Apr-02	3.1	*1.0 U*	3.5	*2.0 U*	*50 U*	NA	NA
	Nov-02	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	78	NA	NA
	Feb-03	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	NA	NA
	Jun-03	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	NA	NA
	Sep-03	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	NA	NA
	Mar-06	*0.5 U*	*0.5 U*	*0.5 U*	*1.0 U*	*250 U*	*250 U*	NA
	Jun-10	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*120 U*	*240 U*
	Dec-10	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*120 U*	*240 U*
	May-14	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*100 U*	*20 U*	*50 U*
AR-11	Mar-01	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*230 U*	*560 U*
	Aug-01	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	NA	NA
	Nov-02	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	NA	NA
	Dec-03	*1.0 U*	1.9	*1.0 U*	1.1	*50 U*	NA	NA
	Mar-06	*0.5 U*	*0.5 U*	*0.5 U*	*1.0 U*	*250 U*	*250 U*	NA
	Jun-10	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*120 U*	*240 U*
	Dec-10	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*120 U*	*240 U*
	May-14	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*100 U*	*20 U*	*50 U*
	May-18	*0.5 U*	*0.5 U*	*0.5 U*	*0.5 U*	*100 U*	*50 U*	*250 U*
	Jun-19	*0.5 U*	*0.5 U*	*0.5 U*	*1.0 U*	*100 U*	*100 U*	*500 U*
	Jun-20	*0.5 U*	*0.5 U*	*0.5 U*	*1.0 U*	*100 U*	*160 U*	*400 U*
	Jul-21	*0.5 U*	*0.5 U*	*0.5 U*	*0.5 U*	*100 U*	*160 U*	*400 U*
AR-12	Feb-03	**3,860**	**10,400**	**1,000**	**13,560**	**84,700**	NA	NA
	Jun-03	**3,810**	**8,060**	**731**	**9,190**	**55,100**	NA	NA
	Nov-07	NS	NS	NS	NS	NS	NS	NS
	Oct-08	NS	NS	NS	NS	NS	NS	NS
	Jun-10	NS	NS	NS	NS	NS	NS	NS
	Dec-10	NS	NS	NS	NS	NS	NS	NS
	May-14	NS	NS	NS	NS	NS	NS	NS
MW-1	Mar-01	**20**	21	*1.0 U*	*2 U*	110	*230 U*	*580 U*
	Aug-01	**1,890**	**1,900**	9.5	**1,109**	**5,980**	NA	NA
	Nov-01	**336**	**88**	1 U	**211**	321	NA	NA
	Apr-02	**880**	33	5.3	43	667	NA	NA
	Jul-02	**1,040**	22	41	40	**1,600**	NA	NA
	Nov-02	**434**	36	57	131	**1,040**	NA	NA
	Nov-02	**385**	31	38	95	712	NA	NA
FD (MW-1 dup)	Feb-03	**453**	19.7	43	43.8	263	NA	NA
	Feb-03	**369**	15	32	33.8	240	NA	NA
FD (MW-1 dup)	Jun-03	**240**	131	78	257	**841**	NA	NA
	Jun-03	**131**	68	35	128	**1,420**	NA	NA
FD (MW-1 dup)	Sep-03	**149**	77	38	145	589	NA	NA
	Sep-03	**112**	69	26	NR	431	NA	NA
FD (MW-1 dup)	Dec-03	**20.2**	58	3.1	26	102	NA	NA
	Dec-03	**8.0**	22	1.2	9.3	143	NA	NA
	Mar-06	*0.5 U*	0.71	8.4	8.7	250	*250 U*	NA
FD (MW-1 dup)	Mar-06	*0.5 U*	0.69	6.8	6.1	250	*250 U*	NA
	Nov-07	*0.2 U*	0.20	0.5	*0.6 U*	*50 U*	*190*	**670**
	Jun-10	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*120 U*	*240 U*
	Dec-10	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*120 U*	*240 U*
	May-14	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*100 U*	*20 U*	*50 U*

Appendix D
Tidewater Fuel Leak Site Historical Groundwater Monitoring Results
Pasco, Washington

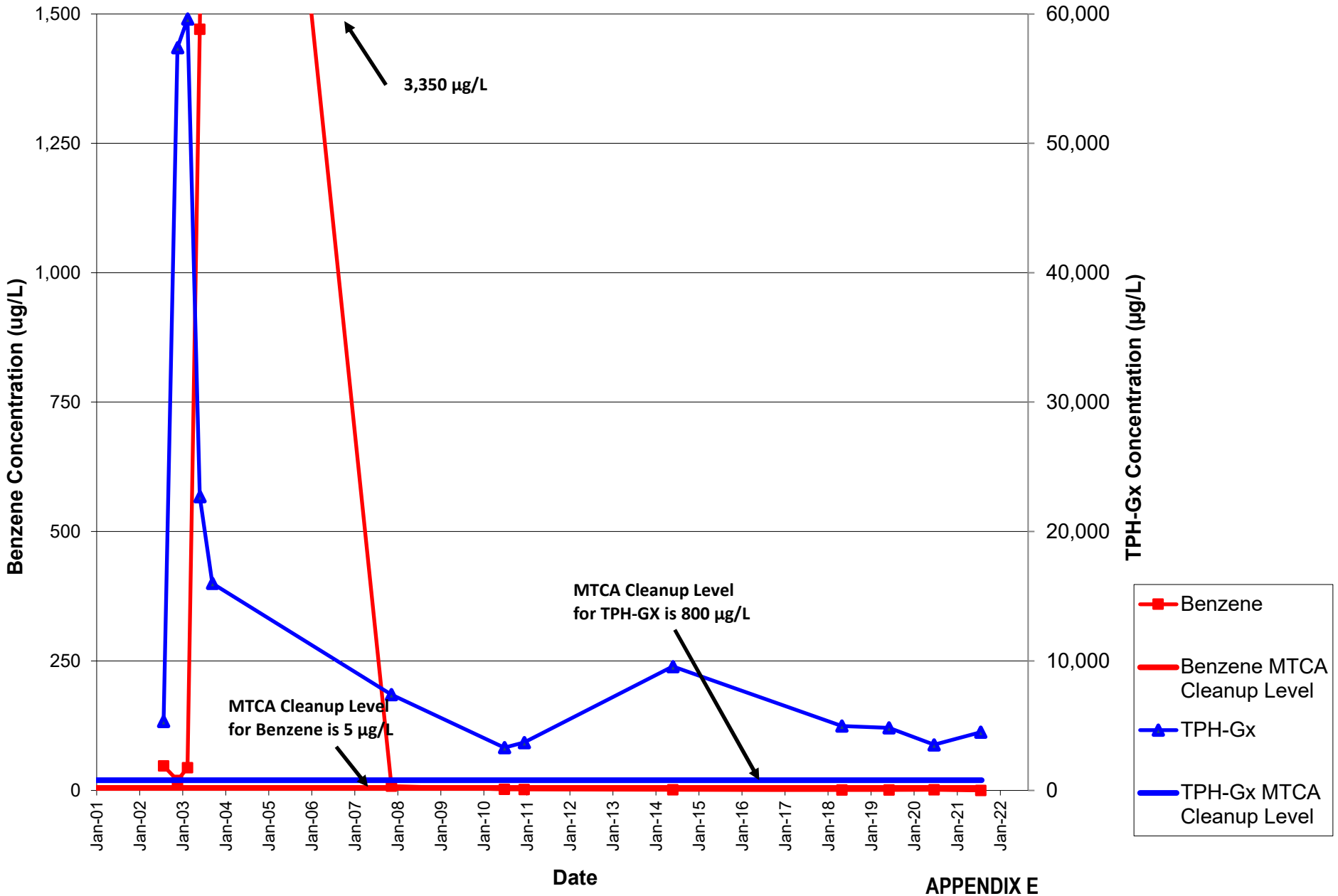
Well ID	Date	Benzene (µg/L) MCL 5	Toluene (µg/L) MCL 1,000	Ethylbenzene (µg/L) MCL 700	Total Xylenes (µg/L) 1,000	TPH-G (µg/L) MCL 800/1,000	TPH-D (µg/L) MCL 500	TPH-D - Heavy Oil (µg/L) MCL 500
MW-2	Mar-01	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*220 U*	*540 U*
	Aug-01	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	NA	NA
	Nov-01	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	NA	NA
	Nov-02	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	82	NA	NA
	Mar-06	*0.5 U*	*0.5 U*	*0.5 U*	*1.0 U*	*250 U*	*250 U*	NA
	Oct-08	*0.2 U*	*0.2 U*	*0.2 U*	*0.6 U*	*50 U*	78	*96 U*
	Jun-10	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*120 U*	*250 U*
	Dec-10	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*130 U*	*260 U*
	May-14	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*100 U*	*20 U*	*50 U*
MW-3	Mar-01	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	270	NA
	Aug-01	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	NA	NA
	Nov-02	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	117	NA	NA
	Mar-06	*0.5 U*	*0.5 U*	*0.5 U*	*1.0 U*	*250 U*	*250 U*	NA
	Oct-08	*0.2 U*	*0.2 U*	*0.2 U*	*0.6 U*	*50 U*	*80 U*	*100 U*
	Jun-10	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*140*	*270 U*
	Dec-10	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*120 U*	*250 U*
	May-14	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*100 U*	*20 U*	*50 U*
MW-4	Mar-01	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*200 U*	*680 U*
	Aug-01	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	NA	NA
	Nov-01	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	NA	NA
	Nov-02	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	55	NA	NA
	Dec-03	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	NA	NA
	Mar-06	*0.5 U*	*0.5 U*	*0.5 U*	*1.0 U*	*250 U*	*250 U*	NA
	Oct-08	*0.2 U*	*0.2 U*	*0.2 U*	*0.6 U*	*50 U*	*77 U*	*97 U*
	Jun-10	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*120 U*	*250 U*
	Dec-10	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*140 U*	*280 U*
	May-14	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*100 U*	*20 U*	*50 U*
	May-18	*0.5 U*	*0.5 U*	*0.5 U*	*0.5 U*	*100 U*	*50 U*	*250 U*
	Jun-19	*0.5 U*	*0.5 U*	*0.5 U*	*1.0 U*	*100 U*	*100 U*	*500 U*
	Jun-20	*0.5 U*	*0.5 U*	*0.5 U*	*1.0 U*	*100 U*	*160 U*	*400 U*
	Jul-21	*0.5 U*	*0.5 U*	*0.5 U*	*0.5 U*	*100 U*	*160 U*	*400 U*
MW-5	Mar-01	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*200 U*	NA
	Aug-01	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	NA	NA
	Nov-02	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	**954**	NA	NA
	Mar-06	*0.5 U*	*0.5 U*	*0.5 U*	*1.0 U*	*250 U*	**4,300**	NA
	Nov-07	*0.2 U*	*0.2 U*	*0.2 U*	*0.6 U*	*50 U*	**1,300**	**1,100**
	Oct-08	*0.2 U*	*0.2 U*	*0.2 U*	*0.6 U*	*50 U*	91	*98 U*
	Jun-10	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*120 U*	*250 U*
	Dec-10	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*130 U*	*260 U*
	May-14	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*100 U*	*100 U*	*500 U*
MW-6	Mar-01	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*190 U*	*480 U*
	Aug-01	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	NA	NA
	Nov-01	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	NA	NA
	Nov-02	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	62	NA	NA
	Sep-03	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	NA	NA
	Dec-03	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	NA	NA
	Mar-06	*0.5 U*	*0.5 U*	*0.5 U*	*1.0 U*	*250 U*	*250 U*	NA
	Jun-10	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*120 U*	*240 U*
	Dec-10	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*50 U*	*120 U*	*240 U*
	May-14	*1.0 U*	*1.0 U*	*1.0 U*	*2.0 U*	*100 U*	*20 U*	*50 U*
	May-18	*0.5 U*	*0.5 U*	*0.5 U*	*0.5 U*	*100 U*	*50 U*	*250 U*
	Jun-19	*0.5 U*	*0.5 U*	*0.5 U*	*1.0 U*	*145*	*100 U*	*500 U*
	Jun-20	*0.5 U*	*0.5 U*	*0.5 U*	*1.0 U*	*100 U*	*160 U*	*400 U*
	Jul-21	*0.5 U*	*0.5 U*	*0.5 U*	*0.5 U*	*100 U*	*160 U*	*400 U*
MW-7	Mar-01	**990**	**3,000**	130	**1,260**	**11,000,000**	**1,240**	**510**
	Nov-07	**70**	530	53	930	**7,000**	**2,000**	300
	Dec-10	*1.0 U*	4.1	*1.0 U*	27	350	*120 U*	*240 U*
	May-14	**88**	**1,910**	133	**2,702**	**19,200**	*20 U*	*50 U*
MW-8	Mar-01	**5,300**	**17,000**	**1,500**	**10,800**	**77,000,000**	**72,400**	**1,210**
	Feb-03	**3,630**	**8,540**	**931**	**8,450**	**51,500**	NA	NA
	Jun-03	**6,490**	**14,500**	**1,320**	**12,590**	**80,900**	NA	NA
	Mar-06	**183**	**5,440**	452	**5,140**	**25,700**	**8,400**	NA
	Nov-07	**29**	**2,200**	**410**	**5,500**	**36,000**	**6,500**	**1,900 U**
	Dec-10	2.4	500	210	**2,000**	**9,900**	**2,500**	*260 U*
	May-14	*1.0 U*	286	462	**4,920**	**27,000**	*20 U*	*50 U*
	May-18	*0.5 U*	3.8	*0.5 U*	*0.5 U*	**3,540**	*50 U*	*250 U*
	Jun-19	*0.5 U*	8.10	61.8	810	**5,190**	*100 U*	*500 U*
	Jun-20	*10.0 U*	*25 U*	106	**1,241**	**8,130**	*160 U*	*400 U*
	Jul-21	*12.5 U*	15.5	120	**1,357**	**11,300**	*160 U*	*400 U*

Notes:
MCL - Maximum Contaminant Level. Based on Washington Department of Ecology Method A cleanup levels in Table 720-1 of the Model Toxics Control Act, Oct 2007.
µg/L - Micrograms per liter
BOLD - Exceeds MCL
U = Analyte not detected above method reporting limit
N/A = Not applicable or not available
FD = Field duplicate

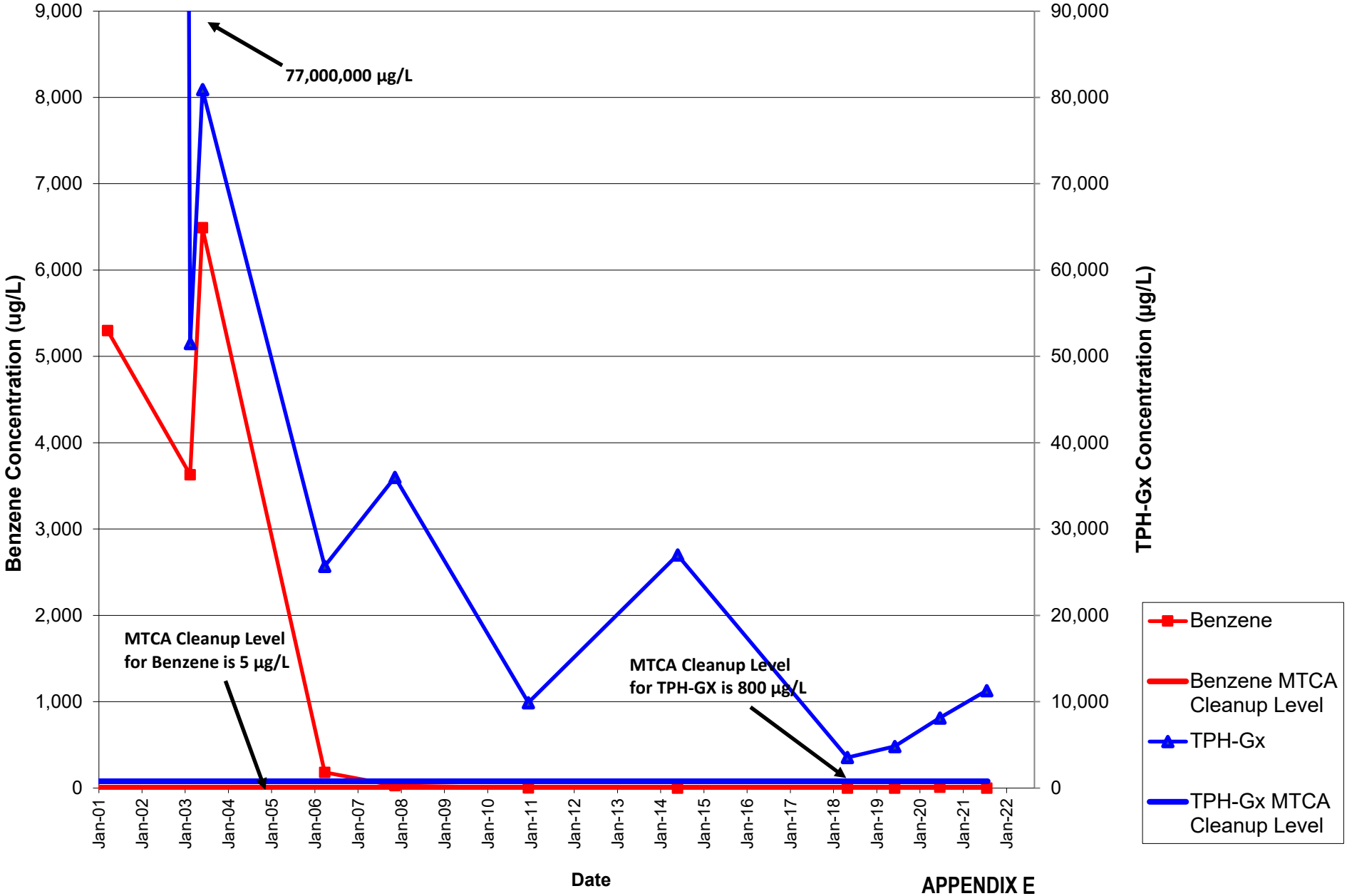
APPENDIX E
Historical Time Series Plots



APPENDIX E
AR-1 Benzene and TPH-GX Concentrations
Tidewater Fuel Leak Site



APPENDIX E
AR-8 Benzene and TPH-Gx Concentrations
Tidewater Fuel Leak Site



APPENDIX E
MW-8 Benzene and TPH-GX Concentrations
Tidewater Fuel Leak Site

APPENDIX F
Report Limitations and Guidelines for Use

APPENDIX F

REPORT LIMITATIONS AND GUIDELINES FOR USE[1]

This appendix provides information to help you manage your risks with respect to the use of this report.

Environmental Services are Performed for Specific Purposes, Persons and Projects

This report has been prepared for use by Tidewater Terminal Company. This report is not intended for use by others, and the information contained herein is not applicable to other sites.

GeoEngineers structures our services to meet the specific needs of our clients. For example, an environmental site assessment study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and project site. No one except Ecology should rely on this environmental report without first conferring with GeoEngineers. This report should not be applied for any purpose or project except the one originally contemplated.

This Environmental Report is Based on a Unique Set of Project-Specific Factors

This report has been prepared for the Tidewater Fuel Leak Site in Pasco, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

If important changes are made after the date of this report, GeoEngineers should be given the opportunity to review our interpretations and recommendations and provide written modifications or confirmation, as appropriate.

Reliance Conditions for Third Parties

If a lending agency or other parties intend to place legal reliance on the product of our services, we require that those parties indicate in writing their acknowledgement that the scope of services provided, and the general conditions under which the services were rendered including the limitation of professional liability, are understood and accepted by them. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions.

[1] Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org.

Environmental Regulations are Always Evolving

Some substances may be present in the site vicinity in quantities or under conditions that may have led, or may lead, to contamination of the subject site, but are not included in current local, state or federal regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substance, change or if more stringent environmental standards are developed in the future.

Uncertainty May Remain Even After this Phase II ESA is Completed

No ESA can wholly eliminate uncertainty regarding the potential for contamination in connection with a property. Our interpretation of subsurface conditions in this study is based on field observations and chemical analytical data from widely-spaced sampling locations. It is always possible that contamination exists in areas that were not explored, sampled or analyzed.

Subsurface Conditions Can Change

This environmental report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, by new releases of hazardous substances, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Always contact GeoEngineers before applying this report to determine if it is still applicable.

Most Environmental Findings are Professional Opinions

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely spaced sampling locations at the site. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ – sometimes significantly – from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

Do Not Redraw the Field Forms

Environmental scientists prepare field forms based upon their collected field data. To prevent errors or omissions, the forms included in an environmental report should never be redrawn for inclusion in other design drawings. Only photographic or electronic reproduction is acceptable, but recognize that separating forms from the report can elevate risk.

Read These Provisions Closely

Some clients, design professionals and contractors may not recognize that the geoscience practices (geotechnical engineering, geology and environmental science) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory “limitations” provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you are unclear how

these “Report Limitations and Guidelines for Use” apply to your project or site. Geotechnical, Geologic and GeoEnvironmental Reports Should Not Be Interchanged.

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually relate any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding a specific project.

GeoEngineers