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2018 ANNUAL GROUNDWATER MONITORING REPORT

FIRE TRAINING PIT (FTP) AND TRACKED VEHICLE REPAIR/OLD MOBILIZATION AND TRAINING EQUIPMENT SITE (TVR/OLD MATES)

Yakima Training Center

Yakima, Washington

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2018 Annual Groundwater Monitoring Report

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Prepared for

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CONTENTS

Section **Page**

APPENDICES

TABLES

FIGURES

ABBREVIATIONS AND ACRONYMS

µg/L	micrograms per liter
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cis-DCE	cis-1,2-dichloroethylene
COC	contaminant of concern
cPAH	carcinogenic polycyclic aromatic hydrocarbon
DNAPL	dense non-aqueous phase liquid
EA	EA Engineering, Science, and Technology, Inc., PBC
E&E	Ecology & Environment
ERP	Environmental Restoration Program
FTP	fire training pit
HRS	hazard ranking system
JBLM	Joint Base Lewis-McChord
LNAPL	light non-aqueous phase liquid
mg/L	milligrams per liter
MMP	main motor pool
MTCA	Model Toxics Control Act
NPL	National Priorities List
Old MATES	Old Mobilization and Training Equipment Site
ORC	Oxygen release compound
PAH	polycyclic aromatic hydrocarbon
PAIC	Pomona Artesian Irrigation Company
PCB	polychlorinated biphenyl
PDB	passive diffusion bag
Pegasus	Pegasus Environmental Management Services
QC	quality control
RCRA	Resource Conservation and Recovery Act
RFA	RCRA facility assessment

SAIC	Science Applications International Corporation
SI	site investigation
SVOC	semivolatile organic compound
SWMU	Solid Waste Management Unit
TCE	trichloroethylene
TCLP	Toxicity Characteristic Leaching Procedure
TPH	total petroleum hydrocarbons
TPH-D	total petroleum hydrocarbons – diesel range
TPH-G	total petroleum hydrocarbons – gasoline range
TPH-O	total petroleum hydrocarbons – heavy oil range
TtEC	Tetra Tech EC, Inc.
TTEC	total toxic equivalent concentration
TVR	Tracked Vehicle Repair
U.S.	United States
UST	underground storage tank
VOC	volatile organic compound
WAC	*Washington Administrative Code*
YTC	Yakima Training Center

1. INTRODUCTION

This Annual Groundwater Monitoring Report documents the March/April (spring) and September (fall) 2018 semiannual groundwater monitoring events conducted at the Yakima Training Center (YTC) former Fire Training Pit (FTP) and the Tracked Vehicle Repair/Old Mobilization and Training Equipment Site (TVR/Old MATES).

This report presents sampling procedures, water level measurements, and analytical results for groundwater monitoring activities conducted at the FTP and TVR/Old MATES sites in 2018. This report was prepared for Joint Base Lewis-McChord (JBLM) Public Works by EA Engineering, Science, and Technology, Inc., PBC (EA). Work was completed in accordance with the 2017 Draft Final Groundwater Monitoring Plan, Revision 1 (Tetra Tech EC, Inc. [TtEC] 2017), and Washington Administrative Code (WAC) chapters 173-340-810 and 173-340-820.

For future monitoring events, work will be performed consistent with a Site-Specific Uniform Federal Policy - Quality Assurance Project Plan to outline the policies, organization, and specific quality assurance and quality control (QC) measures to be implemented during the collection, analysis, and reporting of data associated with monitoring activities at the YTC FTP and TVR/Old MATES sites. The future Site-Specific Quality Assurance Project Plan will include project-specific data acquisition operations, specify the data usability requirements to support the decision-making process, and provide a clear, concise, and complete plan for the data collection and evaluation.

Long-term management remedies, including land use controls and groundwater monitoring to monitor natural attenuation of site contaminants for the foreseeable future, were selected and are in place at the former FTP site and TVR/Old MATES facilities in accordance with their respective Decision Documents (Fort Lewis Environmental Restoration Program [ERP] 2007a and 2007b). Semiannual groundwater monitoring for site-related contaminants will continue until contaminant concentrations fall below Model Toxics Control Act (MTCA) Method A/Standard Method B groundwater cleanup levels (JBLM 2017).

Site-related contaminants are petroleum hydrocarbons, volatile organic compounds (VOCs), and semivolatile organic compounds (SVOCs) at the former FTP site and VOCs at TVR/Old MATES. Well construction details are included in Table 1. MTCA groundwater cleanup levels for selected contaminants of concern (COCs) are included in Tables 2 through 5.

The objectives of the groundwater monitoring program at FTP and TVR/Old MATES are to:

- Evaluate the groundwater concentrations of COCs at select monitoring wells.
- Determine whether COCs in groundwater are increasing, decreasing, or otherwise show evidence of offsite migration.

Based on these objectives, this report intends to evaluate whether the existing groundwater monitoring program is adequate to characterize the extent of groundwater contamination or if

changes to the monitoring network and/or monitoring frequency are required to meet regulatory objectives.

1.1 YTC BACKGROUND

YTC is an active United States (U.S.) Army sub-installation of JBLM located approximately 5 miles northeast of the City of Yakima (Figure 1). YTC has been used for training military artillery, infantry, and engineering units since 1941. Expansion of YTC occurred in the early 1950s with the acquisition of additional land and permanent construction of the Cantonment Area in the southwest portion of YTC. An expansion of YTC to the north occurred in the early 1990s. Currently, YTC has an area of 327,231 acres.

1.2 SITE DESCRIPTIONS

1.2.1 Former Fire Training Pit

The former FTP is located in the northeast portion of the Cantonment Area (Figure 2). The former FTP was used to practice extinguishing fires two to three times a year from an unknown start date until 1987 with a single training event in 1990 (Shapiro & Associates 1991). Practice events consisted of saturating an open, unlined earthen pit with water, adding and igniting 500 to 1,000 gallons of waste JP-4 aviation fuel, diesel fuel, or motor gasoline and then extinguishing the fire (Shapiro & Associates 1991).

Although reports of the releases differ slightly (Ecology & Environment [E&E] 1993, Science Applications International Corporation [SAIC] 1995), petroleum products were released to site soils as a result of past fire training practices. During the 1990s, the site was used for storing stockpiles of waste sand filter material and sediments from the adjacent vehicle wash rack treatment system (E&E 1993) as well as storing fuel bladders (Shannon & Wilson 2001). Currently the site is vacant and is not being used by YTC. The current groundwater monitoring network at the former FTP includes wells FTP-1, FTP-13, FTP-14, FTP-15, and FTP-16. All wells, excluding FTP-13, are located downgradient of the contamination source. Well construction details for the monitoring wells are presented in Table 1.

1.2.2 TVR/Old MATES

TVR/Old MATES is located in the west central portion of the Cantonment Area (Figure 2). Trichloroethylene (TCE) was detected during a 1993 Site Investigation (SI) conducted by E&E in two monitoring wells installed near the TVR facility, two monitoring wells installed near the Old MATES, and the Marie well (a domestic drinking water well decommissioned in the late 1990s).

The current monitoring well network at TVR/Old MATES includes wells MTS-1, MTS-2, TVR-1, TVR-2, TVR-3, TVR-4, TVR-5, TVR-6, TVR-7, 815-2, and MMP-1, as well as the two currently active water supply wells (Pomona production well and the Pomona Artesian Irrigation Company [PAIC] production well). Monitoring wells MTS-1, MTS-2, MTS-4, TVR-1 through TVR-7, MMP-1, the Pomona production well, and the PAIC production well are located downgradient of the contaminant source. TCE and other VOCs have not been detected in the

either of the currently active water supply wells. Well construction details for the monitoring wells are presented in Table 1.

Vehicle maintenance has been conducted and de-greasing solvents have used been since approximately 1968 at Building 845, and since 1975 at Building 951 (Shapiro & Associates 1991). Four 250-gallon underground storage tanks (USTs) for waste oil were in use at Building 845 from 1975 until 1991 (Shapiro & Associates 1991, Pegasus Environmental Management Services [Pegasus] 1993, SAIC 1995). A fifth waste oil UST (650 gallons) was used at Building 845 from 1980 until 1991 (Shapiro & Associates 1991, Pegasus 1993, SAIC 1995). One 2,000-gallon waste oil UST removed from Building 951 in 1995 was thought to be in operation since 1968 (Shapiro & Associates 1991, SAIC 1995). All six of these former waste oil USTs have been removed. Three of the five waste oil tanks at Building 845 and the 2,000-gallon waste oil UST at Building 951 were "clean closed" with soil concentrations below cleanup levels promulgated under the MTCA (CEcon Corporation 1994, SAIC 1995). However, as discussed in the investigation chronology section (Section 1.4), soil contamination from waste oil USTs 845-3 and 845-4 remained under adjacent structures following tank removal activities. A downgradient monitoring well (TVR-2) is located as close to the UST 845-3/4 excavation as possible. It should also be noted that a former floor drain from Building 845 discharged immediately adjacent to the current location of monitoring well TVR-1 (Cory 2004).

1.3 SITE GEOLOGY AND HYDROGEOLOGY

Structurally and physiographically, YTC is located within the Yakima Fold Belt, which is characterized by northwest/southeast-trending anticlines and synclines. Most of the YTC Cantonment area is located within the synclinal valley between the anticlinal Yakima and Umtanum Ridges.

Lithologically, YTC is underlain by a thick sequence of basalt flows known as the Columbia River Basalt Group. From youngest to oldest, the four formations that comprise the Columbia River Basalt Group are the Saddle Mountain Basalt, Wanapum Basalt, Grande Ronde Basalt, and Imnaha Basalt (Schuster et al. 1997). Portions of the YTC Cantonment area have sedimentary rocks/deposits of the Ellensburg Formation and/or quaternary deposits on top of the basalt flows (Schuster et al. 1997).

The uppermost sediments underlying the former FTP site consist of localized fill materials and up to 12 feet of alluvium comprised primarily of unconsolidated silty sand and unconsolidated soils of the Ellensburg Formation (Shannon & Wilson 2001). The uppermost bedrock unit at the former FTP site is the Pomona Flow of the Saddle Mountain Basalt Formation (E&E 1993, Schuster et al. 1997, Shannon & Wilson 2001). In general, this unit is present at a depth of approximately 5 to 10 feet below ground surface (bgs) at the site (E&E 1993, Shannon & Wilson 2001). Basalt apparently extends to an approximate depth of 150 feet bgs without significant interbeds (E&E 1993, Shannon & Wilson 2001).

The former FTP site has perched groundwater located in fractured basalt near the top of the Pomona Basalt flow (E&E 1993, Shannon & Wilson 2001). Depth-to-water at the site is approximately 10 to 25 feet bgs (Shannon & Wilson 2001). The direction of perched

groundwater flow is towards the southwest and generally mirrors the surface topography. The next deepest groundwater-bearing unit is at approximately 150 feet below the site (Shannon & Wilson 2001).

The uppermost sediments underlying TVR/Old MATES consist of localized fill, alluvium comprised primarily of unconsolidated silty sand, and unconsolidated soils of the Ellensburg Formation (Shannon & Wilson 2001). Together, the alluvium and Ellensburg sediments are up to 50 feet thick at the Old MATES facility. The uppermost bedrock unit beneath the sediments in the TVR/Old MATES area is the Pomona Flow of the Saddle Mountain Basalt Formation (E&E 1993, Shannon & Wilson 2001). In general, this unit was encountered at depths between 10 and 45 feet bgs in the six monitoring wells at TVR, MTS (Old MATES wells), and MMP (E&E 1993). Saddle Mountain Basalt extends beneath the site without significant interbeds to a depth of greater than 100 feet bgs (E&E 1993). The direction of groundwater flow is to the west towards the Yakima River (E&E 1993).

1.4 INVESTIGATION CHRONOLOGY

1.4.1 Facility-wide Investigations

A facility-wide preliminary assessment of YTC was completed in the early 1990s by Shapiro & Associates, Inc. The preliminary assessment documented the aforementioned site uses, identified potential receptors, and concluded that sites such as the two sites covered by this report could potentially be releasing hazardous substances to groundwater as a result of historical activities.

A Site Screening Inspection and Hazard Ranking System (HRS) Score for YTC were completed in January 1993 by Resource Applications, Inc. (1993a, 1993b). An HRS score was calculated; however, it was not high enough for YTC to be considered for inclusion on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) National Priorities List (NPL).

Yakima Health District collected groundwater samples from 12 private domestic wells located downgradient of YTC and analyzed those samples for VOCs in 1995 (Yakima Health District 1995). The PAIC Well (located on YTC across the street from YTC's Pomona Well) was one of the 12 wells sampled. No contaminants were detected in the wells, with the exception of styrene in a single well at a concentration equal to the detection limit of 0.1 micrograms per liter (µg/L).

The final Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) Report was completed in September 1995 by SAIC. The RFA for the entire installation was a result of a RCRA Part B Permit Application for the Range 14 open burning/open detonation area. The 1995 RFA indicated a high potential for releases to soil and possibly groundwater at the former FTP. As a result, there was a recommendation to remediate contaminated soil and the petroleum product in well FTP-1. Although the 1995 RFA did not explicitly address TCE in groundwater in the TVR/Old MATES area, the RFA recommended a corrective action for soil contamination that remained under a building adjacent to waste oil USTs 845-3 (Solid Waste Management Unit [SWMU] 43) and 845-4 (SWMU 44). RCRA corrective actions that were recommended or

implied by the RFA need to satisfy MTCA regulations in accordance with WAC 173-303-646(3).

In October 2012, YTC had its first 5-year periodic review regarding six sites currently managed by the JBLM Installation Restoration Program. The review focused on sites where environmental remedies are currently in place; however, the constituents of concern were still above their respective cleanup levels (U.S. Army Corps of Engineers 2012). Both the former FTP and the TVR/Old MATES sites were part of this periodic review. No significant concerns regarding the monitoring network were noted for the former FTP site and no recommendations were made. One concern was noted regarding the TVR/Old MATES monitoring network. TCE concentrations had been increasing over time in samples collected from monitoring well TVR-6, located on the western end of the monitoring network. It was suggested that if TCE concentrations continued to increase in TVR-6, it may warrant installing additional downgradient monitoring wells.

The Groundwater Monitoring Plan for the former FTP and TVR/Old MATES sites was most recently updated in 2017 (TtEC 2017).

1.4.2 Fire Training Pit

1.4.2.1 Investigations

The former FTP was one of the YTC facilities/sites investigated and summarized in the E&E SI Report (September 1993). Monitoring well FTP-1 was installed and four grab surface or near-surface soil samples and two composite surface soil samples were collected during the E&E SI. Significant groundwater was not encountered during the drilling of the FTP-1 borehole to a depth of approximately 140 feet. However, when it came time to decommission the FTP-1 borehole, several gallons of petroleum product were discovered on top of a column of water. As a result, FTP-1 was completed to a depth of approximately 20 feet in the perched groundwater, located at the fractured top of the uppermost basalt flow.

A RCRA facility investigation to further delineate the nature and extent of contamination at the former FTP site was completed in November 2001 by Shannon & Wilson. Monitoring wells FTP-13 through FTP-16 were installed in 1999 in the perched groundwater located at the fractured top of the uppermost basalt flow. Groundwater monitoring events were conducted in July 1999, November 2000, and May 2001. Nine other soil borings were also advanced during the investigation.

1.4.2.2 Soil Removal

An interim remedial action was completed in 2003 to remove soil contamination caused by the former FTP site that exceeded MTCA Method A/Standard Method B cleanup levels. Soil was excavated during three separate mobilizations: July 2003, September 2003, and October 2003. The total excavation area was approximately 5,000 square feet and extended downward until the underlying basalt was encountered. Soil (1,351 tons) was disposed off-site in November 2003. Contaminant concentrations in confirmation soil samples were below MTCA Method A/Standard Method B cleanup levels except for gasoline and diesel range total petroleum

hydrocarbons (TPH-G and TPH-D, respectively) in two samples collected from the soil/basalt interface. The excavation was backfilled with clean soil. The cleanup action was documented in a January 2004 report (Bay West 2004).

The terrestrial ecological pathway was closed as described in the April 2006 terrestrial ecological evaluation by Pacific Northwest National Laboratory (2006).

1.4.2.3 Groundwater Monitoring

The Fort Lewis ERP conducted groundwater monitoring events in January 2004, March and August 2005, March and August 2006, March and September 2007, and March and September 2008. Between March 2005 and March 2007, 4-inch diameter "socks" containing Oxygen Release Compound (ORC) were installed in the monitoring wells by Fort Lewis ERP in well FTP-1 between 11 to 18 feet bgs. During the deployment of ORC at FTP-1, depth-to-water ranged from 11.54 feet bgs in August 2006 to 15.59 feet bgs in March 2007.

Groundwater monitoring has been conducted semi-annually since 2005. One sampling event, considered the "wet season," or spring event, is typically conducted in February or March of each year. The other sampling event, considered the "dry season," or fall event, is typically conducted in August or September of each year. Groundwater samples are collected for analysis of hydrocarbons and depth-to-water is measured during each event.

1.4.3 TVR/Old MATES

1.4.3.1 UST Removal

In October 1991, Pegasus evacuated, excavated, removed, cleaned, and disposed of five waste oil USTs at Building 845 (TVR). Pegasus noted visible surface contamination associated with three of the UST excavations. Soil samples from all excavations were analyzed for TPH, benzene, toluene, ethylbenzene, xylenes, Toxicity Characteristic Leaching Procedure (TCLP) VOCs, and TCLP metals. TPH concentrations exceeding 10,000 milligrams per kilogram were detected in samples collected from all five UST excavations. TCLP TCE and TCLP tetrachloroethylene were detected at 20 milligrams per liter (mg/L) (sample from UST 845-5) and 17 mg/L (sample from UST 845-6), respectively. No TCLP VOCs were detected in samples collected from USTs 845-3 (SWMU 43) and 845-4 (SWMU 44) excavations. No additional corrective action was taken by Pegasus due to contract limitations.

1.4.3.2 Soil Removal

CEcon Corporation was contracted to excavate and remove contaminated soil left in place following the tank removal activities by Pegasus. CEcon Corporation removed on the order of 1,000 cubic yards of soil while excavating contaminated soil from the five Building 845 waste oil tank sites in October 1993. Confirmation samples collected by CEcon Corporation verified that no further action was required for USTs 845-2 (SWMU 42), 845-5 (SWMU 45), and 845-6 (SWMU 46); however, some TPH contaminated soil was left in place on the north and east sidewalls of the UST 845-3/4 (SWMUs 43/44) excavation, since existing structures (Building 845 lube rack and oil-water separator) prevented further excavation in those directions (over 400 cubic yards of soil had already been removed). Although all confirmation samples

collected by CEcon Corporation were analyzed for all potential contaminants suspected at the time, no confirmation samples were analyzed for VOCs.

1.4.3.3 Additional Investigation

TVR, Old MATES, and MMP were among the facilities investigated in the September 1993 SI by E&E. Groundwater samples were collected from the two TVR, two Old MATES, and two MMP monitoring wells as well as the Pomona, PAIC, and Marie drinking water wells. In addition, soil samples were collected from each monitoring well borehole during drilling and analyzed for VOCs, SVOCs, pesticides/polychlorinated biphenyls (PCBs), metals, and TPH. Based on the presence of TCE in groundwater at TVR and Old MATES and the absence of any contamination in corresponding soil samples, the SI Report concluded that TCE contamination in groundwater "may indicate migration from an unidentified source at the YTC facility."

1.4.3.4 Groundwater Monitoring

Fort Lewis ERP conducted a groundwater monitoring event in January 2004. Fort Lewis ERP installed monitoring wells MTS-3, MTS-4, TVR-3, and TVR-4 between October and November 2004. The ERP conducted groundwater monitoring events in March 2005 and August 2005. The ERP installed additional monitoring wells TVR-5, TVR-6, TVR-7, and 815-2 in October 2005.

Groundwater monitoring has been conducted semi-annually since 2005. Sampling events typically coincide with FTP sampling events. Beginning in August 2005, groundwater samples have been collected using disposable passive diffusion bags (PDBs). PDBs are sealed, low density polyethylene bags filled with de-ionized water. PDBs are hung so that the top of the PDBs are approximately 3 feet off of the bottom of monitoring wells using a dedicated stainless-steel cable and clip. PDBs are hung at least two weeks prior to sampling in order for VOC concentrations in groundwater and the water inside of the PDB to reach equilibrium (Interstate Technology and Regulatory Council 2004). During each sampling event, samples are analyzed for VOCs and depth-to-water is measured.

1.5 POTENTIAL GROUNDWATER RECEPTORS

The nearest potential groundwater receptors to the FTP and TVR/Old MATES sites are the Pomona and PAIC drinking water wells. The Pomona and PAIC wells are domestic water supply wells located approximately 1 mile southwest of the FTP site and approximately 250 feet southwest of well TVR-1. Over the past decade, additional residential drinking water wells have been installed west of the YTC boundary, approximately 1,500 to 3,000 feet northwest of the TVR/Old MATES TCE plume (Figure 2).

The Pomona well is an artesian well used by YTC as a primary production source for the Pomona water distribution system. The Pomona well is completed in the Wanapum and/or Grande Ronde Formation (HongWest & Associates 1996) with open borehole completion between depths of approximately 353 and 407 feet bgs (Fain 2000, Cory 2004). Sources of information provided incorrect information about the well construction details of the Pomona Well (including a typo in Table 2-1 of the current Water System Plan) (Cory 2004). A downhole

video survey conducted by YTC in 1995 is considered to be the most accurate source of construction detail information for the Pomona Well to date. In addition to indicating the open interval referenced above, the video survey also indicated that water was entering the Pomona Well at approximately 401 feet bgs (Fain 2000).

The PAIC well is an artesian well used by PAIC as the sole production well for the PAIC water system serving approximately 60 homes and businesses located west of YTC (Wilson 2004). It appears that the PAIC well was constructed in an identical fashion as the Pomona well. Both wells were installed by the PAIC in 1913 by the same driller within 100 feet of each other (Fain 2000). Well logs from pump tests conducted in 1940 indicate identical (although very generic) well construction details for the Pomona well and PAIC well (Fain 2000). The construction details on the 1940 well logs were 10-inch diameter casings to a depth of 60 feet bgs and 6 $^{5}/_{8}$-inch diameter casings from 60 to 430 feet bgs for both wells. Since the video survey of the Pomona well showed the 1940 well log and other sources of post-drilling anecdotal information to be incorrect with respect to the actual well construction details of the well, it is reasonable to assume that the video survey is also a more accurate representation of well construction details for the PAIC well than the 1940 well log.

The bases for assuming nearly identical well construction details for the two wells are 1) both wells are artesian, 2) both wells have similar production capacities, 3) both wells were installed at the same time and location by the same well driller for the same water system, and 4) both wells have identical 1940 well logs.

Given the distance of both wells from the FTP site and the hydraulic separation between the perched groundwater and the aquifer(s) where the water supply wells are completed, it is unlikely that these potential receptors are being impacted by the FTP site. It is also unlikely that either water supply well would be impacted by TCE contamination in the TVR/Old MATES area given the relatively low TCE concentrations detected in samples collected from monitoring wells and the hydraulic separation between the Selah Interbed and the aquifer(s) in which the water supply wells are completed. Existing water quality data from both the Pomona and PAIC wells support this conclusion.

2. FIELD ACTIVITIES

This section presents field activities conducted in spring and fall 2018. Copies of completed field forms for 2018 sampling events are included in Appendix A.

2.1 GROUNDWATER MEASUREMENT, SAMPLING, AND ANALYSIS

2.1.1 Groundwater Flow

Static water level measurements were measured using an electronic water level indicator (water level meter or interface probe) at each well location. Water level measurements were recorded to the nearest 0.01 feet from the top of the well casing at each well location and recorded in the field logbook. The electronic instrument was decontaminated before use, between wells, and at the end of the day.

An interface probe was used to determine the presence and thickness of LNAPL, if any, prior to measurement of groundwater levels. There were no measurable amounts of LNAPL noted during either sampling event.

2.1.2 Groundwater Sampling Tasks

Groundwater sampling was conducted during the first quarter (spring/wet season) and third quarter (fall/dry season). Sample containers were provided by the analytical laboratory (ALS Environmental of Kelso, Washington) prior to sampling. Groundwater samples were transported to ALS Environmental under proper chain-of-custody. Copies of the analytical reports are included in Appendix A.

2.1.2.1 Former Fire Training Pit Site

Each monitoring well at the FTP site was bailed using a disposable Teflon bailer until three well volumes were removed or the monitoring well was bailed dry, whichever occurred first. Water quality parameters were not monitored or recorded during bailing operations. Pertinent sampling information was recorded on purge forms including unusual conditions (colors, odors, surface sheens, etc.) observed during well purging or sampling. Sampling information was also recorded in the field logbook.

Groundwater samples were collected using a disposable Teflon bailer once three well volumes were removed or the well recharged to at least 80 percent of the initial depth of water if bailed dry. Groundwater samples from wells FTP-14, FTP-15, and FTP-16 were analyzed for TPH-G, TPH-D, and total petroleum hydrocarbons – heavy oil range (TPH-O). Groundwater samples from well FTP-1 were analyzed for VOCs, SVOCs, TPH-G, TPH-D, and TPH-O. Samples aliquots for the analysis of volatile analytes (VOCs and TPH-G) were collected before the others.

2.1.2.2 Tracked Vehicle Repair/Old Mobilization and Training Equipment Site

Monitoring wells at the TVR/Old MATES were sampled using disposable PDBs. Groundwater samples from the Pomona Well and the PAIC Well were collected from taps on each well while the pumps were running. Samples were collected for VOC analysis. Water quality parameters were not collected during sampling.

PDBs were deployed into wells a minimum of two weeks prior to sampling to achieve aquifer equilibrium. A dedicated harness was used to position PDB samplers at approximately two to five feet above the bottom of each well screen. Following the two-week (minimum) equilibration period, the PDBs were extracted and samples were collected for VOC analysis. PDB installation dates and sampling information were recorded in the field logbook (Appendix A).

2.1.3 Equipment Decontamination Tasks

Non-disposable equipment that directly or indirectly contacted samples, such as electronic water level indicators and/or interface probes, was decontaminated between well/sampling locations.

2.1.4 Investigation-Derived Waste

Investigation-derived waste generated during sampling activities was limited to purge water at the former FTP site, decontamination fluids, used PDBs and personal protective equipment (e.g., nitrile gloves). Purge water and decontamination water was containerized and discharged to the oil water separator at the main vehicle washrack catch basin. Investigation-derived waste discharge was coordinated with YTC Wastewater Treatment Plant Operator prior to disposal. personal protective equipment, used PDBs, and other garbage were disposed of in a designated collection bin as part of the normal solid waste stream.

2.1.5 Field Quality Control Tasks

QC tasks were overseen by EA's Field Team Leader and/or QC Manager. Field QC samples are intended to provide an indication of the consistency of samples collection and analyses over the course of the program. Field and laboratory QC samples included field duplicates, matrix spike/matrix spike duplicates, and trip blanks.

One field duplicate sample was collected annually at the FTP site. One field duplicate sample was collected per sampling event at TVR/Old MATES. Matrix spike/matrix spike duplicate samples were collected at each site at a rate of 5 percent of project samples (1 set per 20 field samples). One laboratory-supplied trip blank accompanied each cooler containing samples sent to the laboratory for VOC analysis.

2.2 DEVIATIONS FROM THE SAMPLE AND ANALYSIS PLAN

The groundwater monitoring event was completed in general accordance with the 2017 Groundwater Monitoring Plan (TtEC 2017). No deviations from the plan were noted.

3. RESULTS AND DISCUSSION

This section presents groundwater elevation measurements and the analytical results from the 2018 sampling events, as well as the results of statistical analysis performed on data from the former FTP site and TVR/Old MATES. Monitoring well construction details for wells from both sites are shown in Table 1. Copies of field notes, groundwater sampling logs, and laboratory analytical reports for both 2018 sampling events are included in Appendix A.

Histograms, linear regressions, and Mann-Kendall Correlation scatter plots for TPH data from monitoring well FTP-1 and the TCE results from TVR/Old MATES are presented in Appendix B. In addition, graphs of historical TCE results for wells with fewer than half of all samples being non-detects for the TVR/Old MATES site are also included in Appendix B.

3.1 DATA QUALITY REVIEW AND VERIFICATION

A data quality review was completed on the laboratory data from the spring and Fall 2018 sampling events. The data quality review documentation is included in Appendix A. The data was reviewed by a party independent from the laboratory for adherence to the project quality control requirements and for usability. The review found that the data quality objectives for both the FTP and TVR/Old MATES sites during the spring and fall events were met. The data are considered acceptable for use and for comparison with other site data.

3.2 FORMER FTP SITE

3.2.1 Groundwater Elevations and Sampling Results

Figure 3 presents inferred groundwater elevation contours for the former FTP site based on depth-to-water elevations measured during the March (spring) and September (fall) 2018 monitoring events. No measurable amounts of LNAPL or DNAPL were observed in well FTP-1 during either event; however, a petroleum odor was noted in well FTP-1 during both events. Tables 2 and 3 present depth-to-water measurements and summaries of contaminant concentrations relative to MTCA Method A and Standard Method B cleanup levels. Figures 4 and 5 present the TPH concentrations for the spring and fall sampling events, respectively. Groundwater samples from FTP-1 have the highest concentrations at the site; groundwater sample concentrations of TPH-G, TPH-D, and TPH-O are above cleanup levels. Historical TPH-G, TPH-D, and TPH-O concentrations in groundwater samples from well FTP-1 are presented on Figure 6. In 2018, TPH-G was detected at 1,100 µg/L (spring) and at 1,260 µg/L (fall) in samples collected from well FTP-1 (Table 2). The concentrations detected during the spring and fall sampling events exceed the 800 µg/L MTCA Method A cleanup level for TPH-G. Since 2011, the concentration of TPH-G in groundwater reported in spring has consistently been higher than the concentration reported in the fall of the same year, with the exception of 2016 and 2018 (Table 2). TPH-G concentrations in groundwater samples collected from well FTP-14 were detected at 19 µg/L (spring) and 32.7 µg/L (fall). In samples collected from well FTP-15, TPH-G was not detected in the spring and was detected at 16.7 µg/L in the fall. In samples

collected from well FTP-16, TPH-G was not detected in the spring and was detected at 12.9 µg/L in the fall.

3.2.1.1 TPH-D

TPH-D was detected at 9,700 µg/L (spring) and 9,200µg/L (fall) in samples collected from FTP-1. These concentrations exceed the 500 µg/L MTCA Method A cleanup level for TPH-D. TPH-D was detected below the MTCA Method A cleanup level in samples collected from FTP-14 (230 µg/L in spring and 200 µg/L in fall), FTP-15 (190 µg/L in spring and 170 µg/L in fall), and FTP-16 (170 µg/L in spring and 180 µg/L in fall).

3.2.1.2 TPH-O

TPH-O was detected at 1,900 µg/L (spring) and 1,500 µg/L (fall) in samples collected from FTP-1. These concentrations exceed the 500 µg/L MTCA Method A cleanup level for TPH-O. TPH-O was detected below the MTCA Method A cleanup level in samples collected from FTP-14 (160 µg/L in fall and 160 µg/L in spring), FTP-15 (180 µg/L in spring and 190 µg/L in fall), and FTP-16 (200 µg/L in spring and 210 µg/L in fall). Analytical data are presented on Table 2.

3.2.1.3 Other Chemicals of Concern

Other chemicals of concern detected in groundwater samples from well FTP-1 include benzene at 3.0 µg/L (spring) and 2.8 µg/L (fall) and total naphthalenes (sum of naphthalene and 2-methyl naphthalene) at 82.3 µg/L (spring) and 242 µg/L (fall). The benzene concentrations did not exceed the MTCA Method A cleanup level of 5 µg/L during the spring or fall sampling events. Total naphthalenes exceeded the MTCA Method A cleanup level of 160 µg/L in the fall. Total polycyclic aromatic hydrocarbons (PAHs) were detected at 79.34 µg/L (spring) and 172.68 µg/L (fall) in samples collected from FTP-1. There is no cleanup level defined for total PAHs. While various PAHs were detected in spring and fall samples, no carcinogenic PAHs (cPAHs) were detected. In accordance with the Groundwater Monitoring Plan, cPAHs are evaluated by converting to the total toxic equivalent concentration (TTEC) of benzo(a)pyrene. Since cPAHs were not detected, the corresponding TTEC (as outlined by WAC Chapter 173-340-708(8)(e)) could not be calculated and did not exceed the MTCA Method A cleanup level of 0.1 µg/L.

3.2.2 Statistical Results

TPH data from FTP-1 were statistically analyzed as described in Appendix B. Statistical analysis was only performed on data from FTP-1 as it is the only well with TPH-G, TPH-D, and TPH-O concentrations above the MTCA cleanup levels of 800 µg/L, 500 µg/L, and 500 µg/L, respectively. Histograms, linear regressions, and a Mann–Kendall Correlation scatter plot, are included in Appendix B. Results from the statistical analyses of the data are compiled in Table 6 and summarized below:

- A statistically significant downward trend for TPH-G concentrations in samples collected from FTP-1.

- A non-statistically significant upward trend in TPH-D concentrations in samples collected from FTP-1.

- A statistically significant upward trend in TPH-O concentrations in samples collected from FTP-1.

3.3 TVR/OLD MATES SITE

3.3.1 Groundwater Elevations and Sampling Results

Figure 7 presents inferred groundwater elevation contours based on measured elevations from the Spring and Fall 2018 monitoring events for the TVR/Old MATES site. Figure 8 presents TCE concentrations of samples collected during the 2018 spring and fall sampling events. Table 5 presents both depth-to-water measurements and a summary of the concentrations of TCE and cis-1,2-dichloroethene (cis-DCE) for the site.

Groundwater samples from five of the monitoring wells (MTS-2, MTS-4, TVR-1, TVR-3, and TVR-7) had TCE concentrations above the 5 µg/L MTCA Method A cleanup level during one or both of the 2018 spring and fall events. TCE was not detected above the cleanup level in any other TVR/Old MATES well. TCE was detected below the cleanup level during both spring and fall events in wells 815-2, MTS-1, and TVR-2, TVR-5, and TVR-6. Overall, the TCE concentrations reported in groundwater are not significantly elevated. The highest TCE concentrations in 2018 was reported in well MTS-2 at 11.0 µg/L (fall).

Cis-DCE was not detected above its cleanup level in any well sampled during 2018 (Table 5).

TCE and cis-DCE were not detected in samples collected from the Pomona and PAIC domestic production wells during 2018 sampling events.

3.3.2 Statistical Results

TCE data from TVR/Old MATES wells were statistically analyzed as described in Appendix B. Histograms, linear regressions, and a Mann–Kendall Correlation scatter plots are included in Appendix B. Results from the statistical analyses of the data are compiled in Table 6 and summarized below:

- Statistically significant downward trends for TCE concentrations were observed in eight TVR/Old MATES wells (815-2, MTS-1, MTS-2, MTS-4, TVR-1, TVR-3, TVR-5 and TVR-7).
- A non-statistically significant downward trend for TCE was observed in TVR/Old MATES wells TVR-2 and TVR-6.

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4. CONCLUSIONS AND RECOMMENDATIONS

4.1 FORMER FTP SITE

Groundwater levels and flow direction beneath the FTP site in spring and fall 2018 were consistent with observations from previous years.

Concentrations of TPH-G, TPH-D, and TPH-O in samples from well FTP-1 continue to be detected above MTCA cleanup levels. However, concentrations of TPH-G, TPH-D, and TPH-O are not detected or are detected at relatively low levels in samples from downgradient wells. This trend has been consistent throughout the 15 years of monitoring at the FTP, suggesting that petroleum hydrocarbons in groundwater are localized near well FTP-1 and are not migrating in a significant way.

Concentrations of TPH-G, TPH-D, and TPH-O in samples from wells FTP-14, FTP-15, and FTP-16 continue to be detected below MTCA cleanup levels. With the exception of TPH-O at 540 µg/L in samples collected from FTP-15 during fall 2015, TPH concentrations in samples from FTP-14, FTP-15, and FTP-16 have been below the MTCA cleanup levels throughout the 15 years of monitoring at the FTP. It is recommended that sampling for TPH-G, TPH-D, and TPH-O be reduced or discontinued at wells FTP-14, FTP-15, and FTP-16.

4.2 TVR/OLD MATES

Groundwater levels and flow direction beneath TVR/Old MATES in spring and fall 2018 were consistent with observations from previous years.

Since TCE concentrations are trending downward in samples collected from TVR/Old MATES monitoring wells, installing additional monitoring wells is not warranted at this time. It is recommended that sampling of TVR/Old MATES wells continue according to the groundwater monitoring plan.

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FIGURES

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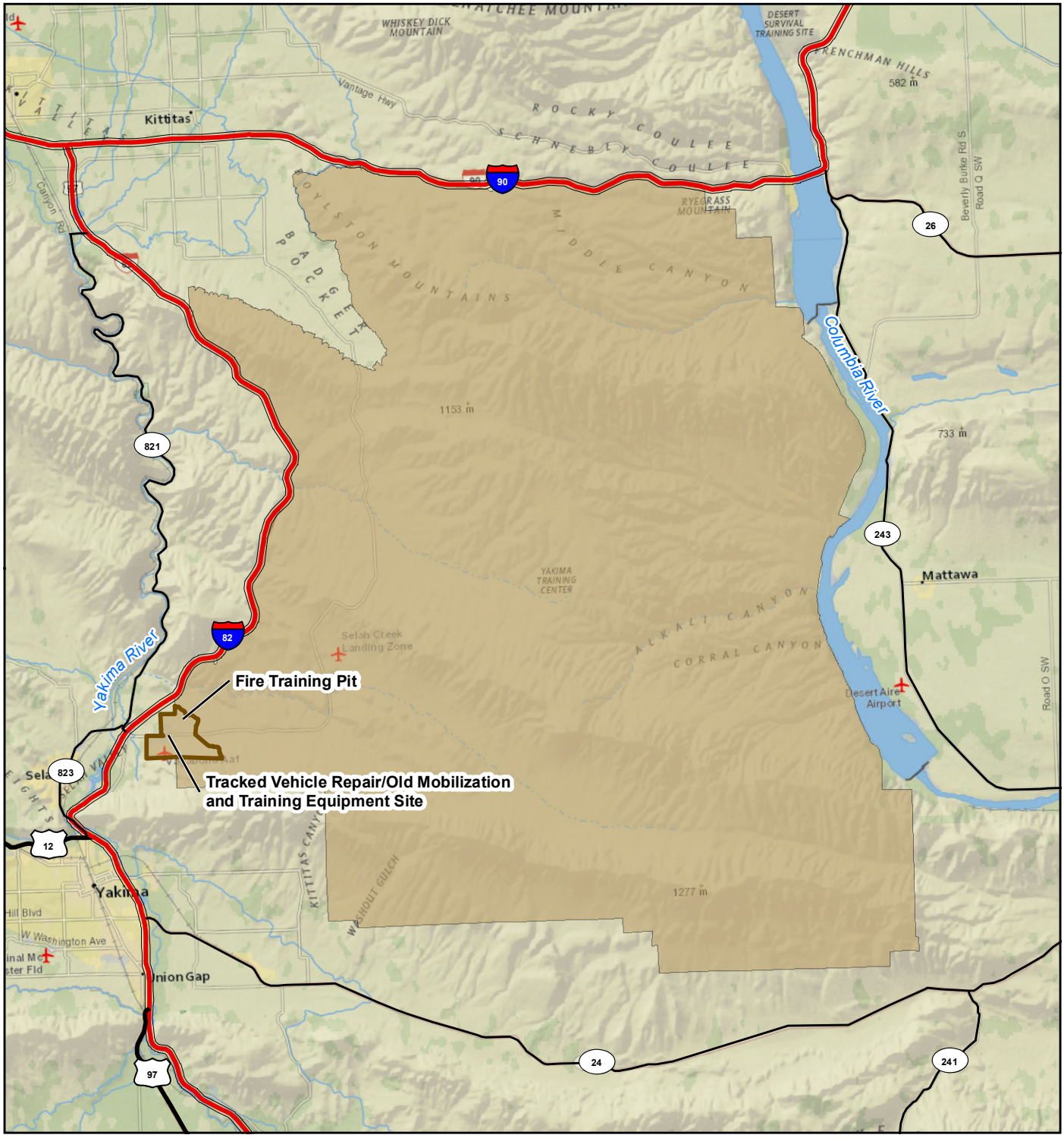

Legend

- Yakima Training Center
- Cantonment Area Boundary
- Interstate
- State Route
- US Route

FIGURE 1
YAKIMA TRAINING CENTER
LOCATION MAP

Map Date: 6/25/2018
Coordinate System: UTM Zone 10
Horizontal Datus: WGS 84

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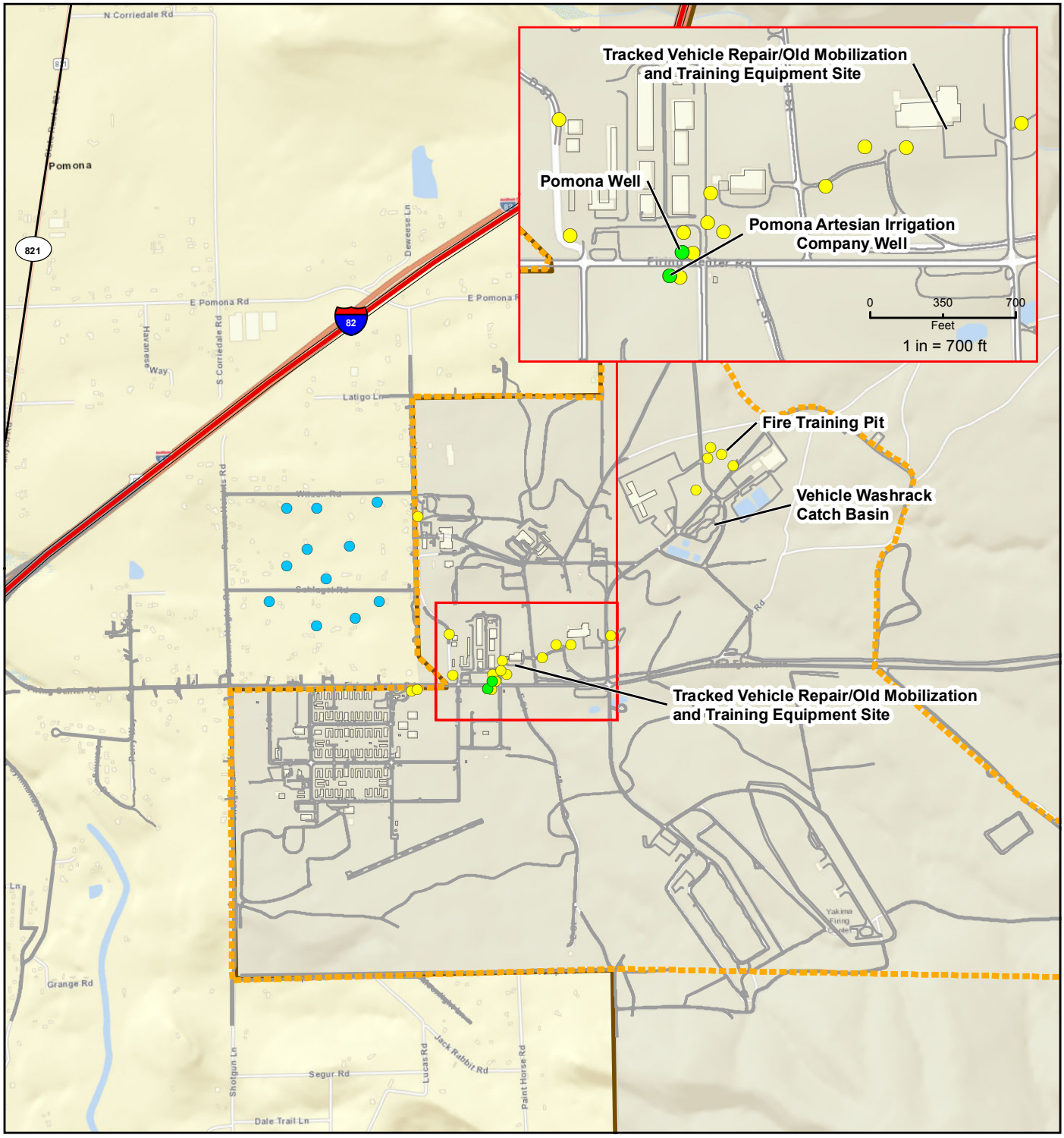

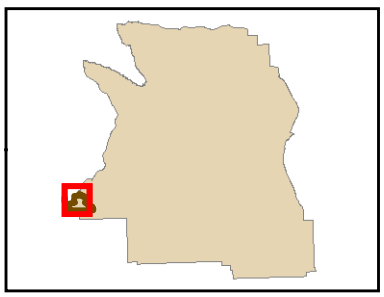

0 1,000 2,000 4,000
Feet

1 in = 2,000 ft

N

Legend

- Yakima Training Center
- Cantonment Area Boundary
- Building
- Monitoring Wells
- Residential Drinking Water Well
- Water Supply Well
- Interstate
- State Route
- US Route

FIGURE 2
SITE LOCATIONS MAP

Map Date: 8/15/2018
Coordinate System: UTM Zone 10
Horizontal Datus: WGS 84

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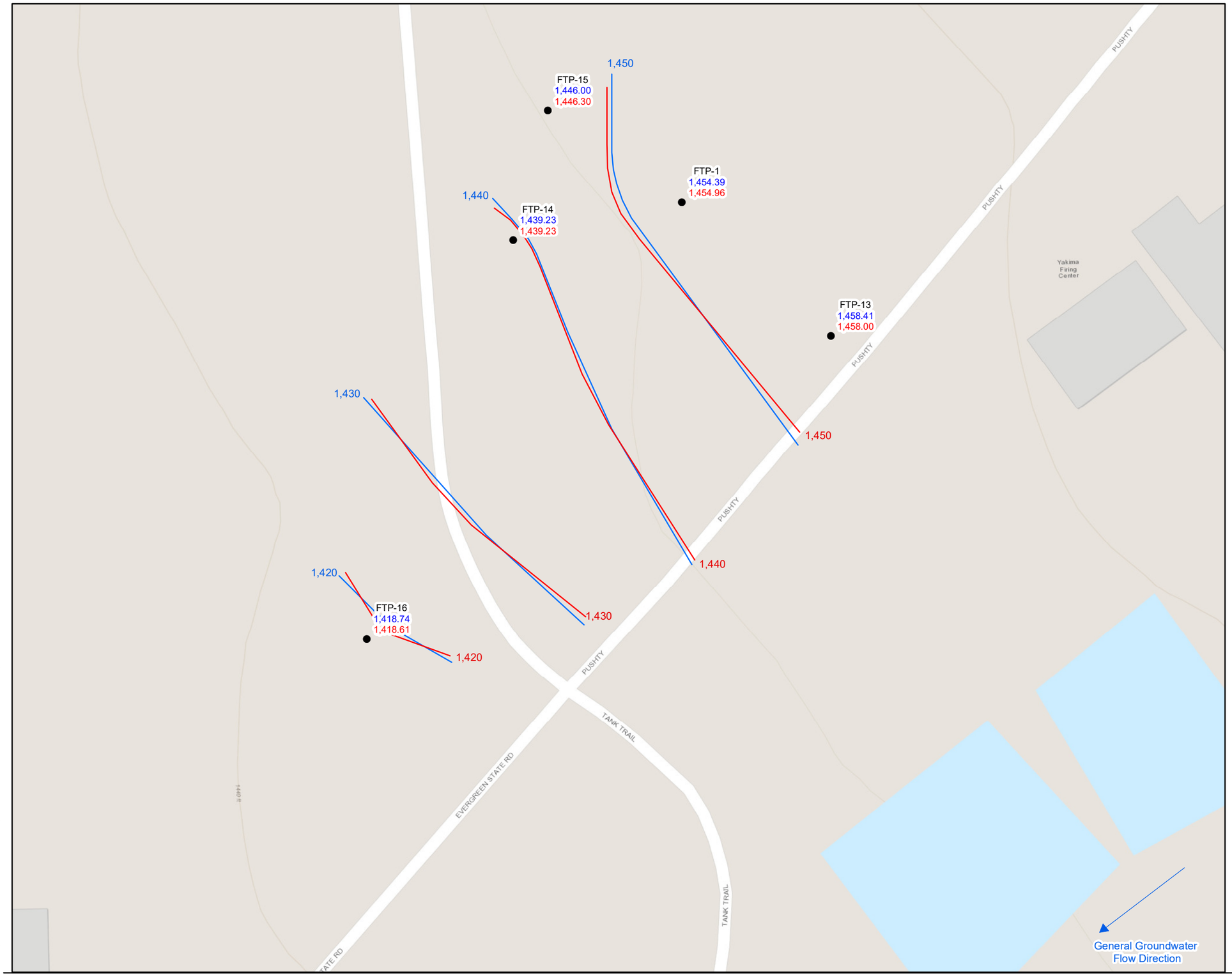

Legend

- Monitoring Well
- Spring 2018 Groundwater Contours
- Fall 2018 Groundwater Contours
- 1454.39 Spring 2018 Water Level (ft/AMSL)
- 1454.96 Fall 2018 Water Level (ft/AMSL)

N

0 87.5 175

Feet

Map Date: 2/21/2019
Coordinate System: UTM Zone 10
Horizontal Datus: WGS 84

FIGURE 3
FORMER FIRE TRAINING PIT
SPRING/FALL GROUNDWATER ELEVATION CONTOURS

2018 ANNUAL GROUNDWATER MONITORING AND REPORTING

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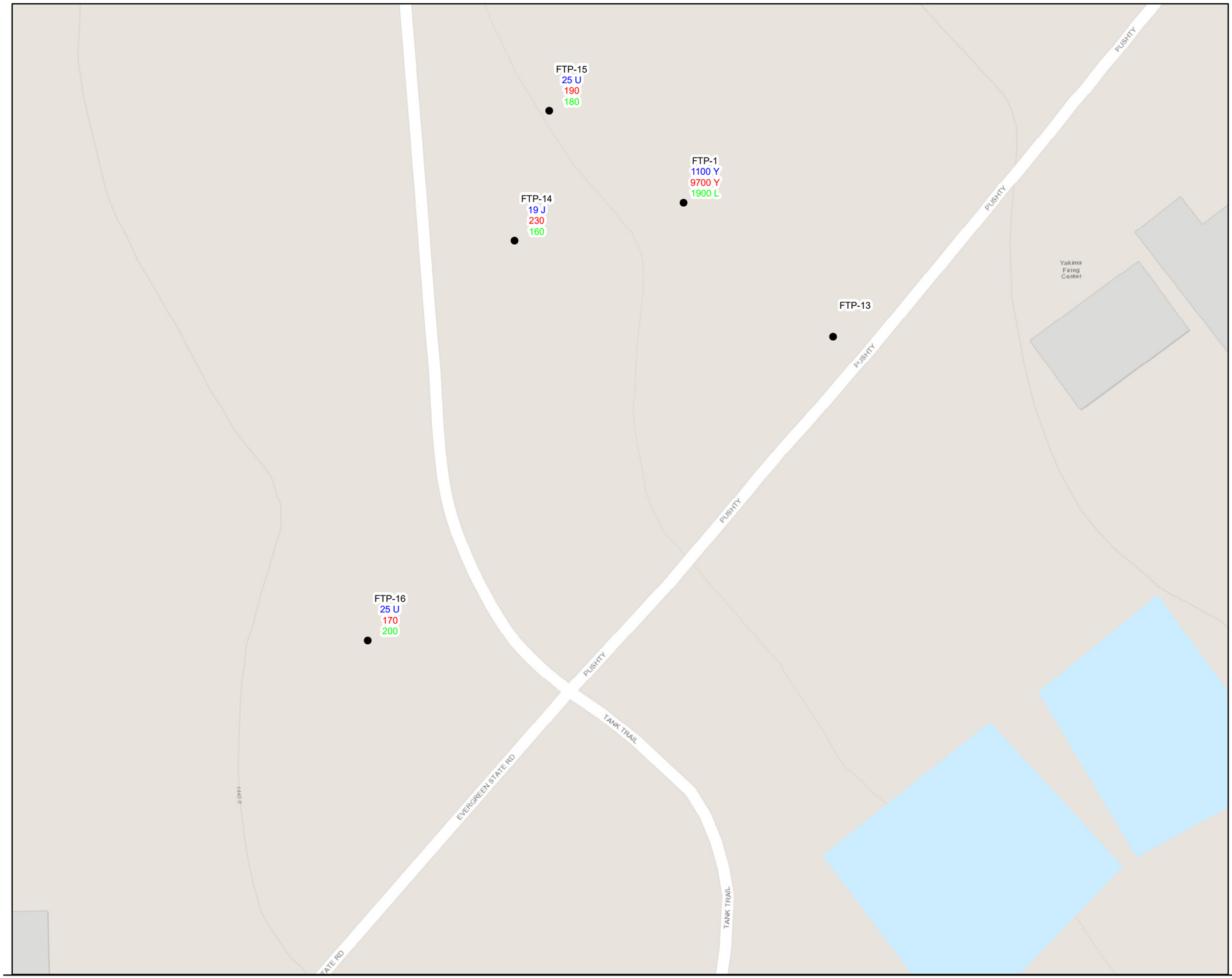

Legend

- Monitoring Well
- 250 Spring 2018 TPH-G Concentration (µg/L)
- 170 Spring 2018 TPH-D Concentration (µg/L)
- 200 Spring 2018 TPH-O Concentration (µg/L)

MTCA Method A Cleanup Levels:
TPH-G = 800 µg/L
TPH-D = 500 µg/L
TPH-O = 500 µg/L

Lab Data Qualifiers:
U - Analyte not detected above result reporting limit.
J - The result is an estimated value.
Y - The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibraiton standard.

N

0 87.5 175
Feet

Map Date: 2/21/2019
Coordinate System: UTM Zone 10
Horizontal Datus: WGS 84

FIGURE 4
FORMER FIRE TRAINING PIT
SPRING TOTAL PETROLEUM HYDROCARBON CONCENTRATIONS

2018 ANNUAL GROUNDWATER MONITORING AND REPORTING

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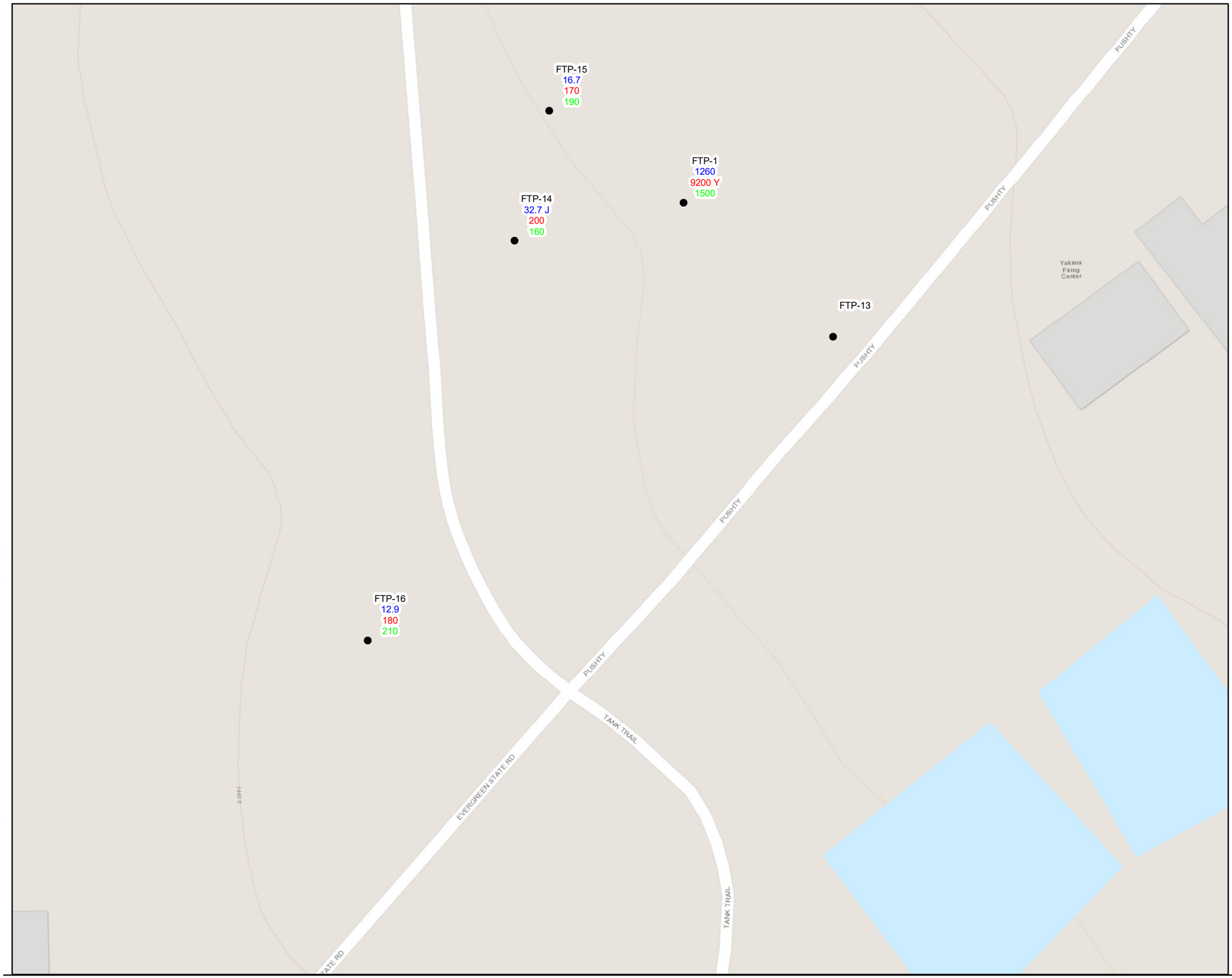

Legend

- Monitoring Well
- 250 Fall 2018 TPH-G Concentration (µg/L)
- 170 Fall 2018 TPH-D Concentration (µg/L)
- 200 Fall 2018 TPH-O Concentration (µg/L)

MTCA Method A Cleanup Levels:
TPH-G = 800 µg/L
TPH-D = 500 µg/L
TPH-O = 500 µg/L

Lab Data Qualifiers:
U - Analyte not detected above result reporting limit.
J - The result is an estimated value.
Y - The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibraiton standard.

N

0 87.5 175
Feet

Map Date: 2/21/2019
Coordinate System: UTM Zone 10
Horizontal Datus: WGS 84

FIGURE 5
FORMER FIRE TRAINING PIT
FALL TOTAL PETROLEUM HYDROCARBON CONCENTRATIONS

2018 ANNUAL GROUNDWATER MONITORING AND REPORTING

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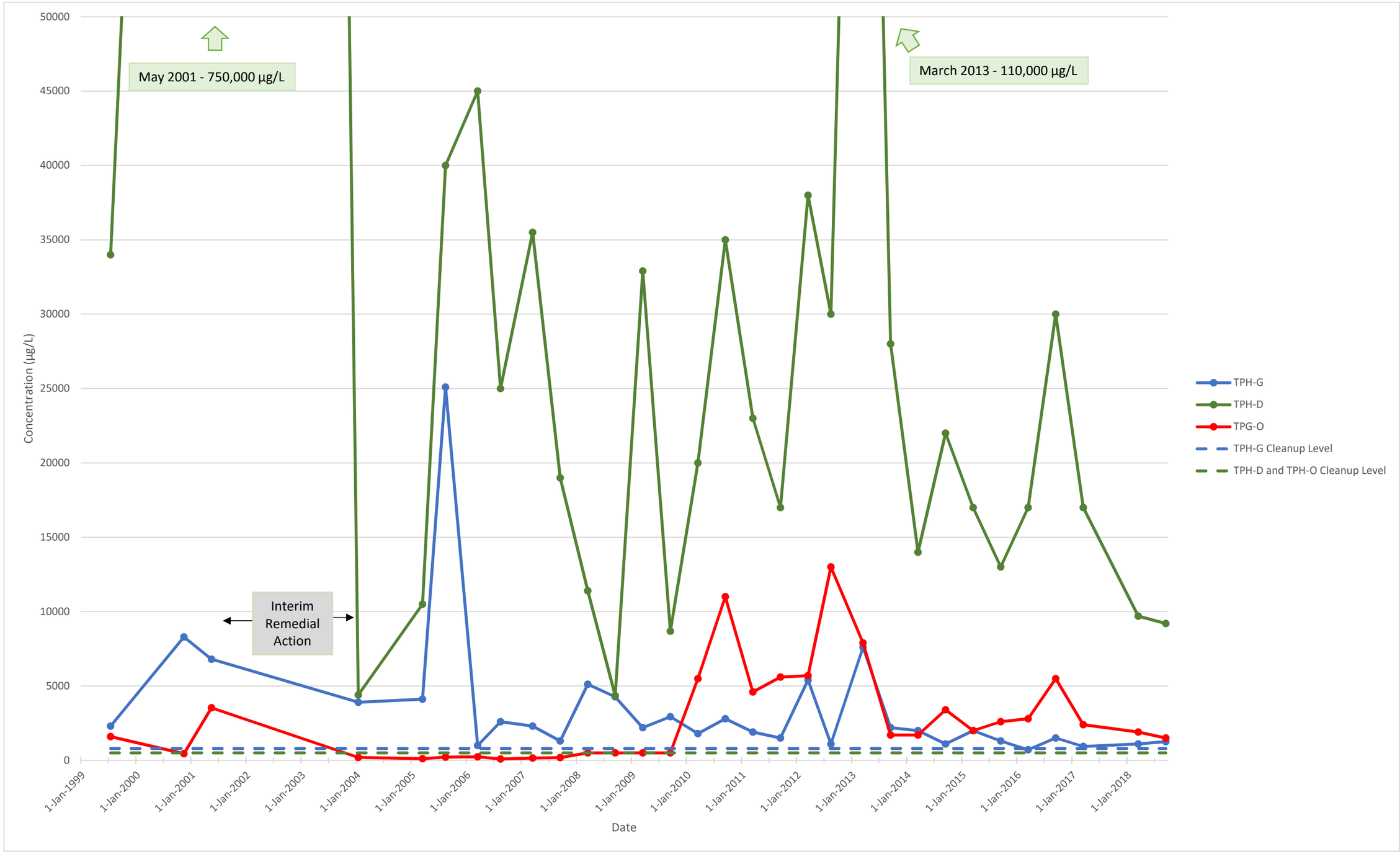
Figure 6 - Change in Total Petroleum Hydrocarbon Concentrations over Time in FTP-1

Fire Training Pit, Yakima Training Center, Washington



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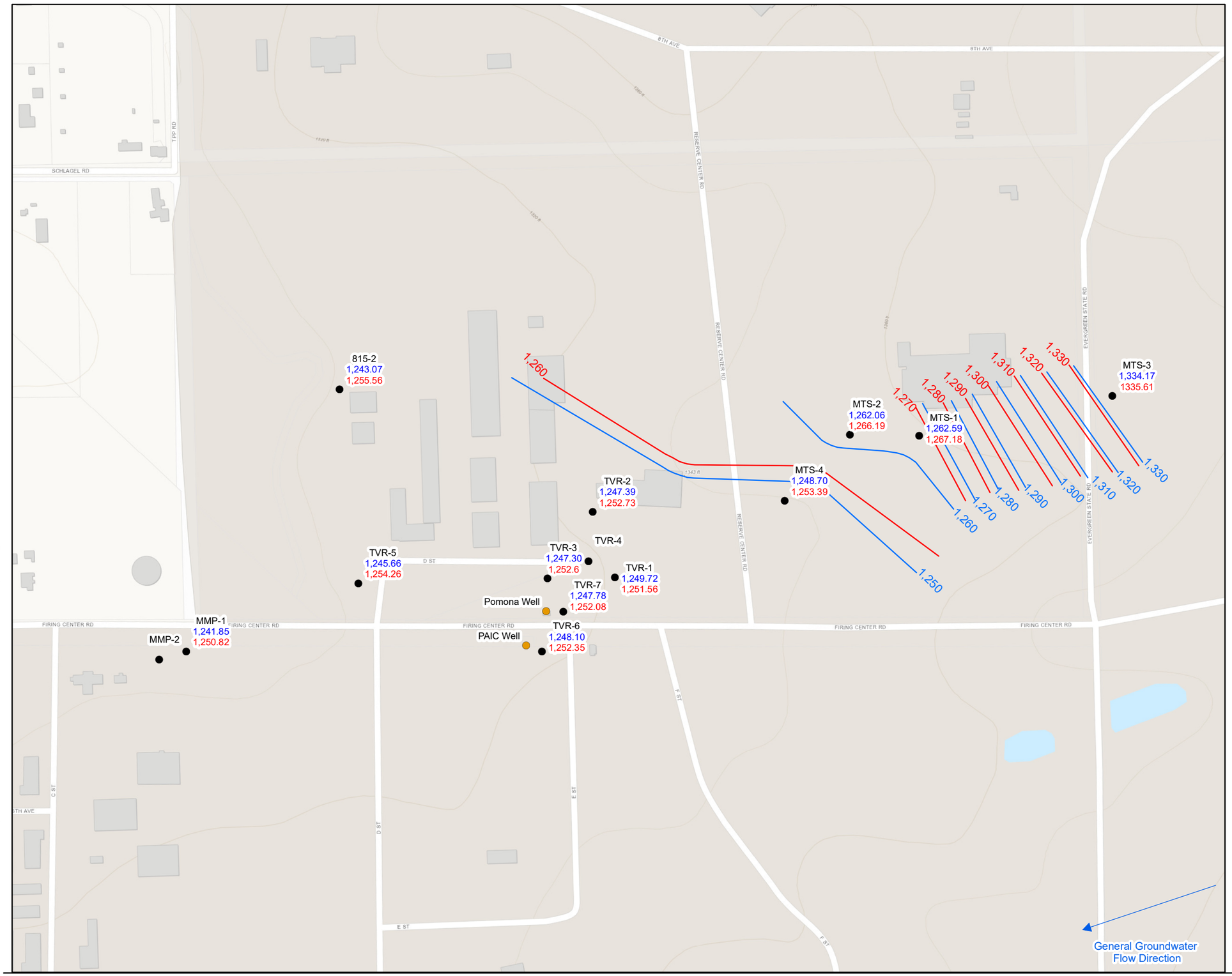

Legend

- Monitoring Well
- Production Well
- Spring 2018 Groundwater Contours
- Fall 2018 Groundwater Contours
- 1454.39 Spring 2018 Water Level (ft/AMSL)
- 1454.96 Fall 2018 Water Level (ft/AMSL)

N

0 225 450

Feet

Map Date: 5/6/2019
Coordinate System: UTM Zone 10
Horizontal Datus: WGS 84

FIGURE 7
TVR/Old MATES AREA SPRING/FALL GROUNDWATER ELEVATION CONTOURS

2018 ANNUAL GROUNDWATER MONITORING AND REPORTING

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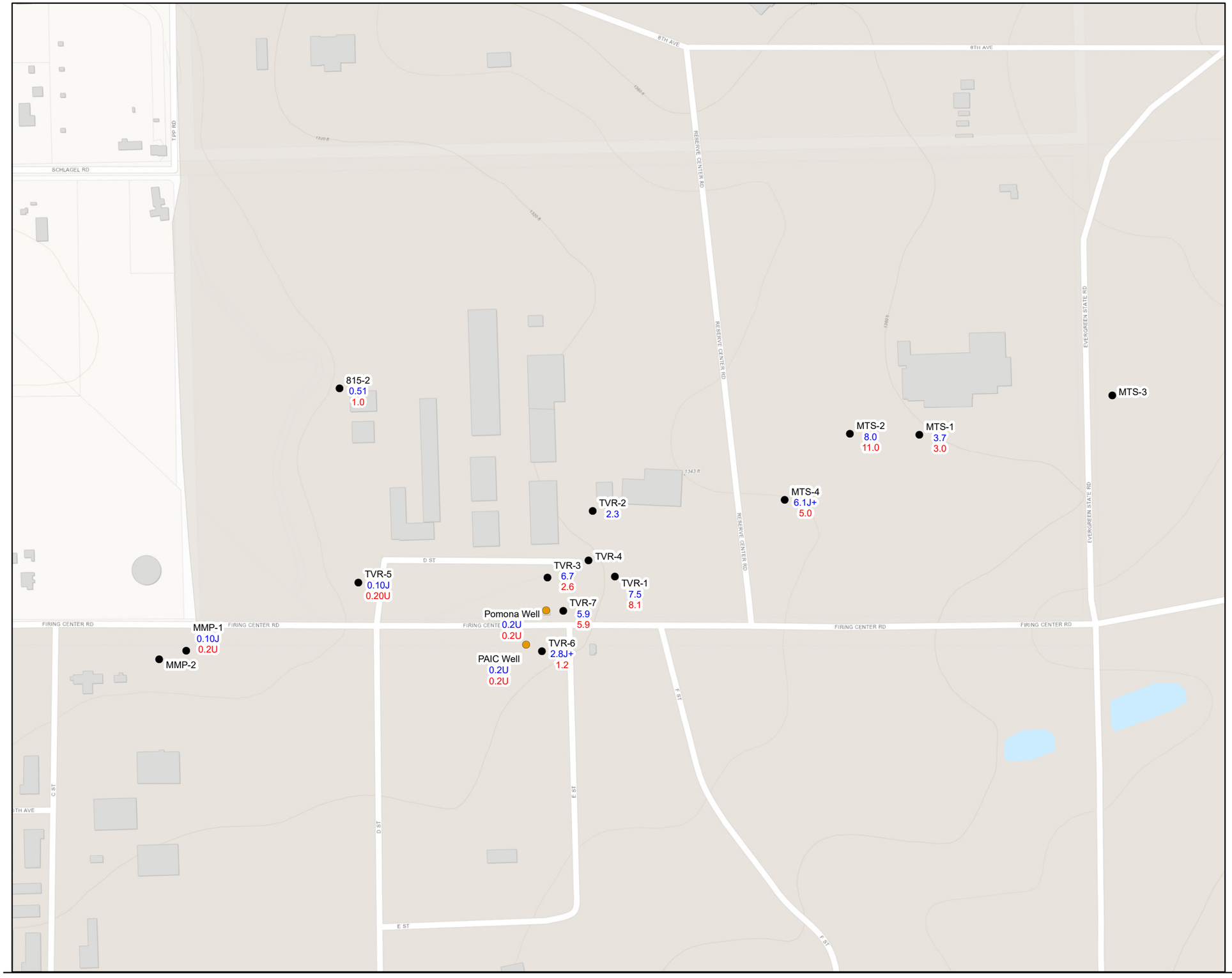

Legend

- Monitoring Well
- Production Well
- 8.0 Spring 2018 TCE Concentration (µg/L)
- 11.0 Fall 2018 TCE Concentration (µg/L)

N

0 225 450

Feet

Map Date: 2/21/2019
Coordinate System: UTM Zone 10
Horizontal Datus: WGS 84

FIGURE 8
TVR/Old MATES AREA SPRING/FALL TCE CONCENTRATION

2018 ANNUAL GROUNDWATER MONITORING AND REPORTING

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TABLES

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Table 1
Monitoring Well Construction Details
Fire Training Pit and TVR/Old MATES, Yakima Training Center, Washington

Well ID	Elevation at TOC (ft AMSL)	Ground Surface Elevation (ft AMSL)	Easting UTM (m)	Northing UTM (m)	Total Depth (ft)	Screen Interval (ft bgs)
Fire Training Pit Monitoring Wells						
FTP-1	1,467.72	1,464.59	695828.3	5173198.0	21.00	8 – 18
FTP-13	1,473.07	1,470.96	695878.5	5173153.0	25.00	10 – 20
FTP-14	1,457.48	1,455.35	695771.4	5173185.2	22.00	12 – 22
FTP-15	1,460.88	1,458.72	695783.1	5173228.9	20.00	10 – 20
FTP-16	1,444.81	1,442.68	695722.0	5173050.7	30.00	20 – 30
TVR/Old Mates Monitoring Wells						
815-2	1,304.28	1,301.86	694687.7	5172445.5	132.00	115 – 130
MMP-1	1,301.37	1,298.39	694553.4	5172215.3	100.50	88 – 98
MMP-2	1,301.31	1,298.55	694529.6	5172207.9	75.50	64 – 74
MRC-2	1,312.11	1,309.64	694558.9	5172939.9	113.50	101 – 111
MTS-1	1,361.02	1,359.05	695196.9	5172404.6	127.00	115 – 125
MTS-2	1,351.88	1,348.79	695135.9	5172405.4	113.00	101 – 111
MTS-3	1,362.36	1,362.62	695366.1	5172439.6	72.00	62 – 72
MTS-4	1,331.88	1,332.14	695078.6	5172347.7	97.00	82 – 97
TVR-1	1,320.17	1,317.32	694936.0	5172286.6	105.00	93 – 103
TVR-2	1,317.56	1,314.18	694910.0	5172337.7	95.00	83 – 93
TVR-3	1,310.60	1,310.86	694872.9	5172282.5	158.00	143 – 158
TVR-5	1,302.04	1,299.42	694704.2	5172275.0	142.00	132 – 142
TVR-6	1,310.06	1,310.30	694866.4	5172214.0	139.00	139 – 149
TVR-7	1,310.95	1,311.63	694882.5	5172255.6	140.00	140 – 150

Abbreviations and Acronyms:

ft AMSL – feet above mean sea level

ft bgs – feet below ground surface

ID – identification

m – meter

TOC – top-of-casing

UTM – Universal Transverse Mercator

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Table 2
Depth-to-Water Measurements and Chemical of Concern Concentrations
Fire Training Pit, Yakima Training Center, Washington

Well ID TOC	Date	DTW (ft bgs)	Groundwater Elevation (ft AMSL)	TPH-G (µg/L)	TPH-D (µg/L)	TPH-O (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MTCA Method A Cleanup Level				800	500	500	5	1,000	700	1,000
FTP-1	1-Mar-93	–	–	–	**2,600,000J**	**3,500**	50U	50U	**60.0**	**1,100.0**
1467.72	1-Jul-99	13.00	1454.72	**2,300**	**34,000J**	**1598J**	**7.5**	**0.074J**	**4.4**	**16.66J**
	1-Nov-00	11.40	1456.32	**8,300**	**140,000J**	**450**	**7.7**	**4.7J**	**3.0J**	**41.2J**
	1-May-01	14.21	1453.51	**6,800**	**750,000J**	**3540J**	3.7U	0.77U	1.6U	**52.0**
	30-Jan-04	12.93	1454.79	**3,900**	**4,400**	**193**	**10.6**	0.5U	**3.8**	**9.4**
	22-Mar-05	13.61	1454.11	**4,110**	**10,500**	**116**	**13.0**	2.5U	**4.6**	**2.8**
	22-Aug-05	13.43	1454.29	**25,100**	**40,000**	**218**	**22.5**	5U	**7.2**	10U
	21-Mar-06	15.53	1452.19	1,000U	**45,000**	**238**	5U	5U	5U	10U
	8-Aug-06	11.54	1456.18	**2,600**	**25,000**	**93**	**6.3**	1U	**3.6**	**1.3**
	21-Mar-07	15.59	1452.13	**2,300**	**35,500**	**150**	**4.0**	0.5U	**2.0**	**0.7**
	19-Sep-07	12.49	1455.23	**1,300**	**19,000**	**190**	**7.1**	0.5U	**3.4**	**2.5**
	18-Mar-08	13.21	1454.51	**5,120**	**11,400**	500U	**11.3**	**1.2**	**5.5**	**5.5**
Duplicate	18-Mar-08	13.21	1454.51	**4,830**	**8,230**	500U	–	–	–	–
	19-Sep-08	12.24	1455.48	**4,270**	**4,350**	500U	**10.9**	0.5U	**4.6**	**3.0**
Duplicate	19-Sep-08	12.24	1455.48	**4,480**	**5,000**	500U	-	–	–	–
	23-Mar-09	13.72	1454.00	**2,200**	**32,900**	500U	**5.7**	0.5U	**3.3**	**2.6**
Duplicate	23-Mar-09	13.72	1454.00	**1,950**	**28,800**	500U	–	–	–	–
	23-Sep-09	12.90	1454.82	**2,940**	**8,690**	500U	**10.7**	0.5U	**6.1**	**4.0**
Duplicate	23-Sep-09	12.90	1454.82	**2,940**	–	–	–	–	–	–
	16-Mar-10	13.82	1453.90	**1,800**	**20,000**	**5,500**	**6.6**	1U	**3.8**	**3.5**
Duplicate	16-Mar-10	13.82	1453.90	**1,800**	**19,000**	**5,400**	–	–	–	–
	28-Sep-10	11.33	1456.39	**2,800**	**35,000**	**11,000**	**9.4**	0.5U	**4.4**	**0.6**
Duplicate	28-Sep-10	11.33	1456.39	**2,600**	**28,000**	**11,000**	–	–	–	–
	22-Mar-11	13.00	1454.72	**1,900**	**23,000**	**4,600**	**4.7**	0.5U	**3.7**	**0.7**
	21-Sep-11	11.34	1456.38	**1,500**	**17,000**	**5,600**	**7.4**	0.5U	**4.7**	**1.4**

Well ID TOC	Date	DTW (ft bgs)	Groundwater Elevation (ft AMSL)	TPH-G (µg/L)	TPH-D (µg/L)	TPH-O (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MTCA Method A Cleanup Level				800	500	500	5	1,000	700	1,000
FTP-1 (cont.)	27-Mar-12	13.27	1454.45	**5,400**	**38,000**	**5,700**	**3.8**	0.5U	**3.8**	**0.9**
1467.72	20-Aug-12	11.21	1456.51	**1,100**	**30,000**	**13,000**	**6.5**	0.5U	**5.0**	**1.6**
	20-Mar-13	13.54	1454.18	**7,600**	**110,000**	**7,900**	**3.7**	**0.2**	**4.5**	**0.8**
	25-Sep-13	13.52	1454.20	**2,200**	**28,000**	**1,700**	**5.4**	**0.2**	**5.9**	**1.5**
	11-Mar-14	14.25	1453.47	**2,000**	**14,000**	**1,700**	**3.4**	**0.2**	**4.5**	**0.95**
	22-Sep-14	13.60	1454.12	**1,100**	**22,000**	**3,400**	**6.4**	**0.22J**	**6.6**	**1.49**
	19-Mar-15	14.00	1453.72	**2,000**	**17,000**	**2,000**	**4.3**	**0.26J**	**4.9**	**1.38**
	22-Sep-15	13.16	1454.56	**1,300**	**13,000**	**2,600**	**6.0**	**0.41J**	**6.0**	**1.51**
	16-Mar-16	14.03	1448.69	**710Y**	**17,000**	**2,800**	**3.1**	**0.52**	**3.5**	**0.18J**
Duplicate	16-Mar-16	14.03	1448.69	**680Y**	**14,000**	**2,700**	**2.9**	**0.25J**	**3.4**	**0.18J**
	21-Sep-16	11.59	1456.13	**1,500**	**30,000**	**5,500**	**5.1**	**0.16J**	**5.9**	**0.23J**
	29-Mar-17	13.60	1454.12	**930**	**17,000**	**2,400**	**1.3**	**0.14J**	**2.5**	**0.36J**
	12-Sep-17	10.96	1456.76	**1,000**	**35,000**	**4,000**	**4.1**	**0.54**	**6.4**	**0.78J**
	28-Mar-18	13.33	1454.39	**1100Y**	**9700Y**	**1900L**	**3.0**	**0.3J**	**5.0J**	**0.57**
	12-Sep-18	12.76	1454.96	**1,260**	**9200Y**	**1,500**	**2.8**	**0.28**	**5.6**	**0.73**
FTP-13	1-Jul-99	16.25	1456.82	100U	240U	**1**	0.4U	0.4U	0.4U	1.2U
1473.07	1-Nov-00	16.79	1456.28	ND	240U	0.19U	0.4U	0.4U	0.4U	1.2U
	1-May-01	16.65	1456.42	100U	240U	0.192U	0.4U	0.4U	0.4U	1.2U
	30-Jan-04	15.50	1457.57	100U	100U	0.7U	0.5U	0.5U	0.5U	1U
	22-Mar-05	16.71	1456.36	100U	100U	1U	0.5U	0.5U	0.5U	1U
	22-Aug-05	16.80	1456.27	–	–	–	–	–	–	–
	21-Mar-06	12.66	1460.41	100U	100U	1U	0.5U	0.5U	0.5U	1U
	8-Aug-06	12.57	1460.50	–	–	–	–	–	–	–
	21-Mar-07	14.22	1458.85	250U	100U	1.5U	0.5U	0.5U	0.5U	1U
	19-Sep-07	15.14	1457.93	–	–	–	–	–	–	–
	18-Mar-08	15.05	1458.02	–	–	–	–	–	–	–
	19-Sep-08	15.54	1457.53	–	–	–	–	–	–	–
	23-Mar-09	16.06	1457.01	–	–	–	–	–	–	–

Well ID TOC	Date	DTW (ft bgs)	Groundwater Elevation (ft AMSL)	TPH-G (µg/L)	TPH-D (µg/L)	TPH-O (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MTCA Method A Cleanup Level				800	500	500	5	1,000	700	1,000
FTP-13 (cont.)	23-Sep-09	15.15	1457.92	–	–	–	–	–	–	–
1473.07	16-Mar-10	14.72	1458.35	–	–	–	–	–	–	–
	28-Sep-10	11.85	1461.22	–	–	–	–	–	–	–
	22-Mar-11	13.02	1460.05	–	–	–	–	–	–	–
	21-Sep-11	12.22	1460.85	–	–	–	–	–	–	–
	27-Mar-12	13.85	1459.22	–	–	–	–	–	–	–
	20-Aug-12	11.27	1461.80	–	–	–	–	–	–	–
	20-Mar-13	13.90	1459.17	–	–	–	–	–	–	–
	25-Sep-13	13.47	1459.60	–	–	–	–	–	–	–
	11-Mar-14	16.50	1456.57	–	–	–	–	–	–	–
	22-Sep-14	–	–	–	–	–	–	–	–	–
	19-Mar-15	14.32	1458.75	–	–	–	–	–	–	–
	22-Sep-15	–	–	–	–	–	–	–	–	–
	16-Mar-16	11.72	1461.35	–	–	–	–	–	–	–
	21-Sep-16	11.59	1461.48	–	–	–	–	–	–	–
	29-Mar-17	12.45	1460.60	–	–	–	–	–	–	–
	12-Sep-17	11.45	1461.62	–	–	–	–	–	–	–
	28-Mar-18	14.66	1458.41	–	–	–	–	–	–	–
	12-Sep-18	15.07	1458.00	–	–	–	–	–	–	–
FTP-14	1-Jul-99	17.63	1439.85	100U	**480J**	0.192U	0.4U	0.4U	0.4U	1.2U
1457.48	1-Nov-00	18.28	1439.20	100U	240U	0.19U	0.4U	**0.028J**	0.4U	1.2U
	1-May-01	18.69	1438.79	2,100U	**170J**	0.19U	0.4U	0.4U	0.4U	1.2U
	30-Jan-04	17.46	1440.02	100U	100U	0.7U	0.5U	0.5U	0.5U	1U
	22-Mar-05	17.83	1439.65	**310**	**400**	1U	0.5U	0.5U	0.5U	1U
	22-Aug-05	18.02	1439.46	**260**	**330**	1U	0.5U	0.5U	0.5U	1U
	21-Mar-06	17.92	1439.56	1,000U	**400**	1U	0.5U	0.5U	0.5U	1U
	8-Aug-06	17.49	1439.99	**200**	–	–	0.5U	0.5U	0.5U	1U
	21-Mar-07	17.59	1439.89	250U	100U	1.5U	0.5U	0.5U	0.5U	1U

Well ID TOC	Date	DTW (ft bgs)	Groundwater Elevation (ft AMSL)	TPH-G (µg/L)	TPH-D (µg/L)	TPH-O (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MTCA Method A Cleanup Level				800	500	500	5	1,000	700	1,000
FTP-14 (cont.)	19-Sep-07	17.47	1440.01	500U	**250**	1.5U	0.5U	0.5U	0.5U	1U
1457.48	18-Mar-08	17.70	1439.78	**210**	**261**	500U	–	–	–	–
	19-Sep-08	17.58	1439.90	500U	100U	500U	–	–	–	–
	23-Mar-09	17.81	1439.67	500U	–	–	–	–	–	–
	23-Sep-09	17.84	1439.64	500U	**209**	500U	–	–	–	–
	16-Mar-10	18.00	1439.48	**53**	**290**	**440**	–	–	–	–
	28-Sep-10	17.68	1439.80	**55**	**350**	**330**	–	–	–	–
	22-Mar-11	17.65	1439.83	**57**	**350**	240U	–	–	–	–
	21-Sep-11	17.64	1439.84	50U	–	–	–	–	–	–
	27-Mar-12	17.68	1439.80	**50**	**420**	**420**	–	–	–	–
	20-Aug-12	16.93	1440.55	**59**	**170**	**240**	–	–	–	–
	20-Mar-13	17.86	1439.62	250U	**150**	200U	–	–	–	–
	25-Sep-13	18.94	1438.54	250U	**240**	200U	–	–	–	–
	11-Mar-14	18.20	1439.28	250U	**250**	200U	–	–	–	–
Duplicate	11-Mar-14	18.20	1439.28	250U	**240**	200U	–	–	–	–
	22-Sep-14	18.60	1438.88	**22**	**290**	**360**	–	–	–	–
	19-Mar-15	18.76	1438.72	**83J**	**190**	**120J**	–	–	–	–
	22-Sep-15	18.81	1438.67	**46J**	**210**	**110**	–	–	–	–
	16-Mar-16	18.62	1438.86	**31**	**230**	**130**	–	–	–	–
	21-Sep-16	17.89	1439.59	**21J**	**170**	**160**	–	–	–	–
	29-Mar-17	18.15	1439.33	**50J**	**170J**	**90J**	–	–	–	–
	12-Sep-17	17.64	1439.84	**37J**	**220**	**110**	–	–	–	–
	11-Apr-18	18.25	1439.23	**19J**	**230**	**160**	–	–	–	–
Duplicate	11-Apr-18	18.25	1439.23	**14J**	**220**	**150**	–	–	–	–
	12-Sep-18	18.25	1439.23	**32.7J**	**200**	**160**	–	–	–	–
FTP-15	1-Jul-99	16.68	1444.20	100U	240U	0	0.4U	0.4U	0.4U	1.2U
1460.88	1-Nov-00	18.00	1442.88	100U	240U	0.19U	0.4U	**0.052J**	0.4U	**0.042J**
	1-May-01	17.98	1442.90	100U	240U	0.192U	0.4U	0.4U	0.4U	1.2U

Well ID TOC	Date	DTW (ft bgs)	Groundwater Elevation (ft AMSL)	TPH-G (µg/L)	TPH-D (µg/L)	TPH-O (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MTCA Method A Cleanup Level				800	500	500	5	1,000	700	1,000
FTP-15 (cont.)	30-Jan-04	16.58	1444.30	100U	100U	0.7U	0.5U	0.5U	0.5U	1U
1460.88	22-Mar-05	17.89	1442.99	100U	100U	1U	0.5U	0.5U	0.5U	1U
	22-Aug-05	17.91	1442.97	100U	100U	1U	0.5U	0.5U	0.5U	1U
	21-Mar-06	17.93	1442.95	100U	100U	–	0.5U	0.5U	0.5U	1U
	8-Aug-06	16.79	1444.09	100U	100U	–	0.5U	0.5U	0.5U	1U
	21-Mar-07	17.91	1442.97	250U	100U	1.5U	0.5U	0.5U	0.5U	1U
	19-Sep-07	16.93	1443.95	500U	100U	–	0.5U	0.5U	0.5U	1U
	18-Mar-08	17.95	1442.93	100U	100U	500U	–	–	–	–
	19-Sep-08	17.31	1443.57	500U	100U	500U	–	–	–	–
	23-Mar-09	17.97	1442.91	500U	100U	500U	–	–	–	–
	23-Sep-09	17.87	1443.01	500U	100U	500U	–	–	–	–
	16-Mar-10	17.96	1442.92	50U	100U	240U	–	–	–	–
	28-Sep-10	16.62	1444.26	50U	**180**	**440**	–	–	–	–
	22-Mar-11	17.85	1443.03	50U	120U	240U	–	–	–	–
Duplicate	22-Mar-11	17.85	1443.03	50U	120U	240U	–	–	–	–
	21-Sep-11	16.81	1444.07	50U	–	–	–	–	–	–
	27-Mar-12	17.45	1443.43	50U	**150**	**370**	–	–	–	–
	20-Aug-12	16.03	1444.85	**150**	**120**	240U	–	–	–	–
Duplicate	20-Aug-12	16.03	1444.85	50U	**120**	240U	–	–	–	–
	20-Mar-13	16.77	1444.11	250U	**130**	200U	–	–	–	–
	25-Sep-13	16.62	1444.26	250U	100U	200U	–	–	–	–
Duplicate	25-Sep-13	16.62	1444.26	250U	**110**	200U	–	–	–	–
	11-Mar-14	17.80	1443.08	250U	100U	200U	–	–	–	–
	22-Sep-14	18.30	1442.58	**14J**	**46J**	**110J**	–	–	–	–
	19-Mar-15	17.91	1442.97	250U	**55J**	**180J**	–	–	–	–
	22-Sep-15	16.22	1444.66	250U	**46J**	**80J**	–	–	–	–
	16-Mar-16	17.92	1442.96	250U	**55J**	**130**	–	–	–	–
	21-Sep-16	14.60	1446.28	250U	**150**	**210**	–	–	–	–

Well ID TOC	Date	DTW (ft bgs)	Groundwater Elevation (ft AMSL)	TPH-G (µg/L)	TPH-D (µg/L)	TPH-O (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MTCA Method A Cleanup Level				800	500	500	5	1,000	700	1,000
FTP-15 (cont.)	29-Mar-17	16.66	1444.22	**14J**	**130J**	**120J**	–	–	–	–
1460.88	12-Sep-17	12.27	1448.60	**15J**	**210**	**130**	–	–	–	–
	11-Apr-18	14.88	1446.00	25U	**190**	**180**	–	–	–	–
	12-Sep-18	14.58	1446.30	**16.7**	**170**	**190**	–	–	–	–
FTP-16	1-Jul-99	26.32	1418.49	100U	**360J**	**2**	0.4U	0.4U	0.4U	1.2U
1444.81	1-Nov-00	26.51	1418.30	100U	**210J**	0.19U	0.4U	**0.064J**	0.4U	**0.043J**
	1-May-01	26.41	1418.40	100U	240U	0.188U	0.4U	0.4U	0.4U	1.2U
	30-Jan-04	26.34	1418.47	100U	100U	0.7U	0.5U	0.5U	0.5U	1U
	22-Mar-05	26.77	1418.04	100U	100U	1U	0.5U	0.5U	0.5U	1U
	22-Aug-05	26.49	1418.32	100U	100U	1U	0.5U	0.5U	0.5U	1U
	21-Mar-06	26.05	1418.76	100U	100U	1U	0.5U	0.5U	0.5U	1U
	8-Aug-06	26.11	1418.70	100U	**200**	1U	0.5U	0.5U	0.5U	1U
	21-Mar-07	26.15	1418.66	250U	100U	1.5U	0.5U	0.5U	0.5U	1U
	19-Sep-07	26.12	1418.69	500U	100U	–	0.5U	0.5U	0.5U	1U
	18-Mar-08	26.09	1418.72	100U	100U	500U	–	–	–	–
	19-Sep-08	26.18	1418.63	500U	100U	500U	–	–	–	–
	23-Mar-09	26.20	1418.61	500U	100U	500U	–	–	–	–
	23-Sep-09	26.28	1418.53	500U	**140**	500U	–	–	–	–
	16-Mar-10	26.25	1418.56	50U	**180**	**470**	–	–	–	–
	28-Sep-10	26.05	1418.76	50U	**320**	**450**	–	–	–	–
	22-Mar-11	26.15	1418.66	50U	**310**	240U	–	–	–	–
	21-Sep-11	26.16	1418.65	50U	–	–	–	–	–	–
	27-Mar-12	26.15	1418.66	50U	**280**	**470**	–	–	–	–
	20-Aug-12	25.93	1418.88	50U	**200**	**350**	–	–	–	–
	20-Mar-13	26.29	1418.52	250U	**130**	200U	–	–	–	–
	25-Sep-13	26.50	1418.31	250U	**160**	200U	–	–	–	–
	11-Mar-14	26.30	1418.51	250U	**150**	200U	–	–	–	–
	22-Sep-14	26.35	1418.46	250U	**290**	**180**	–	–	–	–

Well ID TOC	Date	DTW (ft bgs)	Groundwater Elevation (ft AMSL)	TPH-G (µg/L)	TPH-D (µg/L)	TPH-O (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MTCA Method A Cleanup Level				800	500	500	5	1,000	700	1,000
FTP-16 (cont.)	19-Mar-15	26.19	1418.62	250U	**110J**	**76J**	–	–	–	–
1444.81	22-Sep-15	26.09	1418.72	250U	**300**	540	–	–	–	–
	16-Mar-16	26.12	1422.69	250U	**200**	–	–	–	–	–
	21-Sep-16	26.00	1422.81	250U	**160**	–	–	–	–	–
	29-Mar-17	26.33	1418.48	250U	**130J**	**120J**	–	–	–	–
Duplicate	29-Mar-17	26.33	1418.48	250U	**120J**	**100J**	–	–	–	–
	12-Sep-17	25.97	1418.84	250U	**190**	**160**	–	–	–	–
	11-Apr-18	26.07	1418.74	25U	**170**	**200**	–	–	–	–
	12-Sep-18	26.20	1418.61	**12.9**	**180**	**210**	–	–	–	–
MTCA Method A Cleanup Level				800	500	500	5	1,000	700	1,000

Notes:

BOLD Analyte detected above laboratory reporting limit.

SHADE Analyte detected above Model Toxics Control Act (MTCA) cleanup level.

– Not applicable, not sampled

Abbreviations and Acronyms:

µg/L – micrograms per liter

DTW – depth-to-water

ft/amsl – feet above mean sea level

ft/bgs – feet below ground surface

ID – identification

J – estimated concentration

L – The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amout of lighter molecular weight constituents than the calibration standard.

ND – non-detect

TOC – top-of-casing elevation above mean sea level in feet

TPH-D – total petroleum hydrocarbons – diesel range

TPH-G – total petroleum hydrocarbons – gasoline range

TPH-O – total petroleum hydrocarbons – heavy oil range

U – Analyte not detected above laboratory practical quantitation limit (PQL). Beginning in 2018, value listed is the reporting limit.

Y – The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.

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Table 3
Selected VOC, PAH, and PCB Concentrations
Fire Training Pit, Yakima Training Center, Washington

Well ID	Date	TCE (µg/L)	cis-DCE (µg/L)	Vinyl Chloride (µg/L)	Methylene Chloride (µg/L)	Bis-(2-ethylhexyl) phthalate (µg/L)	Fluorene (µg/L)	Total Naphthalenes[1] (µg/L)	Total PCBs (µg/L)
MTCA Method A Cleanup Level		5	–	0.2	5	–	–	160	0.1
MTCA Standard Method B Cleanup Level		–	70	–	–	6	640	–	–
FTP-1	1-Mar-93	50U	50U	100U	**110B,J**	**270B,J**	–	905U	70U
	1-Jul-99	**0.066J**	0.4U	0.4U	0.4U	**29J**	**7,600J**	**0.243J**	23.1U
	1-Nov-00	**32J**	70J	ND	**3.7J**	ND	**11,000J**	1.774U	ND
	1-May-01	4U	4U	4U	4U	**54J**	**46,000**	**5.02J**	0.81U
	30-Jan-04	0.5U	0.5U	0.5U	**1.3**	**6.0**	**48,300**	0.362U	–
	22-Mar-05	2.5U	2.5U	2.5U	12.5U	**1.0**	500U	0.905U	–
	22-Aug-05	5U	5U	5U	25U	0.5U	500U	0.905U	–
	21-Mar-06	5U	5U	5U	25U	5U	500U	9.05U	–
	8-Aug-06	1U	1U	1U	5U	**2.4**	500U	0.905U	–
	21-Mar-07	0.5U	0.5U	0.5U	2.5U	**3.6**	10,000U	**0.1**	–
	19-Sep-07	0.5U	0.5U	0.5U	2.5U	**2.7**	500U	0.905U	–
	18-Mar-08	0.5U	0.5U	0.5U	2.5U	10U	1,000U	**118.2**	
	19-Sep-08	0.5U	0.5U	0.5U	2.5U	–	500U	**52.6**	–
	23-Mar-09	0.5U	0.5U	0.5U	2.5U	–	**9.1**	**93.2**	–
Duplicate	23-Mar-09	0.5U	0.5U	0.5U	2.5U	–	–	–	–
	23-Sep-09	0.5U	0.5U	0.5U	2.5U	15U	**5.4**	**121.1**	–
Duplicate	23-Sep-09	0.5U	0.5U	0.5U	2.5U	15U	-	-	–
	16-Mar-10	0.5U	0.5U	0.5U	2.5U	15U	**3.3**	**13.9**	–
	28-Sep-10	0.5U	0.5U	0.5U	2.5U	–	**8.3**	**238**	–
	22-Mar-11	0.5U	0.5U	0.5U	2.5U	ND	**6.1**	**56.6**	–
	21-Sep-11	0.5U	0.5U	0.5U	2.5U	0.96U	**4.2**	**120**	–
	27-Mar-12	0.5U	0.5U	0.5U	0.5U	**5.6**	**10**	**66**	–
	20-Aug-12	0.5U	0.5U	0.5U	0.5U	14U	**5.5**	**242**	–

Well ID	Date	TCE (µg/L)	cis-DCE (µg/L)	Vinyl Chloride (µg/L)	Methylene Chloride (µg/L)	Bis-(2-ethylhexyl) phthalate (µg/L)	Fluorene (µg/L)	Total Naphthalenes[1] (µg/L)	Total PCBs (µg/L)
MTCA Method A Cleanup Level		5	–	0.2	5	–	–	160	0.1
MTCA Standard Method B Cleanup Level		–	70	–	–	6	640	–	–
FTP-1 (cont.)	20-Mar-13	0.2U	0.2U	0.2U	1.0U	**6.3**	**27**	**94**	–
	25-Sep-13	0.2U	0.2U	0.2U	1U	3U	**11**	**260**	–
	11-Mar-14	0.2U	0.2U	0.2U	1U	9U	**5.8**	**112**	–
	22-Sep-14	**0.11J**	0.5U	0.5U	2U	10U	**7.8**	**154**	–
	19-Mar-15	**0.12J**	0.2U	0.1U	0.2U	**4.9J**	**8.9J**	**105**	–
	22-Sep-15	**0.17J**	0.2U	0.1U	**0.12J**	2U	**9.4J**	**218**	–
	16-Mar-16	**0.13J**	0.2U	0.5U	2U	10U	**6.9J**	**111**	–
	21-Sep-16	**0.18J**	.02U	0.5U	2U	9.9U	**7.9J**	**57**	–
	29-Mar-17	**0.11J**	.02U	0.5U	2U	10U	10U	10U	–
	12-Sep-17	**0.10J**	.02U	0.5U	2U	**8.2J**	**9.9J**	**84**	–
	28-Mar-18	0.2U	0.2U	0.1U	0.2U	2.0U	**3.8J**	**82.3**	-
	12-Sep-18	0.2U	0.2U	0.1U	0.2U	**1.9U**	**5.1**	**242**	-
FTP-13	1-Mar-93	-	-	-	-	**6.3**	–	–	-
	1-Jul-99	0.4U	0.4U	0.4U	0.4U	0.5U	240J	0.172U	0.665U
	1-Nov-00	0.4U	0.4U	0.4U	0.4U	–	ND	0.172U	ND
	1-May-01	0.4U	0.4U	0.4U	0.4U	0.5U	480U	0.174U	0.076U
	30-Jan-04	0.5U	0.5U	0.5U	0.5U	–	500U	0.362U	–
	22-Mar-05	0.5U	0.5U	0.5U	2.5U	0.5U	500U	0.905U	–
	22-Aug-05	–	–	–	–	–	–	–	–
	21-Mar-06	0.5U	0.5U	0.5U	2.5U	0.96U	500U	0.905U	–
	8-Aug-06	–	–	–	–	9.5U	–	–	–
	21-Mar-07	0.5U	0.5U	0.5U	2.5U	0.95U	500U	**0.1**	–
FTP-14	1-Mar-93	–	–	–	–	**9.2**	–	–	–
	1-Jul-99	0.4U	0.4U	0.4U	0.4U	**5.2**	**480**	0.174U	0.665U
	1-Nov-00	ND	ND	ND	ND	**0.8**	480U	0.172U	0.076U
	1-May-01	0.4U	0.4U	0.4U	0.4U	0.5U	480U	0.172U	0.0766U

Well ID	Date	TCE (µg/L)	cis-DCE (µg/L)	Vinyl Chloride (µg/L)	Methylene Chloride (µg/L)	Bis-(2-ethylhexyl) phthalate (µg/L)	Fluorene (µg/L)	Total Naphthalenes[1] (µg/L)	Total PCBs (µg/L)
MTCA Method A Cleanup Level		5	–	0.2	5	–	–	160	0.1
MTCA Standard Method B Cleanup Level		–	70	–	–	6	640	–	–
FTP-14 (cont.)	30-Jan-04	0.5U	0.5U	0.5U	0.5U	–	**900**	0.362U	–
	22-Mar-05	0.5U	0.5U	0.5U	2.5U	**2.3**	500U	0.905U	–
	22-Aug-05	0.5U	0.5U	0.5U	2.5U	**30**	500U	0.905U	–
	21-Mar-06	0.5U	0.5U	0.5U	2.5U	–	500U	0.905U	–
	8-Aug-06	0.5U	0.5U	0.5U	2.5U	**2.1J**	–	–	–
	21-Mar-07	0.5U	0.5U	0.5U	2.5U	9.5U	500U	0.905U	
	19-Sep-07	0.5U	0.5U	0.5U	2.5U	0.96U	500U	0.905U	
FTP-15	1-Mar-93	–	–	–	–	**1.4**			
	1-Jul-99	0.4U	0.4U	0.4U	0.4U	**1.2**	**250J**	0.172U	0.665U
	1-Nov-00	ND	ND	ND	ND	**1.0**	480U	0.172U	0.076U
	1-May-01	0.4U	0.4U	0.4U	0.4U	–	470U	0.174U	0.076U
	30-Jan-04	0.5U	0.5U	0.5U	0.5U	–	**500**	0.362U	–
	22-Mar-05	0.5U	0.5U	0.5U	2.5U	**2.3**	500U	0.905U	–
	22-Aug-05	0.5U	0.5U	0.5U	2.5U	–	500U	0.905U	–
	21-Mar-06	0.5U	0.5U	0.5U	2.5U	–	**600**	–	–
	8-Aug-06	0.5U	0.5U	0.5U	2.5U	**0.9J**	500U	–	–
	21-Mar-07	0.5U	0.5U	0.5U	2.5U	ND	500U	0.905U	–
	19-Sep-07	0.5U	0.5U	0.5U	2.5U	**0.63J**	500U	–	–
FTP-16	1-Mar-93	–	–	–	–	**1.8**	–	–	–
	1-Jul-99	0.4U	0.4U	0.4U	0.4U	**1.5**	**600J**	0.172U	0.665U
	1-Nov-00	ND	0.4U	ND	ND	**0.8**	480U	0.172U	0.076U
	1-May-01	0.4U	0.4U	0.4U	0.4U	0.5U	470U	0.170U	0.0754U
	30-Jan-04	0.5U	0.5U	0.5U	0.5U	0.5U	**500**	0.362U	–
	22-Mar-05	0.5U	0.5U	0.5U	2.5U	**1.8**	500U	0.905U	–
	22-Aug-05	0.5U	0.5U	0.5U	2.5U	–	500U	0.905U	–
	21-Mar-06	0.5U	0.5U	0.5U	2.5U	–	500U	0.905U	–

Well ID	Date	TCE (µg/L)	cis-DCE (µg/L)	Vinyl Chloride (µg/L)	Methylene Chloride (µg/L)	Bis-(2-ethylhexyl) phthalate (µg/L)	Fluorene (µg/L)	Total Naphthalenes[1] (µg/L)	Total PCBs (µg/L)
MTCA Method A Cleanup Level		5	–	0.2	5	–	–	160	0.1
MTCA Standard Method B Cleanup Level		–	70	–	–	6	640	–	–
FTP-16 (cont.)	8-Aug-06	0.5U	0.5U	0.5U	2.5U	–	500U	0.905U	–
	21-Mar-07	0.5U	0.5U	0.5U	2.5U	–	500U	**0.1**	–
	19-Sep-07	0.5U	0.5U	0.5U	2.5U	–	500U	–	–
MTCA Method A Cleanup Level		5	–	0.2	5	–	–	160	0.1
MTCA Standard Method B Cleanup Level		–	70	–	–	6	640	–	–

Notes:

BOLD Analyte detected above laboratory reporting limit.

SHADE Analyte detected above Model Toxics Control Act (MTCA) cleanup level.

(1) total naphthalenes – total of naphthalene and 2-methyl naphthalene.

Abbreviations and Acronyms:

– = Not applicable, not sampled

µg/L – micrograms per liter

B - The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC Standards.

cis-DCE – cis 1,2-dichloroetheylene

ID – identification

J – estimated concentration

ND – non-detect

PCBs – polychlorinated biphenyls

TCE – trichloroethylene

U – Analyte not detected above laboratory practical quantitation limit (PQL). Beginning in 2018, value listed is the reporting limit.

Table 4
Carcinogenic PAH and Total PAH Concentrations
Fire Training Pit, Yakima Training Center, Washington

Well ID	Date	Benzo(a) anthracene	Benzo(a) pyrene (µg/L)	Benzo(b) fluoranthene (µg/L)	Benzo(k) fluoranthene (µg/L)	Chrysene (µg/L)	Dibenz(a,h) anthracene (µg/L)	Indeno(1,2,3-cd) pyrene (µg/L)	TTEC Total[1] (µg/L)	Total PAHs[2] (µg/L)
MTCA Method A Cleanup Level		–	0.1	–	–	–	–	–	0.1	–
TEF		0.1	1	0.1	0.1	0.01	0.1	0.1	–	–
FTP-1	1-Mar-93	–	–	–	–	–	–	–	–	**1,100.0**
	1-Jul-99	–	–	–	–	–	–	–	–	**140J**
	1-Nov-00	–	–	–	–	–	–	–	–	**33.0**
	1-May-01	–	–	–	–	–	–	–	–	**450J**
	30-Jan-04	–	–	–	–	–	–	–	–	**9.1**
	22-Mar-05	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	ND	**5.0**
	22-Aug-05	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	ND	**5.7**
	21-Mar-06	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	ND	**33.4**
	8-Aug-06	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	ND	**4.9**
	21-Mar-07	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	**0.5**	**0.05**	**5.9**
	19-Sep-07	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	ND	**6.4**
	18-Mar-08	10U	10U	10U	10U	10U	10U	10U	ND	**89.6**
	19-Sep-08	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	ND	**158.8**
	23-Mar-09	0.1U	0.1U	0.1U	0.1U	**0.54**	0.1U	0.1U	**0.005**	**135.8**
	23-Sep-09	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	ND	**117.2**
	16-Mar-10	0.29U	0.19U	0.39U	0.29U	0.19U	0.29U	0.29U	ND	**107.2**
	28-Sep-10	0.29U	0.19U	0.39U	0.29U	**0.38**	0.29U	0.29U	**0.004**	**333.8**
	22-Mar-11	0.29U	0.19U	0.39U	0.29U	0.19U	0.29U	0.29U	ND	**269.5**
	21-Sep-11	0.28U	0.19U	0.38U	0.28U	0.19U	0.28U	0.28U	ND	**176.3**
	27-Mar-12	0.1U	0.1U	0.1U	0.1U	**0.64**	0.1U	0.1U	**0.01**	**246.14**
	20-Aug-12	0.29U	0.19U	0.38U	0.29U	0.19U	0.29U	0.29U	ND	**265.25**
	20-Mar-13	3.3U	3.3U	17U	17U	3.3U	3.3U	3.3U	ND	**165.43**
	25-Sep-13	1U	1U	5U	5U	1U	1U	1U	ND	**326.30**

Well ID	Date	Benzo(a) anthracene	Benzo(a) pyrene (µg/L)	Benzo(b) fluoranthene (µg/L)	Benzo(k) fluoranthene (µg/L)	Chrysene (µg/L)	Dibenz(a,h) anthracene (µg/L)	Indeno(1,2,3-cd) pyrene (µg/L)	TTEC Total[1] (µg/L)	Total PAHs[2] (µg/L)
MTCA Method A Cleanup Level		–	0.1	–	–	–	–	–	0.1	–
TEF		0.1	1	0.1	0.1	0.01	0.1	0.1	–	–
FTP-1	11-Mar-14	3U	3U	15U	15U	3U	3U	3U	ND	**248.40**
(cont.)	22-Sep-14	10U	10U	10U	10U	10U	10U	10U	ND	**177.80**
	19-Mar-15	10U	10U	10U	10U	10U	10U	10U	ND	**140.1**
	22-Sep-15	10U	10U	10U	10U	10U	10U	10U	ND	**251**
	16-Mar-16	10U	10U	10U	10U	10U	10U	10U	ND	**124.5**
	21-Sep-16	9.9U	9.9U	9.9U	9.9U	9.9U	9.9U	9.9U	ND	**84.4**
	29-Mar-17	10U	10U	10U	10U	10U	10U	10U	ND	**ND**
	12-Sep-17	10U	10U	10U	10U	10U	10U	10U	ND	**126.1**
	28-Mar-18	0.63U	1.1U	0.62U	0.88U	0.84U	0.79U	0.72U	ND	**79.34**
	12-Sep-18	0.63U	1.1U	0.62U	0.88U	0.84U	0.79U	0.72U	ND	**172.68**
FTP-13	1-Mar-93	–	–	–	–	–	–	–	–	–
	1-Jul-99	–	–	–	–	–	–	–	–	**0.1**
	1-Nov-00	–	–	–	–	–	–	–	–	ND
	1-May-01	–	–	–	–	–	–	–	–	0.096U
	30-Jan-04	–	–	–	–	–	–	–	–	0.2U
	22-Mar-05	–	–	–	–	–	–	–	–	0.5U
	22-Aug-05	–	–	–	–	–	–	–	–	–
	21-Mar-06	–	–	–	–	–	–	–	–	0.5U
	8-Aug-06	–	–	–	–	–	–	–	–	–
	21-Mar-07	–	–	–	–	–	–	–	–	0.5U
FTP-14	1-Mar-93	–	–	–	–	–	–	–	–	
	1-Jul-99	–	–	–	–	–	–	–	–	0.096U
	1-Nov-00	–	–	–	–	–	–	–	–	0.095U
	1-May-01	–	–	–	–	–	–	–	–	0.095U
	30-Jan-04	–	–	–	–	–	–	–	–	0.2U
	22-Mar-05	–	–	–	–	–	–	–	–	0.5U
	22-Aug-05	–	–	–	–	–	–	–	–	0.5U

Well ID	Date	Benzo(a) anthracene	Benzo(a) pyrene (µg/L)	Benzo(b) fluoranthene (µg/L)	Benzo(k) fluoranthene (µg/L)	Chrysene (µg/L)	Dibenz(a,h) anthracene (µg/L)	Indeno(1,2,3-cd) pyrene (µg/L)	TTEC Total[1] (µg/L)	Total PAHs[2] (µg/L)
MTCA Method A Cleanup Level		–	0.1	–	–	–	–	–	0.1	–
TEF		0.1	1	0.1	0.1	0.01	0.1	0.1	–	–
FTP-14	21-Mar-06	–	–	–	–	–	–	–	–	0.5U
(cont.)	8-Aug-06	–	–	–	–	–	–	–	–	–
	21-Mar-07	–	–	–	–	–	–	–	–	0.5U
	19-Sep-07	–	–	–	–	–	–	–	–	0.5U
FTP-15	1-Mar-93	–	–	–	–	–	–	–	–	
	1-Jul-99	–	–	–	–	–	–	–	–	0.095U
	1-Nov-00	–	–	–	–	–	–	–	–	0.095U
	1-May-01	–	–	–	–	–	–	–	–	0.096U
	30-Jan-04	–	–	–	–	–	–	–	–	0.2U
	22-Mar-05	–	–	–	–	–	–	–	–	0.5U
	22-Aug-05	–	–	–	–	–	–	–	–	0.5U
	21-Mar-06	–	–	–	–	–	–	–	–	–
	8-Aug-06	–	–	–	–	–	–	–	–	–
	21-Mar-07	–	–	–	–	–	–	–	–	0.5U
FTP-16	1-Mar-93	–	–	–	–	–	–	–	–	
	1-Jul-99	–	–	–	–	–	–	–	–	0.095U
	1-Nov-00	–	–	–	–	–	–	–	–	0.095U
	1-May-01	–	–	–	–	–	–	–	–	0.094U
	30-Jan-04	–	–	–	–	–	–	–	–	0.2U
	22-Mar-05	–	–	–	–	–	–	–	–	0.5U
	22-Aug-05	–	–	–	–	–	–	–	–	0.5U
	21-Mar-06	–	–	–	–	–	–	–	–	0.5U
	8-Aug-06	–	–	–	–	–	–	–	–	0.5U
	21-Mar-07	–	–	–	–	–	–	–	–	0.5U

Well ID	Date	Benzo(a) anthracene	Benzo(a) pyrene (µg/L)	Benzo(b) fluoranthene (µg/L)	Benzo(k) fluoranthene (µg/L)	Chrysene (µg/L)	Dibenz(a,h) anthracene (µg/L)	Indeno(1,2,3-cd) pyrene (µg/L)	TTEC Total[(1)] (µg/L)	Total PAHs[(2)] (µg/L)
MTCA Method A Cleanup Level		–	0.1	–	–	–	–	–	0.1	–
TEF		0.1	1	0.1	0.1	0.01	0.1	0.1	–	–

Notes:

BOLD Analyte detected above laboratory reporting limit.

SHADE Analyte detected above Model Toxics Control Act (MTCA) cleanup level.

– = not applicable, not sampled

(1) TEQ = (Benzo[a]anthrace*0.1) + benzo[a]pyrene + (benzo[b]fluoranthene*0.1) + (benzo[k]fluoranthene*0.1) + (chrysene*0.01) + (dibenz[a, h]anthracene*0.1) + (indeno[1,2,3-cd]pyrene*0.1)

(2) Total PAHs includes naphthalene, 2-methylnaphthalene, acenaphthene. acenaphthylene, phenanthrene, anthracene, fluoranthene, pyrene, benz(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(123-cd)pyrene, dibenz(ah)anthracene, benzo(ghi)perylene. Beginning in 2018, non-detects are included in this total at the detection limit.

Abbreviations and Acronyms:

µg/L – micrograms per liter

cPAH – carcinogenic polycyclic aromatic hydrocarbon

ID – identification

ND – non-detect

PAHs – polycyclic aromatic hydrocarbons

PCBs – polychlorinated biphenyls

TEF – toxicity equivalency factor. Used to convert the concentration of a cPAH to an equivilent concentration of benzo(a)pyrene for a given sample. Defined by Table 708-2 in WAC Chapter 173-340-900.

TTEC – total toxic equivalent concentration (TTEC) of cPAHs in benzo(a)pyrene, as defined by WAC Chapter 173-340-708(8)(e).

U – Analyte not detected above laboratory PQL. Beginning in 2018, value listed is the reporting limit.

Table 5
Depth-to-Water Measurements; TCE and cis-1,2-DCE Concentrations
TVR/Old MATES, Yakima Training Center, Washington

Well ID TOC	Date	DTW (ft/bgs)	Groundwater Elevation (ft/amsl)	TCE (µg/L)	cis-1,2-DCE (µg/L)
MTCA Method A Cleanup Level		–	–	**5**	–
MTCA Method B Cleanup Level		–	–	–	**16**
TVR-815-2	21-Mar-06	66.35	1,237.93	**2.40**	0.5U
1304.28	1-Aug-06	54.17	1,250.11	**3.30**	0.5U
	21-Mar-07	64.02	1,240.26	**1.80**	0.5U
	19-Sep-07	55.56	1,248.72	**3.20**	0.5U
	18-Mar-08	62.99	1,241.29	**1.14**	0.5U
	19-Sep-08	54.95	1,249.33	**1.94**	0.5U
	23-Mar-09	64.72	1,239.56	**2.03**	0.5U
	23-Sep-09	58.03	1,246.25	**1.06**	0.5U
	15-Mar-10	65.65	1,238.63	1U	1U
	28-Sep-10	52.22	1,252.06	**0.74**	0.5U
	21-Mar-11	60.85	1,243.43	**1.00**	0.5U
	21-Sep-11	48.42	1,255.86	**1.20**	0.5U
	28-Mar-12	60.20	1,244.08	**0.89**	0.5U
	20-Aug-12	46.48	1,257.80	**0.97**	0.5U
Duplicate	20-Aug-12	46.48	1,257.80	**0.99**	0.5U
	19-Mar-13	58.62	1,245.66	**0.67**	0.2U
Duplicate	19-Mar-13	58.62	1,245.66	**0.66**	0.2U
	26-Sep-13	54.37	1,249.91	**0.65**	0.2U
Duplicate	26-Sep-13	54.37	1,249.91	**0.72**	0.2U
	12-Mar-14	62.75	1,241.53	**0.45**	0.2U
	23-Sep-14	53.90	1,250.38	**1.60**	0.5U
	19-Mar-15	62.89	1,241.39	**0.75**	0.2U
	22-Sep-15	54.42	1,249.86	**1.1**	0.2U
	16-Mar-16	56.91	1,247.37	**0.83**	0.2U
	21-Sep-16	52.42	1,251.86	**0.68**	0.2U
	30-Mar-17	56.20	1,248.08	**0.61**	0.2U
	12-Sep-17	48.42	1,255.84	**0.64**	0.2U
	29-Mar-18	61.21	1,243.07	**0.51**	0.2U
	13-Sep-18	48.72	1,255.56	**1.0**	0.2U
MMP-1	1-Mar-93	–	1,239.41	5U	5U
1301.37	28-Feb-95	–	–	–	–
	1997	–	–	–	–
	1-Aug-99	–	–	–	–
	1-Jan-04	–	1,239.70	1U	1U
	23-Mar-05	66.24	1,235.13	0.5U	0.5U
	23-Aug-05	58.33	1,243.04	–	–
	21-Mar-06	64.27	1,237.10	0.5U	0.5U
	1-Aug-06	53.77	1,247.60	–	–

Well ID TOC	Date	DTW (ft/bgs)	Groundwater Elevation (ft/amsl)	TCE (µg/L)	cis-1,2-DCE (µg/L)
MTCA Method A Cleanup Level		–	–	**5**	–
MTCA Method B Cleanup Level		–	–	–	**16**
	21-Mar-07	62.02	1,239.35	0.5U	0.5U
MMP-1 (cont.)	19-Sep-07	56.08	1,245.29	–	–
1301.37	18-Mar-08	61.12	1,240.25	0.5U	0.5U
	19-Sep-08	55.87	1,245.50	–	–
	23-Mar-09	62.83	1,238.54	0.5U	0.5U
	23-Sep-09	58.47	1,242.90	–	–
	15-Mar-10	63.37	1,238.00	1U	1U
	28-Sep-10	52.67	1,248.70	–	–
	21-Mar-11	59.02	1,242.35	0.5U	0.5U
	21-Sep-11	47.02	1,254.35	–	–
	28-Mar-12	57.83	1,243.54	0.5U	0.5U
	20-Aug-12	47.10	1,254.27	–	–
	19-Mar-13	55.90	1,245.47	0.2U	0.2U
	26-Sep-13	55.06	1,246.31	–	–
	12-Mar-14	59.80	1,241.57	0.2U	0.2U
	23-Sep-14	54.47	1,246.90	–	–
	19-Mar-15	60.04	1,241.33	–	–
	22-Sep-15	54.20	1,247.17	–	–
	16-Mar-16	55.50	1.245.87	–	–
	21-Sep-16	52.64	1,248.73	–	–
	30-Mar-17	55.45	1,245.92	–	–
	12-Sep-17	49.30	1,252.07	–	–
	29-Mar-18	59.52	1,241.85	**.10J**	0.2U
	13-Sep-18	50.55	1,250.82	0.2U	0.2U
MMP-2	1-Mar-93	–	1,239.35	5U	5U
1301.31	28-Feb-95	–	–	–	–
	1997	–	–	–	–
	1-Aug-99	–	–	–	–
	1-Jan-04	–	1,239.50	0.5U	0.5U
	23-Mar-05	66.25	1,235.06	0.5U	0.5U
	23-Aug-05	59.75	1,241.56	–	–
	21-Mar-06	64.54	1,236.77	0.5U	0.5U
	1-Aug-06	55.69	1,245.62	–	–
	21-Mar-07	62.13	1,239.18	0.5U	0.5U
	19-Sep-07	57.12	1,244.19	–	–
	18-Mar-08	61.27	1,240.04	–	–
	19-Sep-08	56.95	1,244.36	–	–
	23-Mar-09	62.92	1,238.39	–	–
	23-Sep-09	59.23	1,242.08	–	–
	15-Mar-10	63.48	1,237.83	–	–
	28-Sep-10	54.22	1,247.09	–	–

Well ID TOC	Date	DTW (ft/bgs)	Groundwater Elevation (ft/amsl)	TCE (µg/L)	cis-1,2-DCE (µg/L)
MTCA Method A Cleanup Level		–	–	**5**	–
MTCA Method B Cleanup Level		–	–	–	**16**
	21-Mar-11	59.17	1,242.14	–	–
	21-Sep-11	50.44	1,250.87	–	–
MMP-2 (cont.)	28-Mar-12	57.83	1,243.48	–	–
1301.31	20-Aug-12	48.51	1,252.80	–	–
	19-Mar-13	55.98	1,245.33	–	–
	26-Sep-13	–	–	–	–
	12-Mar-14	–	–	–	–
	23-Sep-14	55.70	1,245.61	–	–
	19-Mar-15	60.03	1,241.28	–	–
	22-Sep-15	55.90	1,245.41	–	–
	16-Mar-16	56.72	1,244.59	–	–
	21-Sep-16	55.05	1,246.26	–	–
	30-Mar-17	–	–	–	–
	12-Sep-17	–	–	–	–
MRC-2	1-Mar-93	–	1,236.27	5U	5U
1312.11	28-Feb-95	–	–	–	–
	1997	–	–	–	–
	1-Aug-99	–	–	–	–
	1-Jan-04	–	–	–	–
	23-Mar-05	81.82	1,230.29	–	–
	23-Aug-05	76.09	1,236.02	–	–
	21-Mar-06	–	–	–	–
	1-Aug-06	–	–	–	–
	21-Mar-07	–	–	0.5U [2]	0.5U [2]
	19-Sep-07	–	–	–	–
	18-Mar-08	74.59	1,237.52	0.5U	0.5U
	19-Sep-08	67.90	1,244.21	–	–
	23-Mar-09	75.90	1,236.21	0.5U	0.5U
	23-Sep-09	–	–	–	–
	16-Mar-10	77.38	1,234.73	1U	1U
	28-Sep-10	67.00	1,245.11	–	–
	21-Mar-11	73.20	1,238.91	0.5U	0.5U
	21-Sep-11	63.07	1,249.04	–	–
	28-Mar-12	72.42	1,239.69	0.5U	0.5U
	20-Aug-12	61.93	1,250.18	–	–
	19-Mar-13	71.36	1,240.75	–	–
	26-Sep-13	–	–	–	–
	12-Mar-14	–	–	–	–
	23-Sep-14	68.05	1,244.06	–	–
	19-Mar-15	75.27	1,236.84	–	–
	22-Sep-15	69.02	1,243.09	–	–

Well ID TOC	Date	DTW (ft/bgs)	Groundwater Elevation (ft/amsl)	TCE (µg/L)	cis-1,2-DCE (µg/L)
MTCA Method A Cleanup Level		–	–	**5**	–
MTCA Method B Cleanup Level		–	–	–	**16**
	16-Mar-16	–	–	–	–
	21-Sep-16	68.90	1,243.21	–	–
MTS-1	1-Mar-93	–	1,257.88	**7.90**	5U
1361.02	28-Feb-95	–	–	–	–
	1997	–	–	–	–
	1-Aug-99	–	–	–	–
	1-Jan-04	–	1,261.96	**5.60**	0.5U
	23-Mar-05	104.71	1,256.31	**7.60**	0.5U
	23-Aug-05	95.98	1,265.04	**4.60**	0.5U
	21-Mar-06	100.98	1,260.04	**6.30**	0.5U
	1-Aug-06	93.82	1,267.20	**7.50**	0.5U
	21-Mar-07	99.62	1,261.40	**6.80**	0.5U
	19-Sep-07	94.08	1,266.94	**5.90**	0.5U
	18-Mar-08	99.36	1,261.66	**5.56**	0.5U
	19-Sep-08	95.47	1,265.55	**4.88**	0.5U
	23-Mar-09	100.72	1,260.30	**6.36**	0.5U
	23-Sep-09	94.90	1,266.12	**6.55**	0.5U
	16-Mar-10	99.92	1,261.10	**4.90**	1U
	28-Sep-10	91.30	1,269.72	**4.10**	0.5U
	21-Mar-11	96.35	1,264.67	**4.90**	0.5U
	21-Sep-11	91.44	1,269.58	**4.30**	0.5U
	28-Mar-12	95.98	1,265.04	**4.10**	0.5U
	20-Aug-12	91.38	1,269.64	**4.10**	0.5U
	19-Mar-13	95.43	1,265.59	**3.40**	0.2U
	26-Sep-13	93.85	1,267.17	**2.80**	0.2U
	12-Mar-14	97.35	1,263.67	**2.70**	0.2U
Duplicate	12-Mar-14	97.35	1,263.67	**2.80**	0.2U
	23-Sep-14	92.71	1,268.31	**3.50**	0.5U
	19-Mar-15	97.47	1,263.55	**3.8**	0.2U
	22-Sep-15	92.74	1,268.28	**4.0**	0.2U
	16-Mar-16	94.73	1,266.29	**3.7**	0.2U
	21-Sep-16	92.90	1,268.12	**3.2**	0.2U
	30-Mar-17	94.84	1,266.18	**3.5**	0.2U
	12-Sep-17	92.97	1,268.05	**3.5**	0.2U
	29-Mar-18	98.43	1,262.59	**3.7**	0.2U
	13-Sep-18	93.84	1,267.18	**3.0**	0.2U
MTS-2	1-Mar-93	–	1,256.80	**7.4**	5U
1351.88	28-Feb-95	–	–	–	–
	1997	–	–	–	–
	1-Aug-99	–	–	–	–

Well ID TOC	Date	DTW (ft/bgs)	Groundwater Elevation (ft/amsl)	TCE (µg/L)	cis-1,2-DCE (µg/L)
MTCA Method A Cleanup Level		–	–	**5**	–
MTCA Method B Cleanup Level		–	–	–	**16**
	1-Jan-04	–	1,260.71	**12.0**	1U
	23-Mar-05	96.15	1,255.73	**25.0**	0.5U
	23-Aug-05	87.89	1,263.99	**38.0**	**0.50**
	21-Mar-06	92.33	1,259.55	**28.0**	**0.70**
MTS-2 (cont.)	1-Aug-06	85.85	1,266.03	**76.0**	**1.90**
1351.88	21-Mar-07	90.96	1,260.92	**32.0**	**0.60**
	19-Sep-07	86.00	1,265.88	**55.0**	**1.40**
	18-Mar-08	90.68	1,261.20	**18.6**	**0.50**
	19-Sep-08	87.22	1,264.66	**38.2**	**1.26**
Duplicate	19-Sep-08	87.22	1,264.66	**37.3**	**1.21**
	23-Mar-09	92.07	1,259.81	**28.2**	**0.73**
	23-Sep-09	86.65	1,265.23	**43.2**	**1.01**
	16-Mar-10	91.22	1,260.66	**16.0**	1U
	28-Sep-10	83.75	1,268.13	**6.3**	0.5U
	21-Mar-11	87.70	1,264.18	**7.4**	0.5U
	21-Sep-11	83.79	1,268.09	**4.6**	0.5U
	28-Mar-12	87.26	1,264.62	**4.4**	0.5U
	20-Aug-12	83.67	1,268.21	**6.5**	0.5U
	19-Mar-13	86.76	1,265.12	**6.8**	0.2U
	26-Sep-13	85.65	1,266.23	**5.6**	0.2U
	12-Mar-14	88.60	1,263.28	**8.4**	0.2U
	23-Sep-14	84.68	1,267.20	**24**	**0.47J**
	19-Mar-15	88.66	1,263.22	**8**	**0.2J**
	22-Sep-15	89.81	1,262.07	**11**	**0.22J**
	16-Mar-16	86.13	1,265.75	**6.9**	**0.18J**
	21-Sep-16	84.79	1,267.09	**5.0**	**0.15**
	30-Mar-17	86.28	1,265.60	**7.9**	**0.18J**
	12-Sep-17	84.88	1,267.00	**5.3**	**0.12J**
	29-Mar-18	89.82	1,262.06	**8.0**	**0.19J**
	13-Sep-18	85.69	1,266.19	**11.0**	**0.19J**
MTS-3	23-Mar-05	29.14	1,333.22	0.5U	0.5U
1362.36	23-Aug-05	27.73	1,334.63	–	–
	21-Mar-06	29.00	1,333.36	0.5U	0.5U
	1-Aug-06	26.86	1,335.50	–	–
	21-Mar-07	28.90	1,333.46	0.5U	0.5U
	19-Sep-07	26.43	1,335.93	–	–
	18-Mar-08	28.67	1,333.69	–	–
	19-Sep-08	26.62	1,335.74	–	–
	23-Mar-09	28.70	1,333.66	–	–
	23-Sep-09	26.65	1,335.71	–	–
	16-Mar-10	28.74	1,333.62	–	–

Well ID TOC	Date	DTW (ft/bgs)	Groundwater Elevation (ft/amsl)	TCE (µg/L)	cis-1,2-DCE (µg/L)
MTCA Method A Cleanup Level		–	–	**5**	–
MTCA Method B Cleanup Level		–	–	–	**16**
	28-Sep-10	25.53	1,336.83	–	–
	21-Mar-11	27.58	1,334.78	–	–
	21-Sep-11	25.41	1,336.95	–	–
	28-Mar-12	27.60	1,334.76	–	–
	20-Aug-12	25.64	1,336.72	–	–
MTS-3 (cont.)	19-Mar-13	27.87	1,334.49	–	–
1362.36	26-Sep-13	27.24	1,335.12	–	–
	12-Mar-14	28.50	1,333.86	–	–
	23-Sep-14	26.45	1,335.91	–	–
	19-Mar-15	28.03	1,334.33	–	–
	22-Sep-15	27.76	1,334.60	–	–
	16-Mar-16	27.95	1,334.41	–	–
	21-Sep-16	25.55	1,336.81	–	–
	30-Mar-17	27.65	1,334.71	–	–
	12-Sep-17	25.65	1,336.71	–	–
	29-Mar-18	28.19	1,334.17	–	–
	13-Sep-18	26.75	1,335.61	–	–
MTS-4	23-Mar-05	89.70	1,242.18	**15.0**	0.5U
1331.88	23-Aug-05	86.14	1,245.74	**9.4**	0.5U
	21-Mar-06	88.02	1,243.86	**13.0**	0.5U
	1-Aug-06	81.32	1,250.56	**12.0**	0.5U
	21-Mar-07	86.15	1,245.73	**13.0**	0.5U
	19-Sep-07	81.25	1,250.63	**8.2**	0.5U
	18-Mar-08	85.51	1,246.37	**10.1**	0.5U
	19-Sep-08	83.80	1,248.08	**7.6**	0.5U
	23-Mar-09	87.72	1,244.16	**0.52**	0.5U
	23-Sep-09	83.47	1,248.41	**10.7**	0.5U
	16-Mar-10	87.32	1,244.56	**8.9**	1U
	28-Sep-10	75.75	1,256.13	**6.4**	0.5U
	21-Mar-11	82.13	1,249.75	**7.7**	0.5U
	21-Sep-11	73.72	1,258.16	**6.0**	0.5U
	28-Mar-12	81.19	1,250.69	**7.3**	0.5U
	20-Aug-12	72.60	1,259.28	**5.3**	0.5U
	19-Mar-13	79.52	1,252.36	**6.2**	0.2U
	26-Sep-13	78.85	1,253.03	**4.9**	**0.23**
	12-Mar-14	83.70	1,248.18	**5.4**	0.2U
	23-Sep-14	79.06	1,252.82	**5.6**	**0.16J**
Duplicate	23-Sep-14	79.06	1,252.82	**6.0**	**0.18J**
	19-Mar-15	83.35	1,248.53	**8.0**	**0.25J**
	22-Sep-15	78.42	1,253.46	**5.6**	**0.18J**
	16-Mar-16	79.90	1,251.98	**7.3**	**0.27J**

Well ID TOC	Date	DTW (ft/bgs)	Groundwater Elevation (ft/amsl)	TCE (µg/L)	cis-1,2-DCE (µg/L)
MTCA Method A Cleanup Level		–	–	**5**	–
MTCA Method B Cleanup Level		–	–	–	**16**
	21-Sep-16	76.52	1,255.36	–	**0.19J**
	30-Mar-17	79.24	1,252.64	**5.5**	**0.21J**
	12-Sep-17	75.80	1,256.08	**5.1**	**0.17J**
	29-Mar-18	83.18	1,248.70	**6.1J+**	**0.19J**
	13-Sep-18	78.49	1,253.39	**5.0**	**0.19J**
TVR-1	1-Mar-93	–	1,246.81	**35.0**	5U
1320.17	28-Feb-95	–	–	–	–
	1997	–	–	–	–
	1-Aug-99	–	–	–	–
	1-Jan-04	–	1,245.50	**12.0**	0.5U
	23-Mar-05	78.98	1,241.19	**9.8**	0.5U
	23-Aug-05	75.48	1,244.69	**6.2**	0.5U
	21-Mar-06	71.17	1,249.00	**8.4**	0.5U
	1-Aug-06	71.43	1,248.74	**12.0**	0.5U
	21-Mar-07	75.32	1,244.85	**12.0**	0.5U
	19-Sep-07	71.34	1,248.83	**12.0**	0.5U
	18-Mar-08	74.63	1,245.54	**9.2**	0.5U
	19-Sep-08	73.52	1,246.65	**9.0**	0.5U
	23-Mar-09	76.76	1,243.41	**8.8**	0.5U
Duplicate	23-Mar-09	76.76	1,243.41	**9.0**	0.5U
	23-Sep-09	73.40	1,246.77	**8.6**	0.5U
	16-Mar-10	76.50	1,243.67	**5.8**	1U
	29-Sep-10	67.05	1,253.12	**3.2**	0.5U
	21-Mar-11	71.58	1,248.59	**6.9**	0.5U
	21-Sep-11	64.61	1,255.56	**8.7**	0.5U
	28-Mar-12	70.63	1,249.54	**7.3**	0.5U
	20-Aug-12	63.45	1,256.72	**7.9**	0.5U
	19-Mar-13	69.00	1,251.17	**6.8**	0.2U
	26-Sep-13	69.35	1,250.82	**5.9**	0.2U
	12-Mar-14	73.10	1,247.07	**5.4**	0.2U
	22-Sep-14	70.45	1,249.72	**4.7**	0.5U
	19-Mar-15	72.60	1,247.57	**4.5**	0.2U
	22-Sep-15	69.70	1,250.47	**3.8**	0.2U
	16-Mar-16	69.90	1,250.27	**5.7**	0.2U
	21-Sep-16	67.12	1,253.05	**6.1**	0.08J
	29-Mar-17	69.46	1,250.71	**7.0**	0.2U
	12-Sep-17	66.35	1,253.82	**8.3**	0.2U
	29-Mar-18	70.45	1,249.72	**7.5**	0.2U
	13-Sep-18	68.61	1,251.56	**8.1**	0.2U
TVR-2	1-Mar-93	–	1,247.03	**14.0**	5U

Well ID TOC	Date	DTW (ft/bgs)	Groundwater Elevation (ft/amsl)	TCE (µg/L)	cis-1,2-DCE (µg/L)
MTCA Method A Cleanup Level		–	–	**5**	–
MTCA Method B Cleanup Level		–	–	–	**16**
1317.56	28-Feb-95	–	–	–	–
	1997	–	–	–	–
	1-Aug-99	–	–	–	–
	1-Jan-04	–	1,245.30	**3.60**	1U
	23-Mar-05	76.96	1,240.60	**4.40**	0.5U
	23-Aug-05	72.13	1,245.43	**3.40**	0.5U
	21-Mar-06	74.22	1,243.34	**3.30**	0.5U
TVR-2 (cont.)	1-Aug-06	67.69	1,249.87	**2.90**	0.5U
1317.56	21-Mar-07	72.55	1,245.01	**2.60**	0.5U
	19-Sep-07	68.19	1,249.37	**1.70**	0.5U
	18-Mar-08	71.91	1,245.65	**3.37**	0.5U
	19-Sep-08	70.15	1,247.41	–	–
	23-Mar-09	74.10	1,243.46	**3.54**	0.5U
	23-Sep-09	70.50	1,247.06	–	–
	16-Mar-10	73.75	1,243.81	**3.20**	1U
	29-Sep-10	63.72	1,253.84	–	–
	21-Mar-11	68.75	1,248.81	**2.90**	0.5U
	21-Sep-11	60.89	1,256.67	–	–
	28-Mar-12	68.06	1,249.50	**2.8**	0.5U
	20-Aug-12	59.84	1,257.72	–	–
	19-Mar-13	66.52	1,251.04	**2.6**	0.2U
	26-Sep-13	66.35	1,251.21	–	–
	12-Mar-14	70.55	1,247.01	**2.1**	0.2U
	22-Sep-14	67.58	1,249.98	–	–
	19-Mar-15	70.34	1,247.22	**2.6**	0.2U
	22-Sep-15	66.53	1,251.03	–	–
	16-Mar-16	66.40	1,251.16	**3.6**	0.2U
	21-Sep-16	63.96	1,253.60	–	–
	29-Mar-17	65.94	1,251.62	–	–
	12-Sep-17	66.46	1,251.10	–	–
	29-Mar-18	70.17	1,247.39	**2.3**	0.2U
	13-Sep-18	64.83	1,252.73	-	-
TVR-3	23-Mar-05	69.63	1,240.97	**43.0**	1.3
1310.60	23-Aug-05	64.98	1,245.62	**25.0**	0.5
	21-Mar-06	67.32	1,243.28	**26.0**	0.5U
	1-Aug-06	60.93	1,249.67	**17.0**	0.5U
	21-Mar-07	65.64	1,244.96	**33.0**	0.5U
	19-Sep-07	61.53	1,249.07	**15.0**	0.5U
	18-Mar-08	64.98	1,245.62	**21.0**	0.5U
	19-Sep-08	63.50	1,247.10	**10.0**	0.5U
	23-Mar-09	67.11	1,243.49	**14.8**	0.5U

Well ID TOC	Date	DTW (ft/bgs)	Groundwater Elevation (ft/amsl)	TCE (µg/L)	cis-1,2-DCE (µg/L)
MTCA Method A Cleanup Level		–	–	**5**	–
MTCA Method B Cleanup Level		–	–	–	**16**
	23-Sep-09	63.87	1,246.73	**14.3**	0.5U
Duplicate	23-Sep-09	63.87	1,246.73	**14.0**	0.5U
	16-Mar-10	66.83	1,243.77	**17.0**	1U
	29-Sep-10	57.00	1,253.60	**11.0**	0.5U
	21-Mar-11	61.80	1,248.80	**14.0**	0.5U
	21-Sep-11	54.07	1,256.53	**10.0**	0.5U
	28-Mar-12	61.20	1,249.40	**12.0**	0.5U
	20-Aug-12	53.12	1,257.48	**8.0**	0.5U
TVR-3 (cont.)	19-Mar-13	59.52	1,251.08	**9.2**	0.2U
1310.60	26-Sep-13	59.65	1,250.95	**6.6**	0.2U
	12-Mar-14	63.50	1,247.10	**8.2**	0.2U
	22-Sep-14	60.90	1,249.70	**6.9**	**0.10J**
	19-Mar-15	63.31	1,247.29	**7.7**	**0.17J**
	22-Sep-15	59.75	1,250.85	**8.4**	**0.12J**
	16-Mar-16	59.57	1,251.03	**7.5**	**0.14J**
	21-Sep-16	57.21	1,253.39	**4.9**	**0.13J**
	30-Mar-17	59.35	1,251.25	**6.1**	**0.11J**
	12-Sep-17	56.16	1,254.44	**2.9**	0.2U
	29-Mar-18	63.30	1,247.30	**6.7**	0.12J
Duplicate	29-Mar-18	63.30	1,247.30	**6.5**	0.12J
	13-Sep-18	58.00	1,252.60	**2.6**	0.2U
TVR-5	21-Mar-06	60.48	1,241.56	**1.6**	0.5U
1302.04	1-Aug-06	51.50	1,250.54	**1.0**	0.5U
	21-Mar-07	58.53	1,243.51	**1.2**	0.5U
	19-Sep-07	53.35	1,248.69	**1.1**	0.5U
	18-Mar-08	57.81	1,244.23	**1.0**	0.5U
	19-Sep-08	54.31	1,247.73	**1.2**	0.5U
	23-Mar-09	59.85	1,242.19	**1.2**	0.5U
	23-Sep-09	55.81	1,246.23	**16.0**	0.5U
	16-Mar-10	59.91	1,242.13	**3.5**	0.5U
Duplicate	16-Mar-10	59.91	1,242.13	**3.5**	0.5U
	28-Sep-10	48.53	1,253.51	**11.0**	0.5U
Duplicate	28-Sep-10	48.53	1,253.51	**11.0**	0.5U
	21-Mar-11	54.90	1,247.14	**2.4**	0.5U
Duplicate	21-Mar-11	54.90	1,247.14	**2.4**	0.5U
	21-Sep-11	44.95	1,257.09	**0.7**	0.5U
Duplicate	21-Sep-11	44.95	1,257.09	**0.5**	0.5U
	28-Mar-12	54.25	1,247.79	**0.7**	0.5U
Duplicate	28-Mar-12	54.25	1,247.79	**0.7**	0.5U
	20-Aug-12	44.17	1,257.87	0.5U	0.5U
	19-Mar-13	52.58	1,249.46	**0.4**	0.2U

Well ID TOC	Date	DTW (ft/bgs)	Groundwater Elevation (ft/amsl)	TCE (µg/L)	cis-1,2-DCE (µg/L)
MTCA Method A Cleanup Level		–	–	**5**	–
MTCA Method B Cleanup Level		–	–	–	**16**
	26-Sep-13	51.60	1,250.44	**3.7**	0.2U
	12-Mar-14	56.40	1,245.64	**0.4**	0.2U
	22-Sep-14	52.52	1,249.52	**6.6**	0.5U
	19-Mar-15	56.51	1,245.53	**0.8**	0.2U
	22-Sep-15	51.05	1,250.99	**4.4**	0.2U
	16-Mar-16	51.58	1,250.46	**0.49J**	0.2U
	21-Sep-16	48.73	1,253.31	**0.92**	0.2U
	31-Mar-17	51.05	1,250.99	**0.26J**	0.2U
	12-Sep-17	49.90	1,252.14	**0.12J**	0.2U
TVR-5 (cont.)	29-Mar-18	56.38	1,245.66	**0.10J**	0.2U
1302.04	13-Sep-18	47.78	1,254.26	0.20U	0.2U
TVR-6	21-Mar-06	67.03	1,243.03	**6.8**	0.5U
1310.06	1-Aug-06	60.88	1,249.18	**7.7**	0.5U
	21-Mar-07	65.19	1,244.87	**5.0**	0.5U
	19-Sep-07	61.50	1,248.56	**2.8**	0.5U
	18-Mar-08	64.98	1,245.08	**2.9**	0.5U
	19-Sep-08	63.39	1,246.67	**1.7**	0.5U
	23-Mar-09	66.68	1,243.38	**2.2**	0.5U
	23-Sep-09	63.62	1,246.44	**10.6**	0.5U
	16-Mar-10	66.41	1,243.65	**4.6**	1U
	29-Sep-10	57.03	1,253.03	**13.0**	0.5U
	21-Mar-11	61.48	1,248.58	**11.0**	0.5U
	21-Sep-11	54.01	1,256.05	**5.2**	0.5U
	28-Mar-12	60.80	1,249.26	**4.2**	0.5U
	20-Aug-12	53.26	1,256.80	**2.9**	0.5U
	19-Mar-13	59.07	1,250.99	**5.4**	0.2U
	25-Sep-13	58.65	1,251.41	**10.0**	0.2U
	12-Mar-14	62.80	1,247.26	**8.8**	0.2U
	23-Sep-14	59.94	1,250.12	**11.0**	**0.090J**
	19-Mar-15	62.61	1,247.45	**8.0**	0.2U
	22-Sep-15	59.50	1,250.56	**9.9**	0.2U
	16-Mar-16	59.49	1,250.57	**8.0J**	0.2U
	21-Mar-16	57.02	1,253.04	**5.9**	0.2U
	29-Mar-17	59.30	1,250.76	**4.7**	0.2U
	12-Sep-17	56.10	1,253.96	**1.7**	0.2U
	29-Mar-18	61.96	1,248.10	**2.8J+**	0.2U
	13-Sep-18	57.71	1,252.35	**1.2**	0.2U
TVR-7	21-Mar-06	67.89	1,243.06	**38.0**	**1.30**
1310.95	1-Aug-06	61.82	1,249.13	**43.0**	**1.00**
	21-Mar-07	66.10	1,244.85	**42.0**	**0.80**
	19-Sep-07	62.31	1,248.64	**32.0**	**0.60**

Well ID TOC	Date	DTW (ft/bgs)	Groundwater Elevation (ft/amsl)	TCE (µg/L)	cis-1,2-DCE (µg/L)
MTCA Method A Cleanup Level		–	–	**5**	–
MTCA Method B Cleanup Level		–	–	–	**16**
	18-Mar-08	65.45	1,245.50	**28.3**	**0.77**
Duplicate	18-Mar-08	65.45	1,245.50	**29.0**	**0.80**
	19-Sep-08	64.30	1,246.65	**20.7**	0.5U
	23-Mar-09	67.51	1,243.44	**21.6**	**0.56**
	23-Sep-09	64.39	1,246.56	**26.6**	0.5U
	16-Mar-10	67.29	1,243.66	**20.0**	1U
	29-Sep-10	57.85	1,253.10	**21.0**	0.5U
	21-Mar-11	62.35	1,248.60	**21.0**	0.5U
	21-Sep-11	55.05	1,255.90	**18.0**	0.5U
	28-Mar-12	61.66	1,249.29	**15.0**	0.5U
TVR-7 (cont.)	20-Aug-12	54.10	1,256.85	**13.0**	0.5U
1310.95	19-Mar-13	59.97	1,250.98	**0.4**	0.2U
	26-Sep-13	60.15	1,250.80	**9.8**	0.2U
	12-Mar-14	63.75	1,247.20	**6.2**	0.2U
	23-Sep-14	67.50	1,243.45	**12.0**	0.5U
	19-Mar-15	63.60	1,247.35	**10.0**	0.2U
Duplicate	19-Mar-15	63.60	1,247.35	**10.0**	0.2U
	22-Sep-15	60.45	1,250.50	**10.0**	0.2U
	16-Mar-16	60.43	1,250.52	**10.0**	0.2U
	21-Mar-16	57.92	1,253.03	**8.2**	0.2U
	30-Mar-17	60.27	1,250.68	**7.9**	0.2U
	12-Sep-17	57.04	1,253.91	**6.4**	0.2U
	29-Mar-18	63.17	1,247.78	**5.9**	0.2U
	13-Sep-18	58.87	1,252.08	**5.9**	0.2U
Marie Well	1-Mar-93	–	–	**1.20**	5U
PAIC Well	1-Mar-93	–	–	5U	5U
	28-Feb-95	–	–	0.1U	0.1U
	1997	–	–	0.5U	0.5U
	1-Aug-99	–	–	–	–
	1-Jan-04	–	–	–	–
	23-Mar-05	–	–	–	–
	23-Aug-05	–	–	–	–
	21-Mar-06	–	–	0.5U	0.5U
	1-Aug-06	–	–	–	–
	21-Mar-07	–	–	0.5U	0.5U
	19-Sep-07	–	–	0.5U	0.5U
	18-Mar-08	–	–	0.5U	0.5U
	19-Sep-08	–	–	0.5U	0.5U
	23-Mar-09	–	–	0.5U	0.5U
	23-Sep-09	–	–	0.5U	0.5U
	15-Mar-10	–	–	1U	1U

Well ID TOC	Date	DTW (ft/bgs)	Groundwater Elevation (ft/amsl)	TCE (µg/L)	cis-1,2-DCE (µg/L)
MTCA Method A Cleanup Level		–	–	**5**	–
MTCA Method B Cleanup Level		–	–	–	**16**
	29-Sep-10	–	–	0.5U	0.5U
	21-Mar-11	–	–	0.5U	0.5U
	22-Sep-11	–	–	0.5U	0.5U
	28-Mar-12	–	–	0.5U	0.5U
	20-Aug-12	–	–	0.5U	0.5U
	20-Mar-13	–	–	0.2U	0.2U
	25-Sep-13	–	–	0.2U	0.2U
	12-Mar-14	–	–	0.2U	0.2U
	23-Sep-14	–	–	0.5U	0.5U
	19-Mar-15	–	–	0.1U	0.2U
	22-Sep-15	–	–	0.1U	0.2U
PAIC Well (cont.)	16-Mar-16	–	–	0.1U	0.2U
	21-Sep-16	–	–	0.1U	0.2U
	30-Mar-17	–	–	0.1U	0.2U
	12-Sep-17	–	–	0.1U	0.2U
	29-Mar-18	–	–	0.1U	0.2U
	13-Sep-18	–	–	0.1U	0.2U
Pomona Well	1-Mar-91	–	–	ND	ND
	1-Aug-92	–	–	0.5U	0.5U
	1-Mar-93	–	–	5U	5U
	28-Feb-95	–	–	–	–
	1997	–	–	ND	ND
	1-Aug-99	–	–	0.5U	0.5U
	1-Jan-04	–	–	–	–
	23-Mar-05	–	–	–	–
	23-Aug-05	–	–	–	–
	21-Mar-06	–	–	0.5U	0.5U
	1-Aug-06	–	–	0.5U	0.5U
	21-Mar-07	–	–	0.5U	0.5U
	19-Sep-07	–	–	0.5U	0.5U
	18-Mar-08	–	–	–	–
	19-Sep-08	–	–	0.5U	0.5U
	23-Mar-09	–	–	0.5U	0.5U
	23-Sep-09	–	–	0.5U	0.5U
	16-Mar-10	–	–	1U	1U
	29-Sep-10	–	–	0.5U	0.5U
	21-Mar-11	–	–	0.5U	0.5U
	21-Sep-11	–	–	0.5U	0.5U
	28-Mar-12	–	–	0.5U	0.5U
	20-Aug-12	–	–	0.5U	0.5U
	19-Mar-13	–	–	0.2U	0.2U

Well ID TOC	Date	DTW (ft/bgs)	Groundwater Elevation (ft/amsl)	TCE (µg/L)	cis-1,2-DCE (µg/L)
MTCA Method A Cleanup Level		–	–	**5**	–
MTCA Method B Cleanup Level		–	–	–	**16**
	26-Sep-13	–	–	0.2U	0.2U
	12-Mar-14	–	–	0.2U	0.2U
	23-Sep-14	–	–	0.5U	0.5U
	19-Mar-15	–	–	0.1U	0.2U
	22-Sep-15	–	–	0.1U	0.2U
	16-Mar-16	–	–	0.1U	0.2U
	21-Sep-16	–	–	0.1U	0.2U
	30-Mar-17	–	–	0.1U	0.2U
	12-Sep-17	–	–	0.1U	0.2U
	29-Mar-18	-	-	0.2U	0.2U
	13-Sep-18			0.2U	0.2U

Notes:

BOLD Analyte detected above laboratory reporting limit.

SHADE Analyte detected above Model Toxics Control Act (MTCA) cleanup level.

– = not applicable, not sampled

Abbreviations and Acronyms:

µg/L – micrograms per liter

cis-DCE – cis 1,2-dichloroetheylene

DTW – depth-to-water

ft AMSL – feet above mean sea level

ft bgs – feet below ground surface

ID – identification

J – estimated concentration

J+ - the result was an estimated quantity, but the result may be biased high

ND – non-detect

TCE – trichloroethylene

TOC – top-of-casing elevation

U – Analyte not detected above laboratory PQL. Beginning in 2018, value listed is the reporting limit.

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Table 6
FTP-1 and TVR/Old MATES Statistics
Fire Training Pit and TVR/Old MATES, Yakima Training Center, Washington

Site	Fire Training Pit			TVR / Old MATES														
Well ID	FTP-1			815-2	MMP-1	MMP-2	MRC-2	MTS-1	MTS-2	MTS-3	MTS-4	TVR-1	TVR-2	TVR-3	TVR-5	TVR-6	TVR-7	PAIC Well	Pomona Well
Compound	TPH-G	TPH-D	TPH-O	TCE	TCE	TCE	TCE	TCE	TCE	TCE	TCE	TCE	TCE	TCE	TCE	TCE	TCE	TCE	TCE
	Descriptive Statistics			**Descriptive Statistics**														
First Sample Date	30-Jan-04			21-Mar-06	1-Mar-93	1-Mar-93	1-Mar-93	1-Jan-04	1-Jan-04	23-Mar-05	23-Mar-05	1-Jan-04	1-Jan-04	23-Mar-05	21-Mar-06	21-Mar-06	21-Mar-06	1-Mar-93	1-Mar-91
Last Sample Date	12-Sep-18			13-Sep-18	13-Sep-18	21-Mar-07	19-Mar-13	13-Sep-18	13-Sep-18	22-Sep-14	13-Sep-18	13-Sep-18	29-Mar-18	13-Sep-18	13-Sep-18	13-Sep-18	13-Sep-18	13-Sep-18	13-Sep-18
Number of Samples	28			26	14	5	7	29	29	3	27	29	17	28	26	26	26	28	30
Number of Non-Detects	1	0	7	1	13	5	7	0	0	3	0	0	0	0	1	0	0	28	30
Sample Mean	3251.00	24,523	2,929	1.24	-	-	-	4.65	18.87	-	7.62	7.62	2.99	13.17	2.37	6.08	17.42	-	-
Standard Deviation	4,578	20,125	3,370	0.77	-	-	-	1.41	17.58	-	3.13	2.42	0.66	9.28	3.69	3.43	11.69	-	-
Minimum Concentration	710	4,350	93	0.45	-	-	-	2.7	4.4	-	0.52	3.2	1.7	2.6	0.1	1.2	0.4	-	-
Maximum Concentration	25,100	110,000	13,000	3.3	-	-	-	7.6	76	-	15	12	4.4	43	16	13	43	-	-
Date*	22-Aug-05	20-Mar-13	20-Aug-12	1-Aug-06	-	-	-	23-Mar-05	1-Aug-06	-	23-Mar-05	19-Sep-07	23-Mar-05	23-Mar-05	23-Sep-09	28-Sep-10	1-Aug-06	-	-
	Distribution of Data			**Distribution of Data**														
P Value	<0.0001	<0.0001	0.0001	0.0002	-	-	-	0.0468	<0.0001	-	0.0854	0.2557	0.9418	0.0005	<0.0001	0.1572	0.0273	-	-
Normally Distributed?	No	No	No	No	-	-	-	No	No	-	Yes	Yes	Yes	No	No	Yes	No	-	-
Log P Value	0.0322	0.6412	0.0703	0.1696	-	-	-	0.3445	0.0279	-	-	-	-	0.8832	0.7909	-	0.0007	-	-
Log Normally Distributed?	No	Yes	Yes	Yes	-	-	-	Yes	No	-	-	-	-	Yes	Yes	-	No	-	-
	Trend Analysis			**Trend Analysis**														
Linear Regression P Value	-	0.9508	<0.0001	<0.0001	-	-	-	<0.0001	-	-	0.0002	0.0010	0.0795	<0.0001	0.0160	0.8679	-	-	-
Slope	-	5.582 E-06	6.910 E-04	-2.890 E-04	-	-	-	-1.553 E-04	-	-	-0.0014	-8.874 E-04	1.854 E-04	-4.719 E-04	-4.254 E-04	-8.395 E-05	-	-	-
Trend**	-	Up	Up	Down	-	-	-	Down	-	-	Down	Down	Down	Down	Down	Down	-	-	-
Statistically Significant?	-	No	Yes	Yes	-	-	-	Yes	-	-	Yes	Yes	No	Yes	Yes	No	-	-	-
Tau Statistic	-0.414	-	-	-	-	-	-	-	-0.375	-	-	-	-	-	-	-	-0.8	-	-
Two Tailed P Value	0.0022	-	-	-	-	-	-	-	0.0043	-	-	-	-	-	-	-	<0.0001	-	-
Trend	Down	-	-	-	-	-	-	-	Down	-	-	-	-	-	-	-	Down	-	-
Statistically Significant?	Yes	-	-	-	-	-	-	-	Yes	-	-	-	-	-	-	-	Yes	-	-

Notes:

- = Not applicable; analysis not performed. Analysis was not performed on datasets with over 50% non-detects. Logarithmic transformation was not performed on datasets considered normally distributed. Linear regression trend analysis was not performed on datasets not considered normally or log-normally distributed (non-parametric data).

* = Date sample with highest concentration of TCE was collected from monitoring well

** = Trend for entire dataset not taking discontinuities into consideration

TPH-G – gasoline range total petroleum hydrocarbons in micrograms per liter

TPH-D – diesel range total petroleum hydrocarbons in micrograms per liter

TPH-O – heavy oil range total petroleum hydrocarbons in micrograms per liter

TCE – trichloroethylene in micrograms per liter

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APPENDIX A

COMPLETED FIELD FORMS AND LABORATORY ANALYTICAL REPORTS

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SAMPLE DELIVERY GROUP K1802993

28-29 MARCH 2018

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Joint Base Lewis-McChord

Well Purging and Sampling Record

Well ID: FTP-1 **Sample ID:** FTP-1-20180328 **Sample Date/Time:** 3/28/18 @ 1625

Casing diameter/type: 4" PVC
Well location: FORMER FIRE TRAINING PIT
Weather: 60°F, SUNNY
Screened interval(s): 8' - 18'
Sampling personnel: G. LEE, R. NEWMAN
Total depth: 23.58' BTOC
Sampling method: BAILER - 3 WELL VOL. THEN SAMPLE
Initial depth to water (w/o pump): 13.33' BTOC
Water level indicator: SOLINST 43621
Final depth to water (w/o pump): 20.65' BTOC
Water quality meter: YSI DDS PRO #5003
Measuring point: **North side of casing**
Pump depth setting: N/A
Pump type/model: N/A ; BAILER

	Δ < 1° C	Δ < 10%	Δ <10%	Δ <10%	Δ < 0.1 pH	Δ < 10 mV	Δ < 0.3 ft	< 1L/min	Δ < 10 NTU		
Time	**Temp (°C)**	**Conductivity (mS/cm) or (µS/cm)**	**DO (%)**	**DO (mg/L)**	**pH**	**ORP (mV)**	**Water Level (feet btoc)**	**Flow Rate (L/min) or (mL/min)**	**Turbidity (NTU)**	**Purge Volume (L) or (mL)**	**Additional Comments**
1525	14.7	1520	16.9	1.71	7.09	-48.1	17.52'	NA	13.1	~6.67 GAL	@ 1 WELL VOL
1550	14.2	1575	42.6	4.33	7.27	-80.6	22.16	NA	7.3	~14.0 GAL	@ 2 WELL VOL
1619	13.7	1575	45.4	4.66	7.33	-77.9	22.84	NA	4.6	~21.0 GAL	@ 3 WELL VOL
1625	SAMPLE	COLLECTED									

Note: STRONG PETROLEUM ODOR

Parameter Stabilization Limits:
(3 consecutive readings) for percent difference type parameters
Percent difference formula =
ABS[((first reading - second reading)/first reading) x 100]
Ex: Readings 12, 16, 15, 13
((12-16)/12)*100 = 33% ((16-15)/16)*100 = 6%
((15-13)/15)*100 = 13% In example, stabilization has not occurred.

10.25' WATER COLUMN
x .087 FT² (AREA OF 4" WELL)
= .892 FT³
⇒ 6.67 GAL (1 WELL VOL)

20.02 GAL (3 WELL VOL)

# of Bottles / Analysis:
9 VOCs by 8260C
9 ~~VOA~~ GRO BY 8015C
6 DRO RRO BY 8015C
6 PAH SIM BY 8270D

(ADDITIONAL BOTTLES ASSOCIATED W/ MS/MSD)

Passive Diffusion Bag Sampling Form

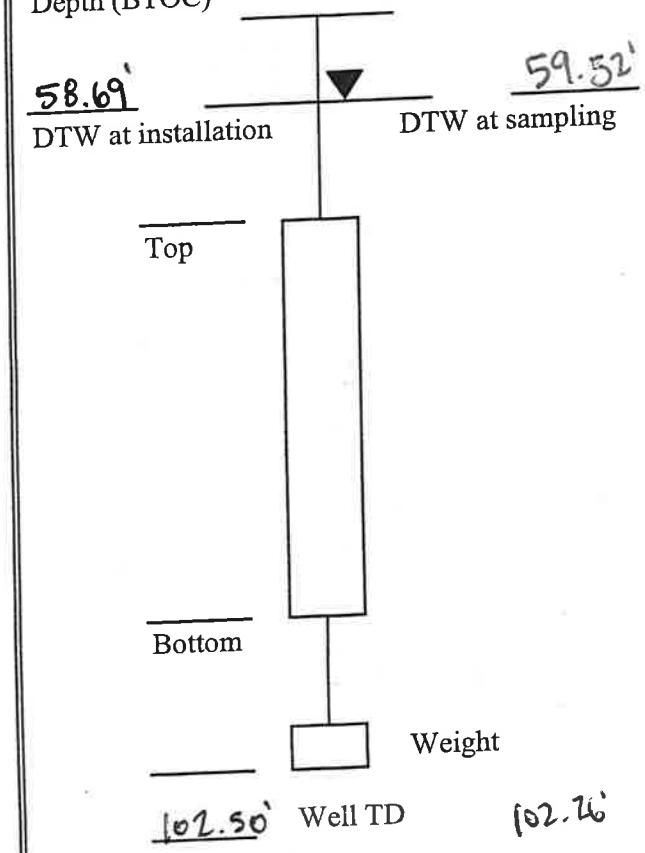
Well Identification: MMP-1

Site Location: TVR OLD-MATES

Project Number: 6304305

Well Diameter: 4"

PDB Installation Date: 3.12.18 Time: 1240



Sample Information

Sample No: TVR-MMP-1-20180329

Sample Date: 3/29/18 Time: 1108

Sampling Personnel: GL

Analyses: VOCs

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): ~~Y~~ GL NO

Well Condition at Sampling

Well Monument Locked and in Good Condition? YES

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing): D

Well Casing Plug Locked and in Good Condition? NO PLUG, PDB CAP

Comments:

Passive Diffusion Bag Sampling Form

Well Identification: MTS-1

Depth (BTOC)

87.71' DTW at installation

98.43' DTW at sampling

Top

Bottom

Weight

127.40' Well TD 127.41'

Site Location: TVR OLD MATES

Project Number: 6304305

Well Diameter: 4"

PDB Installation Date: 3.12.18 Time: 1524

Sample Information

Sample No: TVR-MTS-1-20180324

Sample Date: 3/24/18 Time: 1135

Sampling Personnel: GL

Analyses: VOCs

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

Well Condition at Sampling

Well Monument Locked and in Good Condition? Y

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

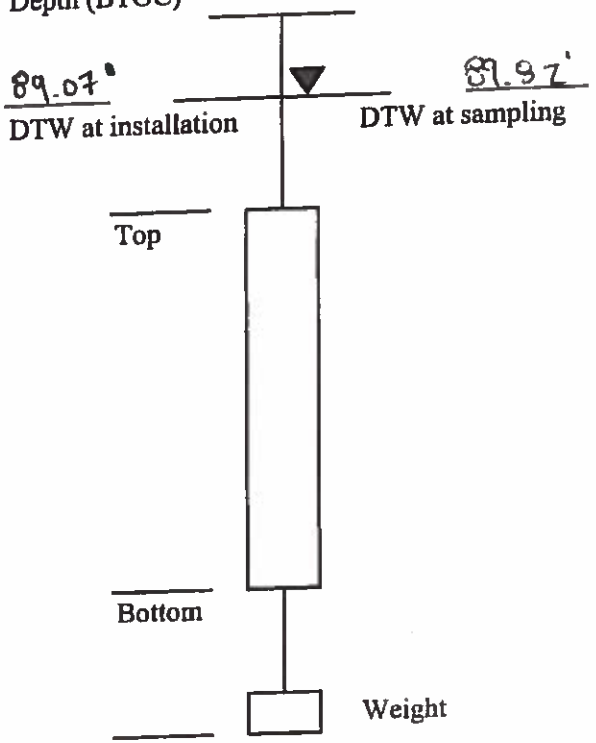
Well Casing Plug Locked and in Good Condition? NO PLUG, PDB CAP

Comments:

Passive Diffusion Bag Sampling Form

Well Identification: MTS-2

Depth (BTOC)



Site Location: ~~MTS~~ GL TVR OLD MAINS

Project Number: 6304305

Well Diameter: 4"

PDB Installation Date: 3-17-18 Time: 1545

Sample Information

Sample No: TVR-MTS-2-20180329

Sample Date: 3/29/18 Time: 1154

Sampling Personnel: GL

Analyses: VOC

Biofilm Present (Y/N): N

New PDB Deployed (Y/N) NO - PDB WIRE BROKE, CANNOT RECOVER - MBB 4/11/18

4/11/18 - PDB WIRE REPLACED & PDB REDEPLOYED.

Well Condition at Sampling

Well Monument Locked and in Good Condition? FLUSH MOUNT, RUSTY BOLTS

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing): WBC

Well Casing Plug Locked and in Good Condition? YES

Comments:

Passive Diffusion Bag Sampling Form

Well Identification: MTS-4

Depth (BTOC)

82.36' DTW at installation

93.18' DTW at sampling

Top

Bottom

Weight

96.44' Well TD 96.65'

Site Location: TVR - OLD MATES

Project Number: 6304305

Well Diameter: 4"

PDB Installation Date: 3-12-18 Time: 1450

Sample Information

Sample No: TVR-MTS-4-20190329

Sample Date: 3/29/19 Time: 1253

Sampling Personnel: GL

Analyses: VOC

Biofilm Present (Y/(N)): N

New PDB Deployed ((Y)/N): Y

Well Condition at Sampling

Well Monument Locked and in Good Condition? FLUSH MOUNT, LOOSE BOLTS

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing): D

Well Casing Plug Locked and in Good Condition? NO PLUG, PDB CAP

Comments:

Passive Diffusion Bag Sampling Form

Well Identification: TVR-1

Depth (BTOC)

71.78 DTW at installation

70.45 DTW at sampling

Top

Bottom

Weight

106.43 Well TD

Site Location: TUR OLD MATES

Project Number: 6304305

Well Diameter: 4"

PDB Installation Date: 3.12.18 Time: 1433

Sample Information

Sample No: TVR-1-20180329

Sample Date: 3/29/18 Time: 1438

Sampling Personnel: GL

Analyses: VOC

Biofilm Present (Y(N)): N

New PDB Deployed ((Y)N): Y

Well Condition at Sampling

Well Monument Locked and in Good Condition? YES

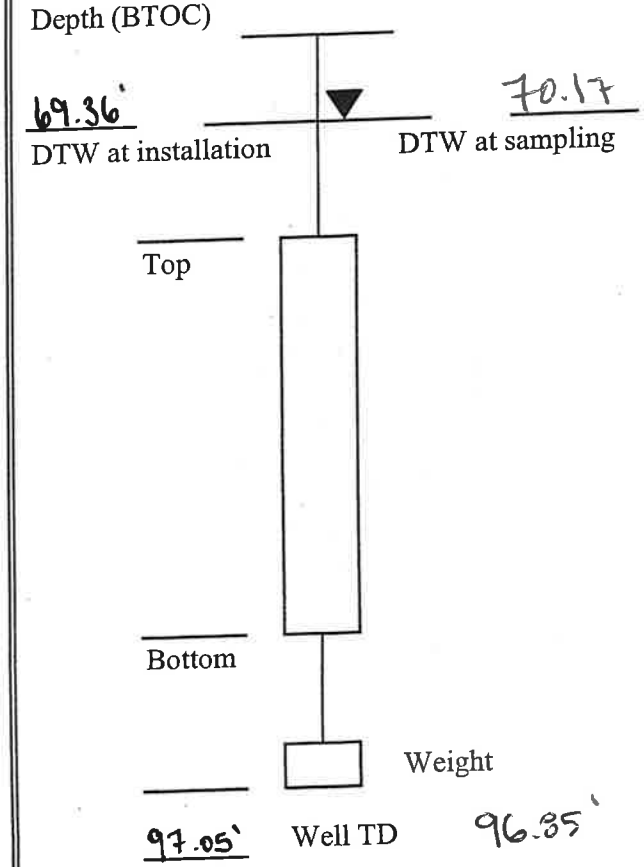
Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : DRY

Well Casing Plug Locked and in Good Condition? NO PLUG, PDB CAP

Comments:

Passive Diffusion Bag Sampling Form

Well Identification: TVR-2



Site Location: TVR OLD MATES

Project Number: 6304305

Well Diameter: 4"

PDB Installation Date: 3.12.18 Time: 1125

Sample Information

Sample No: TVR-2-20180329

Sample Date: 3/29/18 Time: 1414

Sampling Personnel: GL

Analyses: VOC

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

Well Condition at Sampling

Well Monument Locked and in Good Condition? YES

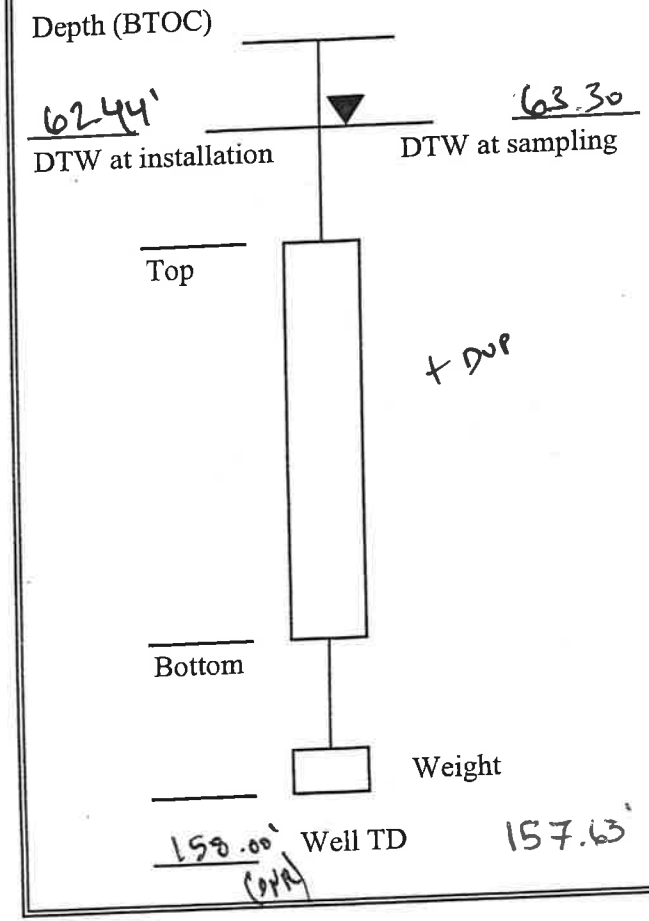
Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? NO PLUG, PDB CAP

Comments:

Passive Diffusion Bag Sampling Form

Well Identification: TVR-3



Site Location: TVR OLD MATES

Project Number: 630305

Well Diameter: 4"

PDB Installation Date: 3.12.14 Time: 1347

Sample Information

Sample No: TVR-3-20180329 ; TVR-3A-20180329 (DUP)

Sample Date: 3/29/18 Time: 1350 ; 1400 (DUP)

Sampling Personnel: GL

Analyses: VOC

Biofilm Present (Y/N): NO

New PDB Deployed (Y/N): YES, X2 FOR DUP

Well Condition at Sampling

Well Monument Locked and in Good Condition? YES, FLUSH MOUNT W/ TIGHT BOLTS

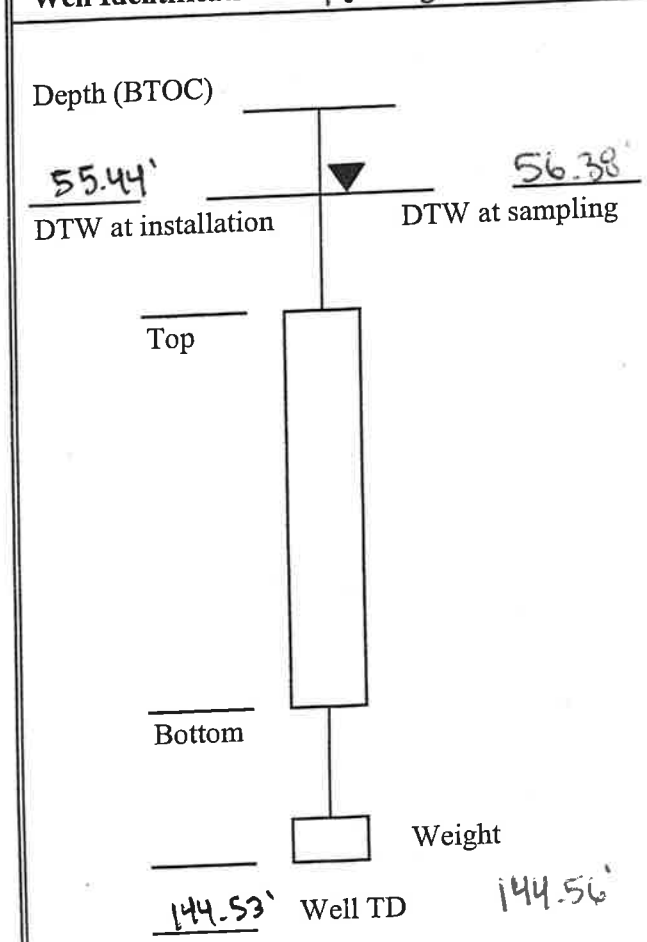
Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? NO PLUG, PDB CAP

Comments:

Passive Diffusion Bag Sampling Form

Well Identification: TVR-5



Site Location: TVR OLD MATES

Project Number: 630435

Well Diameter: 2"

PDB Installation Date: 3.12.18 Time: 1303

Sample Information

Sample No: TVR-5-20180329

Sample Date: 3/29/18 Time: 1046

Sampling Personnel: GL

Analyses: VOC

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

Well Condition at Sampling

Well Monument Locked and in Good Condition? YES

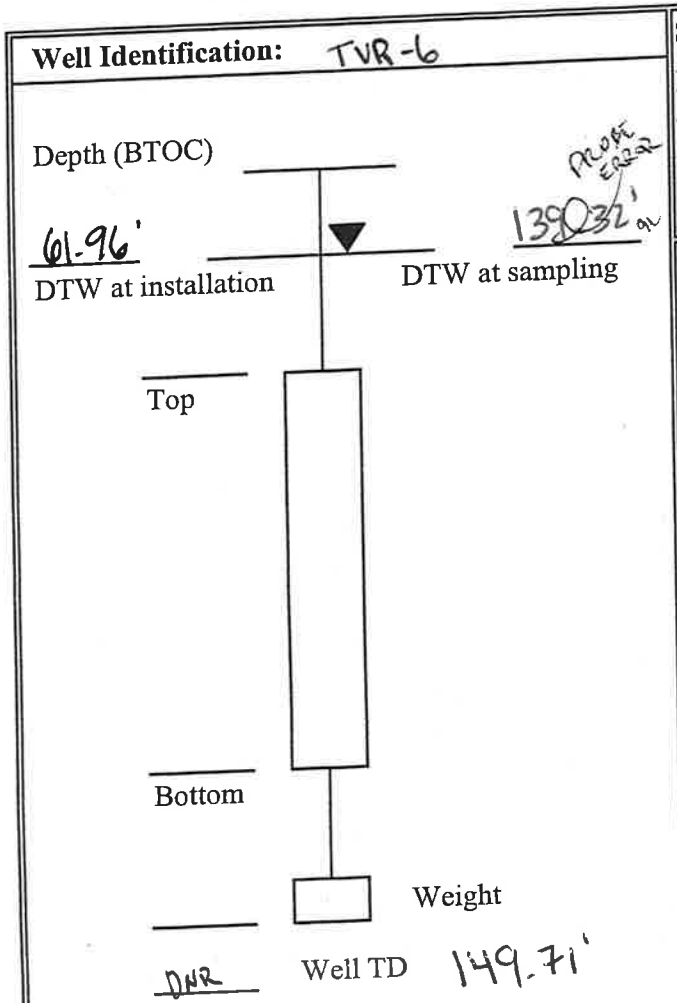
Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : DRY

Well Casing Plug Locked and in Good Condition? YES

Comments:

Passive Diffusion Bag Sampling Form

Well Identification: TVR-6



Site Location: TVR OLD MATES

Project Number: 6304305

Well Diameter: 2"

PDB Installation Date: 3-12-18 Time: 1406

Sample Information

Sample No: TVR-6 - 20180329

Sample Date: 3/29/18 Time: 0955

Sampling Personnel: ~~CT~~ GL

Analyses: VOCs

Biofilm Present (Y(N): _____

New PDB Deployed (Y)N): _____

Well Condition at Sampling

Well Monument Locked and in Good Condition? NO BOLTS FOR FLUSHMOUNT

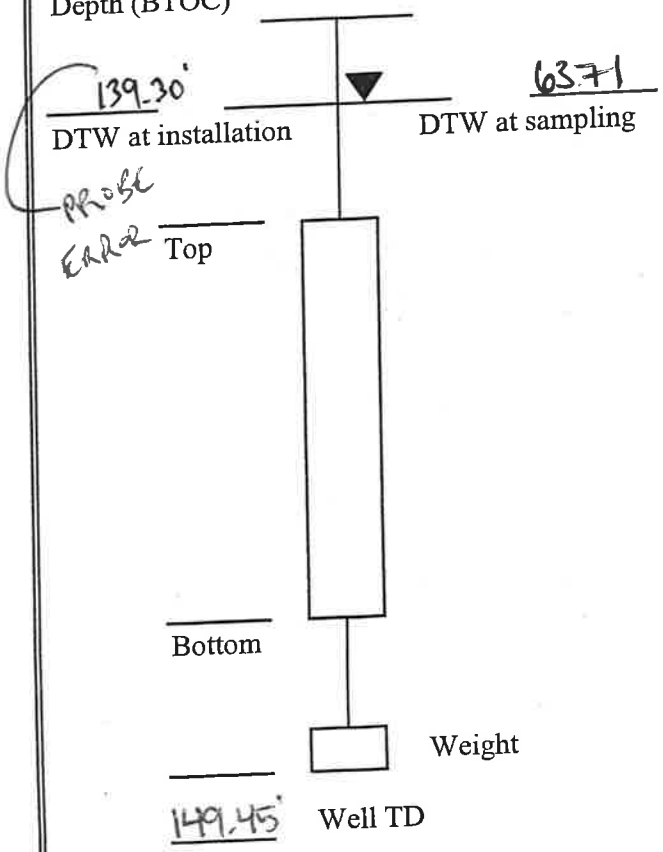
Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : WBC

Well Casing Plug Locked and in Good Condition? NO WELL PLUG, PDB CAP

Comments: _____

Passive Diffusion Bag Sampling Form

Well Identification: TVR-7



Site Location: TVR OLD MATES

Project Number: 6304305

Well Diameter: 2"

PDB Installation Date: 3-12-18 Time: 1150

Sample Information

Sample No: TVR-7-20180329 Time: 1327

Sample Date: 3/29/18

Sampling Personnel: GL

Analyses: VOCs

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

Well Condition at Sampling

Well Monument Locked and in Good Condition? FLUSH MOUNT, LOCK BENT

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing): WAC

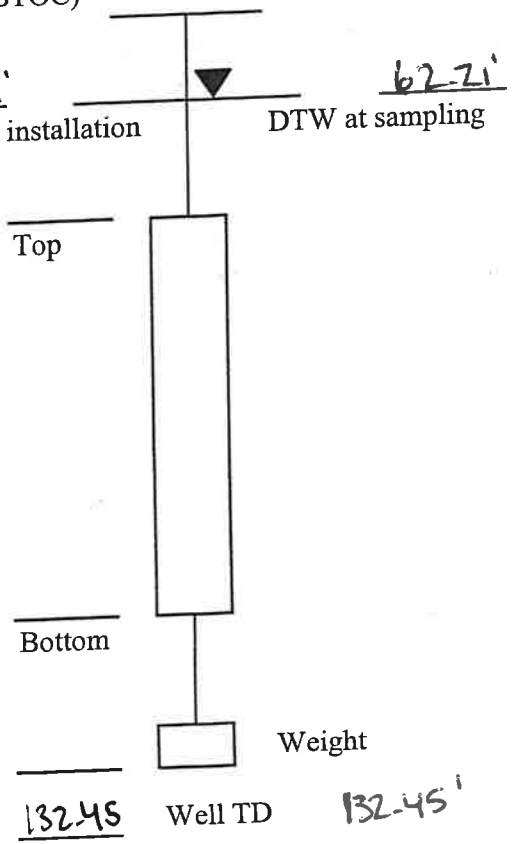
Well Casing Plug Locked and in Good Condition? NO PLUG, PDB CAP

Comments:

Passive Diffusion Bag Sampling Form

Well Identification: 815-2

Depth (BTOC)



61.21' DTW at installation

62.21' DTW at sampling

132.45 Well TD 132.45'

Site Location: TVR OLD MATES

Project Number: 6304305

Well Diameter: 2"

PDB Installation Date: 3.12.18 Time: 1334

Sample Information

Sample No: TVR-815-2-20180329

Sample Date: 3/29/18 Time: 1025

Sampling Personnel: GL

Analyses: VOC

Biofilm Present (Y/N):

New PDB Deployed (Y/N):

Well Condition at Sampling

Well Monument Locked and in Good Condition? YES

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? NO PLUG, PDB CAP

Comments:

EA ENGINEERING

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CONTENTS

PAGE	REFERENCE	DATE

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Scale: 1 square = _____

Scale: 1 square = _____

6304305 YAKIMA TRAINING CENTER 3/12/18 ③

PERSONNEL: G. LEE

WEATHER: 52°F, SUNNY

H&S TOPIC: TRAFFIC, VEHICLE SAFETY

0900 ARRIVED AT YTC MAIN GATE, WENT TO CHECK IN AND OBTAIN BASE PASS.

1020 ARRIVED AT MMP-1. WELL IS LOCKED, CANNOT ACCESS HOST WELL KEYS. SITE CONTACT NOT ANSWERING PHONE. WENT TO LOCATE OTHER WELLS WHILE WAITING FOR CALL BACK.

1105 ARRIVED AT TVR-2. WELL IS UNLOCKED, BEGAN PDB DEPLOYMENT.

WELL ID	DTW	TIME	DUP?
TVR-2	69.36'	1125	—
TVR-7	139.30'	1150	—
MMP-1	58.69'	1240	—
TVR-5	55.44'	1303	—
815-2	61.21'	1334	—
TVR-3	62.44'	1347	YES
TVR-6	61.96'	1406	—
TVR-1	71.78'	1423	—
MTS-4	82.36'	1450	—
MTS-1	87.71'	1524	—
MTS-2	99.07'	1545	—

Scale: 1 square = _____

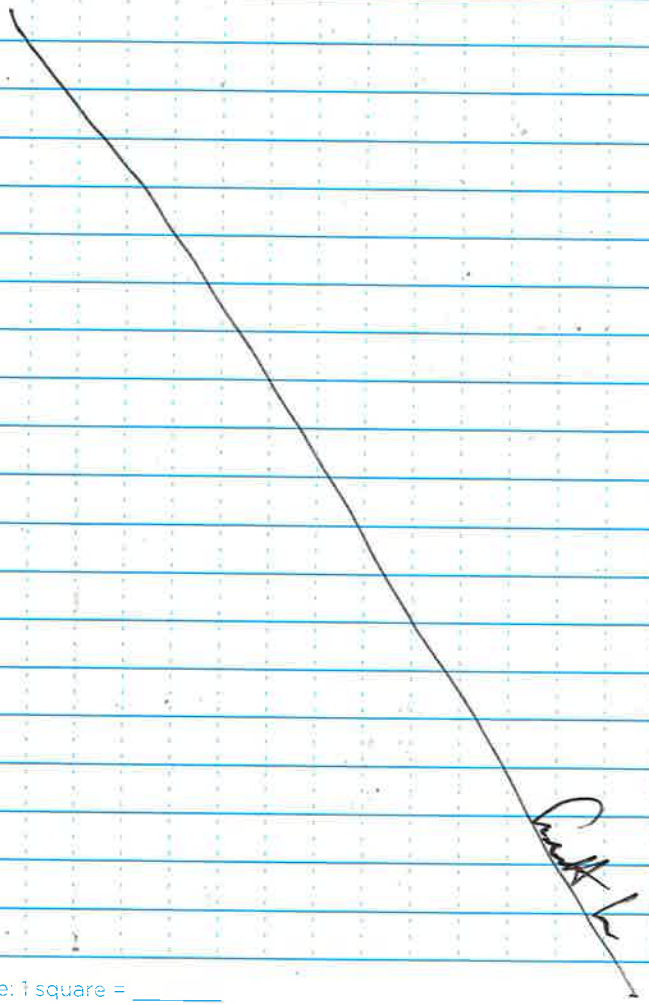
Rite in the Rain

(4)

6304305 YAKIMA TRAINING CENTER 3/12/18

1550 RETURNED EQUIPMENT TO YTC PUBLIC WORKS PERSONNEL & LET SITE CONTACT KNOW WORK WAS FINISHED FOR THE DAY.

1610 LEFT SITE.



Scale: 1 square = _____

6304305 YTC 3/24/18 (5)

0900 ARRIVED ONSITE. G. LEE & P. NEWMAN CHECKED IN AT VISITORS CENTRE & GOT BASE PASSES.

0930 CHECKED IN AT PUBLIC WORKS BUILDING. CONNECTED W/ SHANE POOLE FOR ACCESS TO LANDFILL & POTABLE WATER.

0940 ARRIVED AT LANDFILL. ALL WELLS ARE LOCATED OUTSIDE OF FENCELINE. CONDUCTED HEALTH & SAFETY MEETING.

0950 CALIBRATED YSI PRO DSS #5003

	Initial	Final	
pH 4:	3.70	4.00	
pH 7:	6.92	7.00	
pH 10:	10.00	10.00	
Sp. Cond:	~~626~~ PN 1385	~~1413~~ PN 1413	(uS/cm)
ORP:	224.9	220.0	(mV)
Turb 0:	~~-0.6~~ PN -0.3	0.0	(NTU)
Turb 126:	150.7	126.0	(NTU)
DO:	97.2	94.9	(%)
Turb 124:	~~153.5~~ PN 152.5	124.0	(FNU)

1010 G. LEE WENT BACK TO PUBLIC WORKS BLD TO OBTAIN BOLT CUTTERS. MW-7 HAS LOCK THAT CANNOT BE OPENED W/ KEYS.

1025 OBTAINED BOLT CUTTER. HEADING BACK TO LANDFILL.

Scale: 1 square = _____

1425 GENERATOR RETURNED, HEADING BACK TO YTC.

1446 ARRIVED AT FTP-13.
WL = 14.66' BTOC
TD = 22.24' BTOC

1456 ARRIVED AT FTP-1.
WL = 13.33' BTOC
TD = 23.58' BTOC

1510 BEGAN BAILING.

1525 1 WELL VOLUME PURGED, TOOK READING

1550 2 WELL VOL, TOOK READING. WELL WAS DRAWN DOWN QUITE A BIT.

1619 3 WELL VOL, TOOK READING.

1625 SAMPLE OBTAINED & MS/MSD
FTP-1-20180328
FOR VOCs, SVOCs w/ PAH, DRO, GRO

1709 DEMOBED FROM WELL.

1712 ARRIVE AT FTP-15.
DTW: 15.20' BTOC
TD: 22.40' BTOC

1728 BEGAN BAILING.

1737 1ST READING @ 1 WELL VOLUME.

1745 2ND READING @ 2 WELL VOLUMES

1757 3RD READING @ 3 WELL VOLUME, NO SIGNIFICANT DRAWDOWN OBSERVED

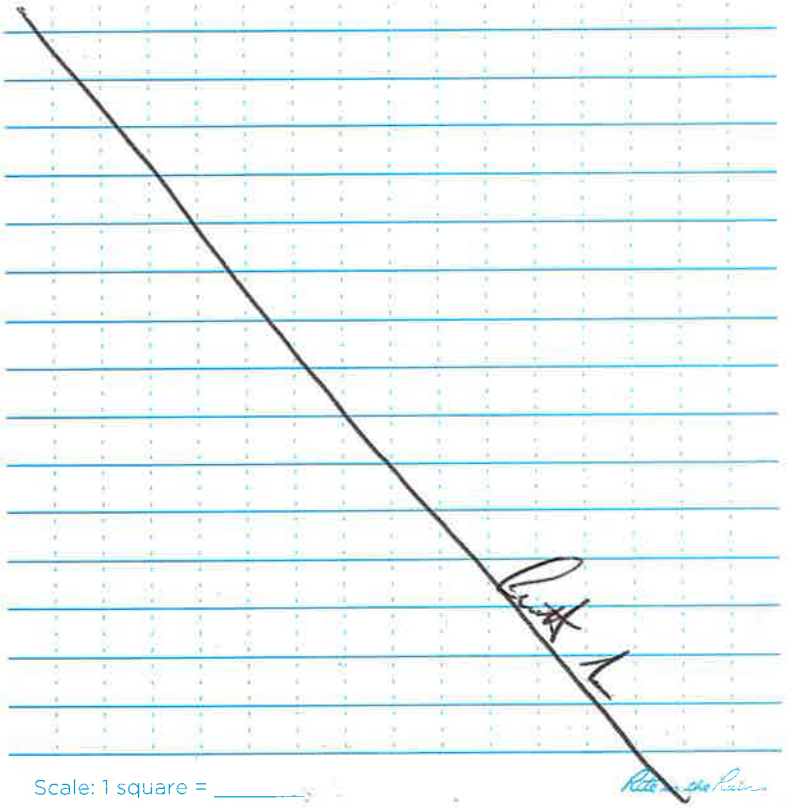
Scale: 1 square = _____

1800 SAMPLE OBTAINED
FTP-15-20180328
FOR DRO & SVOCs w/ PAH

1818 DEMOB FROM WELL.

1824 AT VEHICLE WASH RACK TO DISPOSE OF IDW FROM WELLS. NOTE: P. NEWMAN MADE A TRIP TO DISPOSE OF IDW AT EACH OF THE PREVIOUS TWO WELLS DURING BAILING.

1835 LEFT YTC FOR DAY.



Scale: 1 square = _____

(14) 6304305 YTC 3/29/18

PERSONNEL: G. LEE, P. NEWMAN

WEATHER: 43° F, OVERCAST

0700 ARRIVED ONSITE.

0712 CONDUCTED HEALTH & SAFETY MEETING.

0715 ARRIVED AT FTP-14.

WL = 18.24' BTOC

TD = 22.51' BTOC

0720 CALIBRATED YSI PRO DSS #E5003

	INITIAL	FINAL	
pH 4:	3.96	4.00	
pH 7:	6.94	7.00	
pH 10:	9.88	10.00	
Sp. Cond:	1410	1413	(uS/cm)
ORP:	226.5	220.0	(mV)
Turb 0:	0.2	0.0	(NTU)
Turb 126:	126.2	126.0	(NTU)
DO:	96.1	95.9	(%)

0733 Begin Bailing.

0738 One well volume purged, took water quality reading.

0744 Two well volumes purged, took water quality reading.

0752 Three well volumes purged, took water quality reading.

0758 SAMPLE COLLECTED:

Scale: 1 square = _____

6304305 YTC 3/29/18 (15)

0758 (cont.)

SAMPLE ID: FTP-14-20180329

FOR DRO & PAHs.

0812 DEMOB & LEFT WELL.

0815 TALKED W/ CHRIS VANHART. NOT ENOUGH SAMPLE BOTTLES TO COLLECT DUP THIS EVENT. IT IS ONLY REQUIRED ANNUALLY, SO WILL COLLECT IN THE FALL.

0819 ARRIVE AT FTP-16.

WL = 26.96' BTOC

TD = 32.70' BTOC

0834 Begin Bailing. Note: 3 (teflon-lined) bailers system in place, utilized to purge well.

0846 One well volume purged, took water quality reading.

0853 WELL HAS BEEN BAILED DRY. ~3.8 GAL. TALKED W/ CHRIS VANHART, WILL ALLOW WELL TO RECHARGE TO 80% OF ITS INITIAL WL THEN COLLECT SAMPLE.

0903 DEMOBED FROM WELL. DISPOSED OF IDW @ VEHICLE WASH RACK.

0910 ARRIVED AT PAIC WELL. GATE WAS OPENED BY PETER DEVL THIS MORNING AND LEFT UNLOCKED.

0917 SAMPLE OBTAINED. FVR-PAIC-20180329 FOR VOCs

Scale: 1 square = _____

0922 ARRIVED AT TVR-6.
WL= 139.32' BTOC
TD= 149.71' BTOC

0935 KRIS BRENNER ARRIVES AT WELL. GAVE ACCESS TO PATMOS WELL.

0937 SAMPLE OBTAINED.
TVR-PATMOS-20180329
FOR VOCs.

0955 SAMPLE OBTAINED.
TVR-6-20180329
FOR VOCs. PDB REDEPLOYED.

1010 ARRIVED AT 815-2.
WL= 62.21' BTOC
TD= 132.45' BTOC

1025 SAMPLE COLLECTED
TVR-815-2-20180329.
FOR VOCs. PDB DEPLOYED.

1032 ARRIVE AT TVR-5.
WL= 56.38' BTOC
TD= 144.56' BTOC

1046 SAMPLE OBTAINED
TVR-5-20180329
FOR VOCs. PDB REDEPLOYED.

1051 ARRIVE AT MMP-1.
WL= 59.52' BTOC TD= 102.26' BTOC

Scale: 1 square = _____

1108 OBTAINED SAMPLE
TVR-MMP-1-20180329
FOR VOCs. ~~PDB RECOVERED~~ NO PDB REDEPLOYED, ANNUAL WELL.

1119 ARRIVE AT MTS-1.
WL= 99.43' BTOC
TD= 127.41' BTOC

1135 SAMPLE COLLECTED
TVR-MTS-1-20180329
FOR VOCs. REDEPLOYED PDB.

1141 ARRIVE AT MTS-2.
WL= 89.82' BTOC
TD= 113.39' BTOC

1154 SAMPLE COLLECTED
TVR-MTS-2-20180329
FOR VOCs. NO PDB REDEPLOYED. DURING REDEPLOYMENT, WIRE HOLDING PDB BROKE. PDB & WEIGHTS & REMAINING WIRE FELL WITHIN WELL.

1208 ARRIVE AT MTS-3.
WL= 28.19' BTOC
TD= 71.43' BTOC

1213 DEMOBED FROM WELL. TOOK A QUICK LUNCH BREAK. CALLED C. VANWART TO INFORM ABOUT THE BROKEN PDB WIRE AT MTS-2.

Scale: 1 square = _____

Rite in the Rain

1239 ARRIVE AT MTS-4.
WL = 83.18' BTOC
TD = 96.65' BTOC

1253 OBTAINED SAMPLE
TVR-MTS-4-20180329
FOR VOCs. PDB REDEPLOYED.

1301 ARRIVED AT TVR-7.
WL = ~~139.65~~ 63.71' BTOC
TD = 149.45' BTOC

1322 SAMPLE OBTAINED
TVR-7-20180329
FOR VOCs. PDB REDEPLOYED.

1328 ARRIVED AT TVR-3
WL = 83.30' BTOC
TD = 157.63' BTOC

1350 OBTAINED SAMPLE
TVR-3-20180329
FOR VOCs. TWO PDBs DEPLOYED FOR DUPLICATE SAMPLE.

1400 OBTAINED SAMPLE.
TVR-3A-20180329 (DUPLICATE)
FOR VOCs.

1402 ARRIVED AT TVR-2.
WL = 70.17' BTOC
TD = 96.85' BTOC

Scale: 1 square = _____

1414 OBTAINED SAMPLE
TVR-2-20180329
FOR VOCs. REDEPLOYED PDB.

1422 ARRIVED AT TVR-1.
WL = 72.71' BTOC
TD = 106.60' BTOC

1438 SAMPLE OBTAINED
TVR-1-20180329
FOR VOCs. PDB REDEPLOYED.

1441 DEMOBED FROM WELL. PDB COLLECTION COMPLETE, HEADING BACK TO FTP-16 TO ASSESS RECHARGE.

1445 ARRIVED AT FTP-16.
WL = 27.95' BTOC. WATER HAS RECHARGED OVER 80%, TOOK ONE WD READING & SAMPLED.

1500 OBTAINED SAMPLE
FTP-16-20180329
FOR ORO & PAHs.

1516 DEMOBED FROM WELL. COMPLETED FTP SAMPLING.

1520 DISCO OF IDW @ VEHICLE WASH RACK.

1526 RECEIVED CAL FROM C. VANHART, THE IDW FROM TVR WELL ALSO BE DISCHARGED @ THE VEHICLE WASH RACK TO THE OIL/WATER SEPARATOR.

Scale: 1 square = _____

6304308 YTC 3/29/18

1530 BACK AT VEHICLE WASH RACK & DISPOSED OF TUR IDW.

1532 BACK AT PUBLIC WORK BLD, CONFIRMED IDW DISPOSAL PROTOCAL W/ KRIS BRENNER. HE AGREED & OKED DISPOSAL TO THE O/W SEPARATOR @ THE VEHICLE WASH RACK.

1536 UNLOADED & PACKED EQUIPMENT INTO GARRET'S PERSONAL VEHICLE FOR TRANSIT.

1610 CARS PACKED W/ EQUIPMENT. LEFT YTC.

Scale: 1 square = _____

6304305 YTC 4/11/18

PERSONNEL: G. LEE

WEATHER: 53°F, MOSTLY SUNNY

0955 ARRIVED AT YTC & CHECKED IN AT VISITORS CENTER. OBTAINED VISITORS PASS.

1012 ARRIVED AT MTS-2. REDEPLOYED PDB W/ NEW WEIGHT & CABLE.
DTW: 89.42' BTOC

1025 PDB PLACED WITHIN WELL SCREEN, SLIGHTLY BELOW THE MIDPOINT AT ~108'.

1037 ARRIVED AT FTP-16. ~~TOC~~ GL

1052 BEGAN PURGING.

1106 ~4.5 GALS PURGED, WL HAS DROPPED TO 31.95'. WELL TO DRY. WILL ALLOW TO RECHARGE THEN COLLECT SAMPLE.

1115 ARRIVED AT FTP-14. WL = ~~27.57~~ GL 18.25'

1121 BEGIN PURGING

1150 3 WELL VOLUMES PURGED, OBTAINED SAMPLE.
FTP-14-20180411
FOR TPH-Dx & TPH-Gx.

1155 DUPLICATE SAMPLE OBTAINED.
FTP-MA-20180411
FOR TPH-Dx & TPH-Gx.

1220 DEPARTED WELL. HEADING TO DISPOSE OF IDW.

1228 DISPOSED OF IDW AT VEHICLE WASH RACK.

1233 ARRIVED AT FTP-15. DTW = 19.88' BTOC

Scale: 1 square = _____

DATA VALIDATION REPORT COVER
SAMPLE DELIVERY GROUP: K1802993

PROJECT NAME: Environmental Remediation Program Services, Joint Base Lewis McChord and Yakima Training Center, Washington

SITE NAME: Former Fire Training Pit and Tracked Vehicle Repair/Old Mobilization and Training Equipment Sites, Yakima Training Center, Washington

LABORATORY: ALS Environmental Laboratories, Inc., Kelso, Washington

REPORT DATE: 8 May 2018

PROJECT MANAGER: Timothy McCormack, EA Engineering, Science, and Technology, Inc., PBC (email: tmccormack@eaest.com)

CONTRACTOR OFFICE: EA Engineering, Science, and Technology, Inc., PBC
2200 6th Avenue, Suite 707, Seattle, Washington, 98121

REVIEWER: Brenda Nuding, Project Chemist, EA Engineering, Science, and Technology, Inc., PBC (email: bnuding@eaest.com)

VALIDATION STAGE: S2AVM

REVIEW DATE: 07 November 2018

Fifteen groundwater samples including one field duplicate and one trip blank were collected on 28 and 29 March 2018 in support of the Environmental Remediation Program Services for the Yakima Training Center site in Washington. The samples were delivered to ALS Environmental in Kelso, Washington for the analyses indicated in the table below. Table 1 below provides a list of the field sample identification (ID), sample ID, sample collection date, and analyses performed.

Table 1. Sample Summary Table

Field Sample ID	Lab Sample ID	Matrix	Date Collected	Analyses Performed
TVR-PAIC-20180329	K1802993-001	Groundwater	29 March 2018	VOCs
TVR-POMONA-20180329	K1802993-002	Groundwater	29 March 2018	VOCs
TVR-6-20180329	K1802993-003	Groundwater	29 March 2018	VOCs
TVR-MTS-1-20180329	K1802993-004	Groundwater	29 March 2018	VOCs
TVR-3A-20180329	K1802993-005	Field duplicate	29 March 2018	VOCs
TVR-3-20180329	K1802993-006	Groundwater	29 March 2018	VOCs
TVR-MTS-4-20180329	K1802993-007	Groundwater	29 March 2018	VOCs
TVR-7-20180329	K1802993-008	Groundwater	29 March 2018	VOCs
FTP-1-20180328	K1802993-009	Groundwater	28 March 2018	VOCs, SVOCs, GRO, DRO, and RRO
TVR-815-2-20180329	K1802993-010	Groundwater	29 March 2018	VOCs
TVR-2-20180329	K1802993-011	Groundwater	29 March 2018	VOCs
TVR-MTS-2-20180329	K1802993-012	Groundwater	29 March 2018	VOCs
TVR-5-20180329	K1802993-013	Groundwater	29 March 2018	VOCs
TVR-MMP-120180329	K1802993-014	Groundwater	29 March 2018	VOCs
TVR-1-20180329	K1802993-015	Groundwater	29 March 2018	VOCs
YTC-TB-001-20180329	K1802993-016	Trip blank	29 March 2018	VOCs

Notes:
DRO – diesel range organics
GRO – gasoline range organics
RRO – residual range organics
SVOCs – semivolatile organic compounds
VOCs – volatile organic compounds

1. DATA VALIDATION REPORT

The analytical data presented in Sample Delivery Group (SDG) K1802993 were reviewed with respect to quality assurance/quality control (QC) parameters specified in the 2018 *Programmatic Quality Assurance Project Plan* for Environmental Remediation Program Services, Joint Base Lewis-McChord and Yakima Training Center, Washington (QAPP). In addition, the following guidance documents were used while assessing the validity of these data: U.S. Department of Defense (DoD), General Data Validation Guidelines, February 2018; DoD Quality Systems Manual, Version 5.1, January 2017; U.S. Environmental Protection Agency (USEPA) National Functional Guidelines for Superfund Organic Methods Data Review, January 2017; and the USEPA Office of Solid Waste, SW-846 Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, April 1998 and updates, as well as the referenced methodology.

Section 1 of this data validation report identifies the criteria reviewed for analyses of target analytes by the corresponding method. Section 2 provides definitions of data qualifiers that may be applied to analytical results based on the validation process. Section 3 provides an assessment of the overall data quality and a summary of final data qualification if any, and Section 4 provides the references to the guidelines and documents used in performing the data review.

The items listed below were evaluated for the Stage 2A (S2AVM) manual validation review as defined in the DoD General Data Validation Guidelines (2018), as applicable to the analytical method.

- Deliverables
- Condition of sample at laboratory receipt
- Holding times
- Method blanks
- Matrix spikes (MSs) and laboratory replicates
- Surrogates
- Laboratory duplicates
- Laboratory control samples (LCSs)
- Field QC samples
- Overall assessment of data.

2. GLOSSARY OF DATA QUALIFIERS

The following definitions provide a brief explanation for the data qualifiers that may be used during the review process. The definitions are consistent with the DoD Data Validation Guidelines (2018).

No Qualifier	Indicates that the data are acceptable both qualitatively and quantitatively.
U	The analyte was not detected and was reported as less than the limit of detection (LOD). The LOD has been adjusted for dilution or concentration of the sample.
J	The reported result was an estimated value with an unknown bias.
J-	The result was an estimated quantity, but the result may be biased low.
J+	The result was an estimated quantity, but the result may be biased high.
UJ	The analyte was not detected and was reported as less than the associated estimated numerical value.
R	The sample results are unusable to achieve project data quality objectives based on certain QC criteria outside of acceptance limits. The analyte may or may not be present in the sample.

3. DATA VALIDATION SUMMARY

Analytical results were reviewed for the criteria listed in Section 1.0. A discussion of the data is presented below.

3.1 DELIVERABLES

The data package for this SDG is complete.

3.2 CONDITION OF SAMPLE AT LABORATORY RECEIPT

The sample cooler and the samples contained within were received at the laboratory with the proper chemical preservative at temperatures within the recommended range of ≤6 degrees Celsius and not frozen. No qualification of sample data is necessary on the basis of the condition upon sample receipt or chain of custody.

3.3 GASOLINE RANGE ORGANICS

Project samples were prepared and analyzed for gasoline range organics (GRO) according to NWTPH-Gx.

3.3.1 Holding Times

Samples were prepared and analyzed within the holding time specified in the referenced method of analysis.

3.3.2 Method Blanks

A method blank was prepared and analyzed as specified by the referenced method. The method blank result is within the QAPP-specified QC limit (< ½ LOQ).

3.3.3 Matrix Spikes and Laboratory Replicates

No MSs were prepared using project samples for the analysis of GRO. A laboratory duplicate sample was prepared and analyzed as recommended by the referenced method. The original and duplicate sample results relative percent difference (RPD) is within the QAPP-specified QC limit.

3.3.4 Surrogates

A surrogate was added to environmental and QC samples and standards for the analysis of organic compounds as required by the referenced methodology. Surrogate percent recoveries (%Rs) are within the QAPP-specified QC limits.

3.3.5 Laboratory Control Samples

An LCS (one per preparation batch) was prepared and analyzed as recommended by the referenced method. The %R for LCS is within the QAPP-specified QC limits.

3.4 DIESEL RANGE ORGANICS AND RESIDUAL RANGE ORGANICS

Project samples were prepared and analyzed for diesel range organics (DRO) and residual range organics (RRO) according to NWTPH-Dx.

3.4.1 Holding Times

Samples were prepared and analyzed within the holding time specified in the referenced method of analysis.

3.4.2 Method Blanks

Method blanks were prepared and analyzed as specified by the referenced method. The method blank results are within the QAPP-specified QC limit (< ½ LOQ) with the following exception. TPH-RRO was detected at a concentration above ½ the LOQ. The associated project TPH-RRO result was more than five times the method blank concentration; therefore, no qualification was necessary.

3.4.3 Matrix Spikes

Project sample FTP-1-20180328 was used to prepare MS samples. The MS recoveries (%Rs) and RPDs are within the QAPP-specified QC limits or %Rs are above these QC limits indicating high bias, and the associated analytical results for the sample selected for spiking are nondetectable.

3.4.4 Surrogates

Surrogates were added to environmental and QC samples and standards for the analysis of organic compounds as required by the referenced methodology. Surrogate %Rs are within the QAPP-specified QC limits.

3.4.5 Laboratory Control Samples

An LCS (one per preparation batch) was prepared and analyzed as recommended by the referenced method. The %Rs for the LCS are within the QAPP-specified QC limits.

3.5 VOLATILE ORGANIC COMPOUNDS

Project samples were prepared and analyzed for volatile organic compounds (VOCs) according to SW8260C.

3.5.1 Holding Times

Samples were prepared and analyzed within the holding time specified in the referenced method of analysis.

3.5.2 Method Blanks

Method blanks were prepared and analyzed as specified by the referenced method. The method blank results are within the QAPP-specified QC limit (<½LOQ).

3.5.3 Matrix Spikes

Sample FTP-1-20180328 was selected for spiking for the MS and matrix spike duplicate (MSD) samples. %Rs and RPDs are within the QAPP-specified QC limits or the analytical results for the associate sample are below the LOQ and the evidence of bias is high, with the following exceptions.

- The MS and or MSD %Rs for ethylbenzene, isopropylbenzene, n-propylbenzene, and n-butylbenzene are above QC limits. The associated detectable project sample results for these analytes are already flagged as estimated with the J qualifier because they are below the LOQ and no further qualification has been performed.
- The MS/MSD %Rs for 1,2,4-trimethylbenzene and naphthalene are outside QC limits. The associated project sample results for these analytes were detectable at concentrations greater than four times the spike amount; therefore, no qualification is necessary.

3.5.4 Surrogates

Surrogates were added to environmental and QC samples and standards for the analysis of organic compounds as required by the referenced methodology. Surrogate %Rs are within the QAPP-specified QC limits with the following exceptions.

- The %Rs for surrogate toluene-d8 are above QC limits for many project samples as well as the method blanks and blank spikes (LCSs). No qualification of project sample results was performed because of the %R for one of four surrogates.
- For project samples TVR-3A-20180329, and FTP-1-20180328, the dibromofluoromethane surrogate %Rs are above QC limits. No qualification of project sample results was performed because of the %R for one of four surrogates.
- For project samples TVR-PAIC-20180329, TVR-POMONA-20180329, TVR-6-20180329, TVR-MTS-1-20180329, TVR-3-20180329, and TVR-MTS-4-20180329, two of four surrogates %Rs are above QAPP-specified QC limits. The detectable VOC results for these samples have been flagged with the J+ qualifier due to high surrogate %Rs.
- For project sample TVR-7-20180329, three of four surrogates %Rs were above QAPP-specified QC limits. No qualification has been performed because the project sample results are below the LOQs.

3.5.5 Laboratory Control Samples

LCSs (one per preparation batch) were prepared and analyzed as recommended by the referenced method. The %Rs for LCSs are within the QAPP-specified QC limits.

3.5.6 Field Quality Control Samples

A field duplicate sample was collected: field duplicate (TVR-3A-20180329) is associated with parent sample (TVR-3-20180329). The RPDs between the parent and duplicate sample results that are greater than the LOQ are within the QAPP-specified QC limit (RPD<30 percent).

A trip blank was included in this SDG (YTC-TB-001-20180329). The analytical results for the trip blank were nondetectable at a concentration < ½ LOQ.

3.6 SEMIVOLATILE ORGANIC COMPOUNDS

A project sample was prepared and analyzed for semivolatile organics according to SW8270D.

3.6.1 Holding Times

A sample was prepared and analyzed within the holding time specified in the referenced method of analysis.

3.6.2 Method Blanks

A method blank was prepared and analyzed as specified by the referenced method. The method blank results are within the QAPP-specified QC limit (<½LOQ).

3.6.3 Matrix Spikes

Project sample FTP-1-20180328 was selected for spiking for the MS and MSD samples. %Rs and RPDs are within the QAPP-specified QC limits with the following exceptions.

- The MS/MSD %Rs for 3-nitroaniline and 4-nitroaniline are below QC limits. The associated sample results for these analytes are non-detectable and have been flagged as estimated with the UJ qualifier because of evidence of low bias.
- The MS/MSD %Rs for 3,3'-dichlorobenzidine are below QC limits at 0 percent. The associated sample result for 3,3'-dichlorobenzidine was non-detectable and has been flagged as unusable with the R qualifier due to MS/MSD %Rs.

3.6.4 Surrogates

Surrogates were added to environmental and QC samples and standards for the analysis of organic compounds as required by the referenced methodology. Surrogate %Rs are within the QAPP-specified QC limits.

3.6.5 Laboratory Control Samples

LCSs (one per preparation batch) were prepared and analyzed as recommended by the referenced method. The %Rs for LCSs are within the QAPP-specified QC limits.

4. OVERALL ASSESSMENT OF DATA

The data are acceptable and meet the project data quality objectives and are usable to support project decision-making. Appropriate data flags were used and defined in the analytical report. The qualifiers added during data validation are summarized in Table 2.

Table 2. Qualifier Summary Table

Field Sample ID	Lab Sample ID	Analyte	Result	Validation Qualifier	Reason
TVR-6-20180329	K1802993-003	Trichloroethene	2.8	J+	Surrogate %R
TVR-MTS-4-20180329	K1802993-073	Trichloroethene	6.1	J+	Surrogate %R
FTP-1-20180328	K1802923-009	3,3'-Dichlorobenzidine	2.0 U	R	MS %R
FTP-1-20180328	K1802923-009	3-Nitroaniline	3.5 U	UJ	MS %R
FTP-1-20180328	K1802923-009	4-Nitroaniline	4.3 U	UJ	MS %R

5. REFERENCES

EA Engineering, Science, and Technology, Inc., PBC. 2018. *Programmatic Quality Assurance Project Plan for Environmental Remediation Program Services, Joint Base Lewis-McChord and Yakima Training Center, Washington*.

U.S. Department of Defense (DoD). 2018. *General Data Validation Guidelines*. Environmental Data Quality Workgroup. February.

———. 2017. *Department of Defense Quality Systems Manual for Environmental Laboratories, Final Version 5.1*. January.

U.S. Environmental Protection Agency. 2017. *National Functional Guidelines for Organic Superfund Methods Data Review*. Office of Superfund Remediation and Technology Innovation. OLEM 9355.0-136. EPA-540-R-2017-002. January.

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May 8, 2018

Analytical Report for Service Request No: K1802993

Tim McCormack
EA Engineering, Science and Technology
2200 6th Ave, Suite 707
Seattle, WA 98121

RE: JBLM / 6304305

Dear Tim,

Enclosed are the results of the sample(s) submitted to our laboratory April 02, 2018
For your reference, these analyses have been assigned our service request number **K1802993.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3356. You may also contact me via email at Kurt.Clarkson@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kurt Clarkson
Sr. Project Manager

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Table of Contents

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
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Phone (360)577-7222 Fax (360)636-1068
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Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1802993
Project: JBLM **Date Received:** 04/02/2018
Sample Matrix: Ground Water

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt:

Sixteen ground water samples were received for analysis at ALS Environmental on 04/02/2018. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4ºC upon receipt at the laboratory.

Semivolatiles by GC/MS:

Method 8270D, 04/13/2018:The upper control criterion was exceeded for the following analytes in Initial Calibration Verification (ICV) for calibration KC1800115: 2-Nitrophenol, 4-Bromophenyl Phenyl Ether, 4-Methylphenol, Benzo(a)pyrene, Bis(2-ethylhexyl) Phthalate, Di-n-octyl Phthalate, n-Nitrosodimethylamine, and 2,4,6-Tribromophenol. The field samples analyzed in this sequence did not contain the target analytes in question; all recoveries for the surrogate 2,4,6-Tribromophenol were well within the acceptable range, indicating that the potential slight high bias did not significantly affect the results. The ICV outliers were outside the DoD 5.0 criteria of ±20%, but are within method criteria of ±30%. Since the apparent problem indicated a potential high bias, the data quality was not affected. No further corrective action was required.

Method 8270D, 04/13/2018:The upper control criterion was exceeded for 2-Nitrophenol and Bis(2-ethylhexyl) Phthalate in Continuing Calibration Verification (CCV) MS07\0413F002.D. The field sample analyzed in this sequence did not contain the analytes in question. Since the apparent problem indicated a potential high bias, the data quality was not affected. No further corrective action was required.

Method 8270D, 04/13/2018:The matrix spike recovery of 3,3'-Dichlorobenzidine, 3-Nitroaniline, and 4-Nitroaniline for sample FTP -1-20180328 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential low bias in this matrix. No further corrective action was appropriate.

The detection limits were slightly elevated for sample FTP-1-20180328 due to less than optimal sample volume extracted for analysis.

Method 8270D, 04/13/2018:Manual integration of one or more chromatographic peaks in sample FTP-1-20160328 and the associated QC samples was required to correct the integration performed by the automated data processing program. The manual integration was performed in accordance with ALS policy, which is consistent with the National Environmental Laboratory Accreditation Program (NELAP), Department of Defense (DOD), and other certifying agencies. Refer to the raw data for the compounds impacted by the manual integration.

Semivoa GC:

Method NWTPH-Dx, : The analysis for method NWTPH-DX requires a duplicate sample analysis be performed. The initial analysis for sample FTP-1-20180328 was performed with a Matrix Spike and Matrix Spike Duplicate (MS/MSD). The analysis was performed past holding time with a sample, sample duplicate, laboratory control sample, and duplicate laboratory control sample. Results from the two analyses confirmed, both have been reported.

Volatiles by GC/MS:

Method 8260C, 4/6-11/18:The ALS minimum relative response factor criterion for 1,2,4-Trichlorobenzene was not met in Initial

Approved by _____ Date 04/30/2018

Calibration (ICAL) ID CAL15671 and subsequent Continuning Calibration Verifications (CCVs). In accordance with ALS standard operating procedures, a Method Reporting Limit (MRL) check standard containing the analyte of concern was analyzed each day of analysis. The MRL check standard verified instrument sensitivity was adequate to detect the analyte at the MRL on the day of analysis. Because the sensitivity was shown to be adequate to detect the compound in question the data quality was not significantly affected. No further corrective action was appropriate.

Method 8260C, 4/11/18: The ALS minimum relative response factor criterion for 2-Butanone a, 1,2-Dibromo-3-chloropropane and 1,2,4-Trichlorobenzene was not met in Continuing Calibration Verification (CCV) MS13\0411F003.D. In accordance with ALS standard operating procedures, a Method Reporting Limit (MRL) check standard containing the analytes of concern was analyzed each day of analysis. The MRL check standard verified instrument sensitivity was adequate to detect the analytes at the MRL on the day of analysis. Because the sensitivity was shown to be adequate to detect the compounds in question the data quality was not significantly affected. No further corrective action was appropriate.

Method 8260C, 4/6/18:The following analytes were flagged as outside the control criterion for Continuing Calibration Verification (CCV) MS27\0406F004.D:Naphthalene and Toluene-d8. In accordance with the EPA Method, 80% or more of the CCV analytes must pass within 20% of the true value. The ALS SOP allows for 40% difference for the remaining analytes. The CCV met these criteria. The quality of the sample data was not significantly affected. No further corrective action was required.

Method 8260C, 4/9/18:The following analytes were flagged as outside the control criterion for Continuing Calibration Verification (CCV) MS27\0409F004.D:Dichlorodifluoromethane, Carbon Disulfide, Naphthalene and Toluene-d8. In accordance with the EPA Method, 80% or more of the CCV analytes must pass within 20% of the true value. The ALS SOP allows for 40% difference for the remaining analytes. The CCV met these criteria. The quality of the sample data was not significantly affected. No further corrective action was required.

Method 8260C, 4/11/18:The following analytes were flagged as outside the control criterion for Continuing Calibration Verification (CCV) MS27\0411F003.D:Carbon Disulfide, Methyl tert-Butyl Ether, 2,2-Dichloropropane, Naphthalene, 1,2,3-Trichlorobenzene and Toluene-d8. In accordance with the EPA Method, 80% or more of the CCV analytes must pass within 20% of the true value. The ALS SOP allows for 40% difference for the remaining analytes. The CCV met these criteria. The quality of the sample data was not significantly affected. No further corrective action was required.

Method 8260C, 4/9/18:The replicate matrix spike recoveries of several analytes for sample FTP-1-20180328 were outside control criteria. Positive detections in the parent sample are flagged as per the DOD QAPP. No further corrective action was appropriate.

Method 8260C, 4/6-11/18:The control criteria were exceeded for Toluene-d8 in Lab Control Sample KWG1801833-3, KWG1801867-3 and KWG1801914-3, Matrix Spike/Duplicate Matrix Spike KWG1801833-1/2 and KWG1801867-1/2. The associated matrix spike recoveries of target compounds were in control, indicating the analysis was in control. The surrogate outlier was flagged accordingly. No further corrective action was appropriate.

Method 8260C, 4/11/18:The upper control criterion was exceeded for Toluene-d8 in Method Blank KWG1801914-4 and KWG1801867-4. No target analytes were detected in the Method Blank. Since the apparent problem equates to a high bias, the data quality was not significantly affected. No further corrective action was appropriate.

Method 8260C, 4/9/18:The upper control criterion was exceeded for Dibromofluoromethane in Method Blank KWG1801867-4. No target analytes were detected in the Method Blank. Since the apparent problem equates to a high bias, the data quality was not significantly affected. No further corrective action was appropriate.

Method 8260C, 4/6/18:The upper control criterion was exceeded for Dibromofluoromethane and 1,2-Dichloroethane-d4 in Method Blank KWG1801833-4. No target analytes were detected in the Method Blank. Since the apparent problem equates to a high bias, the data quality was not significantly affected. No further corrective action was appropriate.

Method 8260C, 4/6-11/18:The control criterion was exceeded for Toluene-d8 in several samples. No associated target analytes

Approved by _____ Date 04/30/2018

were detected in the sample. The error associated with an elevated recovery equated to a high bias. The quality of the sample data was not significantly affected. No further corrective action was appropriate.

Method 8260C, 4/6-11/18:The control criterion was exceeded for Toluene-d8 and/or Dibromofluoromethane and 1,2-Dichloroethene-d4 in several samples. No associated target analytes were detected in the sample. The error associated with an elevated recovery equated to a high bias. The quality of the sample data was not significantly affected. No further corrective action was appropriate.

Method 8260C, 4/6-11/18:The control criterion was exceeded for Toluene-d8 and/or Dibromofluoromethane and 1,2-Dichloroethane-d4 in several samples. The error associated with an elevated recovery equated to a high bias for the detected target analytes. A reanalysis was not performed because insufficient hold time remained. No further corrective action was possible.

Method 8260C, 4/9/18:The lower control criterion was exceeded for 4-Bromofluorobenzene in a samples TRV-MTS-4-2018329 and TRV-7-2018329. The error associated with an reduced recovery equated to a potential low bias for the detected target analytes. A reanalysis was not performed because insufficient hold time remained. No further corrective action was possible.

Method 8260C, 4/6-11/18:Manual integration of one or more chromatographic peaks was required to correct the integration performed by the automated data processing program. The manual integration was performed in accordance with ALS policy, which is consistent with the National Environmental Laboratory Accreditation Program (NELAP), Department of Defense (DOD), and other certifying agencies. Refer to the raw data for the compounds impacted by the manual integration.

Approved by _____ Date 04/30/2018

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

CHAIN OF CUSTODY

PG

KI 802993

Laboratory Information

Address: 1317 South 13th Ave., Kelso, WA 98626

Phone #: 360-577-7222 POC: Kurt Clarkson

COC # 1 of 3 | Cooler # 1 of 2

Lab Quote # | Lab Job #:

Client / Reporting Information

Company Name: EA Engineering, Science, and Technology, Inc., PBC

Address: 2200 6th Ave., Suite 707

City: Seattle State: WA Zip: 98121

Project Contact: Tim McCormack and per contract

Phone #: 206-452-5350

Samplers's Name/Signature: Randall Bleidner EA

Project Information

Project Name: JBLM

Street:

City: Joint Base Lewis McCHord State: WA

Project #: 6304305

Email: tmccormack@eaest.com, bnuding@eaest.com, and pacificchem@eaest.com

Purchase Order #: 17578

Analytical Information

Matrix Codes

W- Water
GW - Ground Water
SW - Surface Water
SO - Soil
OI - Oil
WP - Wipe
LIQ - Non-aqueous Liquid
AIR
DW - Drinking Water (Perchlorate Only)

Lab Sample ID	Sample ID	Collection Date	Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	VOCs (SW8260C)	SVOCs (8270dD	TPH-Gx (NWPTH-Gx	TPH-Dx (NWTPH-Dx)	Notes
1	TVR-PAIC-20180329	29-Mar-2018	9:17	GL	GW	3	3								X				
2	TVR-POMONA-20180329	29-Mar-2018	9:37	GL	GW	3	3								X				
3	TVR-6-20180329	29-Mar-2018	9:55	GL	GW	3	3								X				
4	TVR-MTS-1-20180329	29-Mar-2018	11:35	GL	GW	3	3								X				
5	TVR-3A-20180329	29-Mar-2018	14:00	GL	GW	3	3								X				
6	TVR-3-20180329	29-Mar-2018	13:50	GL	GW	3	3								X				
7	TVR-MTS-4-20180329	29-Mar-2018	12:53	GL	GW	3	3								X				
8	TVR-7-20180329	29-Mar-2018	13:22	GL	GW	3	3								X				
9	FTP-1-20180328	28-Mar-2018	16:25	GL	GW	30	24								X	X	X	X	MS/MSD
10	TVR-815-2-20180329	29-Mar-2018	10:25	GL	GW	3	3								X				

Turnaround Time (Business days): standard

Data Deliverable Information: Level IV deliverable, Equis EDD and per contract

Comments / Remarks: Samples from Site YAKIMA TRAINING CENTER

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished By Sampler: Randall Bleidner EA	Date Time: 4/2/18 1450	Received By: 1	4/2/18 1550	Relinquished By: 2	Date Time:	Received By: 2
Relinquished by:	Date Time:	Received By: 3		Relinquished By: 4	Date Time:	Received By: 4
Relinquished by:	Date Time:	Received By: 5		Custody Seal #	On Ice Y / N Trip Blank Y / N Labels Match Coc? Y / N	Cooler Temp. ____ oC

CHAIN OF CUSTODY

P6

K1802493

COC # 3 of 3 | Cooler # 1 of 2

Lab Quote # | Lab Job #:

Laboratory Information

Address: 1317 South 13th Ave., Kelso, WA 98626

Phone #: 360-577-7222 POC: Kurt Clarkson

Client / Reporting Information

Company Name: EA Engineering, Science, and Technology, Inc., PBC

Address: 2200 6th Ave., Suite 707

City: Seattle State: WA Zip: 98121

Project Contact: Tim McCormack and per contract

Phone #: 206-452-5350

Samplers's Name/Signature: Randall Bickford EA

Project Information

Project Name: JBLM

Street:

City: Joint Base Lewis McCHord State: WA

Project #: 6304305

Email: tmccormack@eaest.com, bnuding@eaest.com, and pacificchem@eaest.com

Purchase Order #: 17578

Analytical Information

Lab Sample ID	Sample ID	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	VOCs (SW8260C)	SVOCs (8270dD	TPH-Gx (NWPTH-Gx	TPH-Dx (NWTPH-Dx)	Notes
11	TVR-2-20180329	29-Mar-2018	14:14	GL	GW	3	3								X				
12	TVR-MTS-2-20180329	29-Mar-2018	11:54	GL	GW	3	3								X				
13	TVR-5-20180329	29-Mar-2018	10:46	GL	GW	3	3								X				
14	TVR-MMP-120180329	29-Mar-2018	11:08	GL	GW	3	3								X				
15	TVR-1-20180329	29-Mar-2018	14:38	GL	GW	3	3								X				
16	YTC-TB-001-20180329	29-Mar-2018	10:00	GL	W	2	2								X				

Matrix Codes

W- Water
GW - Ground Water
SW - Surface Water
SO - Soil
OI - Oil
WP - Wipe
LIQ - Non-aqueous Liquid
AIR
DW - Drinking Water (Perchlorate Only)

Turnaround Time (Business days): standard

Data Deliverable Information: Level IV deliverable, Equis EDD and per contract

Comments / Remarks: Samples from Site YAKIMA TRAINING CENTER

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
Randall Bickford EA 9/2/18	1430	1	2		2
Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
		3	4		4
Relinquished by:	Date Time:	Received By:	Custody Seal #	On Ice Y / N	Trip Blank Y / N	Cooler Temp.
		5		Labels Match Coc? Y / N		____ °C

PC KC

Cooler Receipt and Preservation Form

Client EA Engineering Service Request *K18* 02993

Received: 4/2/18 Opened: 4/2/18 By: CG Unloaded: 4/2/18 By: CG

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered* McDelivery
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y (N) If yes, how many and where? _____

If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
4.4	4.4	3.5	3.5	0.0	376	(YTC-1)		

4. Packing material: (*Inserts*) (*Baggies*) (*Bubble Wrap*) (*Gel Packs*) *Wet Ice* *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA (Y) N

   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
11. Were VOA vials received without headspace? *Indicate in the table below.* NA (Y) N
12. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____

Diesel and Residual Range Organics

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305

Cover Page - Organic Analysis Data Package
Diesel and Residual Range Organics

Sample Name	Lab Code	Date Collected	Date Received
FTP-1-20180328	K1802993-009	03/28/2018	04/02/2018
FTP-1-20180328MS	KWG1801900-1	03/28/2018	04/02/2018
FTP-1-20180328DMS	KWG1801900-2	03/28/2018	04/02/2018

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/28/2018
Sample Matrix:	Ground water	**Date Received:**	04/02/2018

Diesel and Residual Range Organics

Sample Name:	FTP-1-20180328	**Units:**	ug/L
Lab Code:	K1802993-009	**Basis:**	NA
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	NWTPH-Dx		

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	**9700**	Y	120	24	13	1	04/11/18	04/16/18	KWG1801900	
Residual Range Organics (RRO)	**1900**	L	120	59	23	1	04/11/18	04/16/18	KWG1801900	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	66	50-150	04/16/18	Acceptable
n-Triacontane	76	50-150	04/16/18	Acceptable

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Diesel and Residual Range Organics

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1801900-7	**Basis:**	NA
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	NWTPH-Dx		

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	**25**	J	100	20	11	1	04/11/18	04/16/18	KWG1801900	
Residual Range Organics (RRO)	**65**	J	100	50	19	1	04/11/18	04/16/18	KWG1801900	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	83	50-150	04/16/18	Acceptable
n-Triacontane	90	50-150	04/16/18	Acceptable

Comments:

QA/QC Report

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305
Sample Matrix: Ground water

Surrogate Recovery Summary
Diesel and Residual Range Organics

Extraction Method: EPA 3510C **Units:** Percent
Analysis Method: NWTPH-Dx **Level:** Low

Sample Name	Lab Code	Sur1	Sur2
FTP-1-20180328	K1802993-009	66	76
Method Blank	KWG1801900-7	83	90
FTP-1-20180328MS	KWG1801900-1	86	91
FTP-1-20180328DMS	KWG1801900-2	88	95
Lab Control Sample	KWG1801900-6	96	100

Surrogate Recovery Control Limits (%)

Sur1	=	o-Terphenyl	50-150
Sur2	=	n-Triacontane	50-150

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Extracted:**	04/11/2018
Sample Matrix:	Water	**Date Analyzed:**	04/16/2018

Matrix Spike/Duplicate Matrix Spike Summary
Diesel and Residual Range Organics

Sample Name:	FTP-1-20180328	**Units:**	ug/L
Lab Code:	K1802993-009	**Basis:**	NA
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	NWTPH-Dx	**Extraction Lot:**	KWG1801900

		FTP-1-20180328MS KWG1801900-1 Matrix Spike			FTP-1-20180328DMS KWG1801900-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Diesel Range Organics (DRO)	9700	12300	3480	72	13500	3480	109	46-140	10	30
Residual Range Organics (RRO)	1900	3430	1740	87	3840	1740	110	45-159	11	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Extracted:**	04/11/2018
Sample Matrix:	Water	**Date Analyzed:**	04/16/2018

Lab Control Spike Summary
Diesel and Residual Range Organics

Extraction Method:	EPA 3510C	**Units:**	ug/L
Analysis Method:	NWTPH-Dx	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1801900

Lab Control Sample
KWG1801900-6
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Diesel Range Organics (DRO)	2780	3200	87	46-140
Residual Range Organics (RRO)	1450	1600	91	45-159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Extracted:**	04/11/2018
Sample Matrix:	Water	**Date Analyzed:**	04/16/2018
		Time Analyzed:	20:29

Method Blank Summary
Diesel and Residual Range Organics

Sample Name:	Method Blank	**Instrument ID:**	GC21
Lab Code:	KWG1801900-7	**File ID:**	J:\GC21\DATA\041618F\0416035.D
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	NWTPH-Dx	**Extraction Lot:**	KWG1801900

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Lab Control Sample	KWG1801900-6	J:\GC21\DATA\041618F\0416034.D	04/16/18	20:07
FTP-1-20180328	K1802993-009	J:\GC21\DATA\041618F\0416037.D	04/16/18	21:13
FTP-1-20180328MS	KWG1801900-1	J:\GC21\DATA\041618F\0416038.D	04/16/18	21:35
FTP-1-20180328DMS	KWG1801900-2	J:\GC21\DATA\041618F\0416039.D	04/16/18	21:57

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Extracted:**	04/11/2018
Sample Matrix:	Water	**Date Analyzed:**	04/16/2018
		Time Analyzed:	20:07

Lab Control Sample Summary
Diesel and Residual Range Organics

Sample Name:	Lab Control Sample	**Instrument ID:**	GC21
Lab Code:	KWG1801900-6	**File ID:**	J:\GC21\DATA\041618F\0416034.D
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	NWTPH-Dx	**Extraction Lot:**	KWG1801900

This Lab Control Sample applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Method Blank	KWG1801900-7	J:\GC21\DATA\041618F\0416035.D	04/16/18	20:29
FTP-1-20180328	K1802993-009	J:\GC21\DATA\041618F\0416037.D	04/16/18	21:13
FTP-1-20180328MS	KWG1801900-1	J:\GC21\DATA\041618F\0416038.D	04/16/18	21:35
FTP-1-20180328DMS	KWG1801900-2	J:\GC21\DATA\041618F\0416039.D	04/16/18	21:57

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305 **Calibration Date:** 01/30/2018

Initial Calibration Summary
Diesel and Residual Range Organics

Calibration ID: CAL15680 **Column:** ZB-1
Instrument ID: GC21

Level ID	File ID	Level ID	File ID
A	J:\GC21\DATA\013018F\0130021.D	J	J:\GC21\DATA\020118F\0201019.D
B	J:\GC21\DATA\013018F\0130022.D	K	J:\GC21\DATA\020118F\0201020.D
C	J:\GC21\DATA\013018F\0130023.D	L	J:\GC21\DATA\020118F\0201021.D
D	J:\GC21\DATA\013018F\0130025.D	M	J:\GC21\DATA\042318F\0423023.D
E	J:\GC21\DATA\013018F\0130026.D	N	J:\GC21\DATA\042318F\0423024.D
F	J:\GC21\DATA\013018F\0130027.D	O	J:\GC21\DATA\042318F\0423025.D
G	J:\GC21\DATA\013018F\0130028.D	P	J:\GC21\DATA\042318F\0423026.D
H	J:\GC21\DATA\020118F\0201017.D	Q	J:\GC21\DATA\042318F\0423027.D
I	J:\GC21\DATA\020118F\0201018.D		

Analyte Name	Level ID	Amt	RF	Level ID	Amt	RF	Level ID	Amt	RF	Level ID	Amt	RF	Level ID	Amt	RF
Diesel Range Organics (DRO)	A	20	1420	B	50	1340	C	200	1370	D	2000	1300	E	5000	1100
	F	20000	1300	G	50000	1230									
							M	0.0	0.00	N	0.0	0.00	O	0.0	0.00
	P	0.0	0.00	Q	0.0	0.00									
Residual Range Organics (RRO)															
							H	50	746	I	200	702	J	500	679
	K	2000	661	L	5000	677	M	0.0	0.00	N	0.0	0.00	O	0.0	0.00
	P	0.0	0.00	Q	0.0	0.00									
o-Terphenyl	A	1.0	1910	B	2.5	1810	C	10	1920	D	100	1870	E	250	1560
							M	0.0	0.00	N	0.0	0.00	O	0.0	0.00
	P	0.0	0.00	Q	0.0	0.00									
n-Triacontane	A	1.0	1460	B	2.5	1380	C	10	1440	D	100	1410	E	250	1170
							M	0.0	0.00	N	0.0	0.00	O	0.0	0.00
	P	0.0	0.00	Q	0.0	0.00									

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305 **Calibration Date:** 01/30/2018

Initial Calibration Summary
Diesel and Residual Range Organics

Calibration ID: CAL15680 **Column:** ZB-1
Instrument ID: GC21

Analyte Name	Compound Type	Calibration Evaluation: Fit Type	Eval.	Eval. Result	Q	Control Criteria
Diesel Range Organics (DRO)	MS	AverageRF	% RSD	7.9		≤ 20
Residual Range Organics (RRO)	MS	AverageRF	% RSD	4.8		≤ 20
o-Terphenyl	SURR	AverageRF	% RSD	8.2		≤ 20
n-Triacontane	SURR	AverageRF	% RSD	8.5		≤ 20

Results flagged with an asterisk (*) indicate values outside control criteria.

QA/QC Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Calibration Date: 01/30/2018
Date Analyzed: 01/30/2018 - 02/01/2018

Second Source Calibration Verification
Diesel and Residual Range Organics

Calibration Type: External Standard
Analysis Method: NWTPH-Dx

Calibration ID: CAL15680
Units: ppm

File ID: J:\GC21\DATA\042318F\0423029.D
J:\GC21\DATA\013018F\0130029.D
J:\GC21\DATA\020118F\0201022.D

Column ID: ZB-1

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1100	1290	1440	12	NA	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	890	693	613	-11	NA	± 15 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

QA/QC Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Date Analyzed: 04/16/2018

Continuing Calibration Verification Summary
Diesel and Residual Range Organics

Calibration Type: External Standard
Analysis Method: NWTPH-Dx

Calibration Date: 01/30/2018
Calibration ID: CAL15680
Analysis Lot: KWG1802005
Units: ppm

File ID: J:\GC21\DATA\041618F\0416031.D
J:\GC21\DATA\041618F\0416032.D

Column ID: ZB-1

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1000	1290	1350	4	NA	± 15	AverageRF
Residual Range Organics (RRO)	1000	950	693	661	-5	NA	± 15	AverageRF
o-Terphenyl	50	50	1810	1810	0	NA	± 15	AverageRF
n-Triacontane	50	53	1370	1460	7	NA	± 15	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Date Analyzed: 04/17/2018

Continuing Calibration Verification Summary
Diesel and Residual Range Organics

Calibration Type: External Standard
Analysis Method: NWTPH-Dx

Calibration Date: 01/30/2018
Calibration ID: CAL15680
Analysis Lot: KWG1802005
Units: ppm

File ID: J:\GC21\DATA\041618F\0416049.D
J:\GC21\DATA\041618F\0416050.D

Column ID: ZB-1

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1100	1290	1470	14	NA	± 15	AverageRF
Residual Range Organics (RRO)	1000	1000	693	709	2	NA	± 15	AverageRF
o-Terphenyl	50	54	1810	1970	8	NA	± 15	AverageRF
n-Triacontane	50	57	1370	1570	14	NA	± 15	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305

Analysis Run Log
Diesel and Residual Range Organics

Analysis Method: NWTPH-Dx **Analysis Lot:** KWG1802005
Instrument ID: GC21
Column: ZB-1

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
\0416015.D	Continuing Calibration Verification	KWG1802005-1	4/16/2018	13:11		4/16/2018	13:27
\0416016.D	Continuing Calibration Verification	KWG1802005-1	4/16/2018	13:33		4/16/2018	13:49
\0416017.D	Instrument Blank	KWG1802005-4	4/16/2018	13:55		4/16/2018	14:11
\0416020.D	ZZZZZZ	ZZZZZZ	4/16/2018	15:01		4/16/2018	15:17
\0416021.D	ZZZZZZ	ZZZZZZ	4/16/2018	15:22		4/16/2018	15:38
\0416022.D	ZZZZZZ	ZZZZZZ	4/16/2018	15:44		4/16/2018	16:00
\0416023.D	ZZZZZZ	ZZZZZZ	4/16/2018	16:06		4/16/2018	16:22
\0416024.D	ZZZZZZ	ZZZZZZ	4/16/2018	16:28		4/16/2018	16:44
\0416025.D	ZZZZZZ	ZZZZZZ	4/16/2018	16:50		4/16/2018	17:06
\0416026.D	ZZZZZZ	ZZZZZZ	4/16/2018	17:11		4/16/2018	17:27
\0416027.D	ZZZZZZ	ZZZZZZ	4/16/2018	17:33		4/16/2018	17:49
\0416028.D	ZZZZZZ	ZZZZZZ	4/16/2018	17:56		4/16/2018	18:12
\0416029.D	ZZZZZZ	ZZZZZZ	4/16/2018	18:18		4/16/2018	18:34
\0416030.D	ZZZZZZ	ZZZZZZ	4/16/2018	18:40		4/16/2018	18:56
\0416031.D	Continuing Calibration Verification	KWG1802005-2	4/16/2018	19:01		4/16/2018	19:17
\0416032.D	Continuing Calibration Verification	KWG1802005-2	4/16/2018	19:23		4/16/2018	19:39
\0416033.D	Instrument Blank	KWG1802005-5	4/16/2018	19:45		4/16/2018	20:01
\0416034.D	Lab Control Sample	KWG1801900-6	4/16/2018	20:07		4/16/2018	20:23
\0416035.D	Method Blank	KWG1801900-7	4/16/2018	20:29		4/16/2018	20:45
\0416036.D	ZZZZZZ	ZZZZZZ	4/16/2018	20:51		4/16/2018	21:07
\0416037.D	FTP-1-20180328	K1802993-009	4/16/2018	21:13		4/16/2018	21:29
\0416038.D	FTP-1-20180328MS	KWG1801900-1	4/16/2018	21:35		4/16/2018	21:51
\0416039.D	FTP-1-20180328DMS	KWG1801900-2	4/16/2018	21:57		4/16/2018	22:13
\0416040.D	ZZZZZZ	ZZZZZZ	4/16/2018	22:19		4/16/2018	22:35
\0416041.D	ZZZZZZ	ZZZZZZ	4/16/2018	22:41		4/16/2018	22:57
\0416042.D	ZZZZZZ	ZZZZZZ	4/16/2018	23:03		4/16/2018	23:19
\0416043.D	ZZZZZZ	ZZZZZZ	4/16/2018	23:25		4/16/2018	23:41
\0416044.D	ZZZZZZ	ZZZZZZ	4/16/2018	23:47		4/17/2018	00:03
\0416045.D	ZZZZZZ	ZZZZZZ	4/17/2018	00:09		4/17/2018	00:25
\0416046.D	ZZZZZZ	ZZZZZZ	4/17/2018	00:31		4/17/2018	00:47
\0416047.D	ZZZZZZ	ZZZZZZ	4/17/2018	00:53		4/17/2018	01:09
\0416048.D	ZZZZZZ	ZZZZZZ	4/17/2018	01:14		4/17/2018	01:30
\0416049.D	Continuing Calibration Verification	KWG1802005-3	4/17/2018	01:36		4/17/2018	01:52
\0416050.D	Continuing Calibration Verification	KWG1802005-3	4/17/2018	01:58		4/17/2018	02:14
\0416051.D	Instrument Blank	KWG1802005-6	4/17/2018	02:19		4/17/2018	02:35

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

QA/QC Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Extracted: 04/11/2018

Extraction Prep Log
Diesel and Residual Range Organics

Extraction Method: EPA 3510C
Analysis Method: NWTPH-Dx

Extraction Lot: KWG1801900
Level: Low

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Volume	% Solids	Note
FTP-1-20180328	K1802993-009	03/28/18	04/02/18	430ml	1ml	NA	
Method Blank	KWG1801900-7	NA	NA	500ml	1ml	NA	
FTP-1-20180328MS	KWG1801900-1	03/28/18	04/02/18	460ml	1ml	NA	
FTP-1-20180328DMS	KWG1801900-2	03/28/18	04/02/18	460ml	1ml	NA	
Lab Control Sample	KWG1801900-6	NA	NA	500ml	1ml	NA	

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

Gasoline Range Organics

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305

Cover Page - Organic Analysis Data Package
Gasoline Range Organics

Sample Name	Lab Code	Date Collected	Date Received
FTP-1-20180328	K1802993-009	03/28/2018	04/02/2018
FTP-1-20180328	KWG1801959-2	03/28/2018	04/02/2018

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/28/2018
Sample Matrix:	Ground water	**Date Received:**	04/02/2018

Gasoline Range Organics

Sample Name:	FTP-1-20180328	**Units:**	ug/L
Lab Code:	K1802993-009	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	**1100**	Y	250	25	12	1	04/05/18	04/05/18	KWG1801959	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	80	50-150	04/05/18	Acceptable

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	NA
Sample Matrix:	Ground water	**Date Received:**	NA

Gasoline Range Organics

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1801959-4	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	25	12	1	04/05/18	04/05/18	KWG1801959	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	84	50-150	04/05/18	Acceptable

Comments:

QA/QC Report

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305
Sample Matrix: Ground water

Surrogate Recovery Summary
Gasoline Range Organics

Extraction Method: EPA 5030B **Units:** Percent
Analysis Method: NWTPH-Gx **Level:** Low

Sample Name	Lab Code	Sur1
FTP-1-20180328	K1802993-009	80
FTP-1-20180328DUP	KWG1801959-2	79
Method Blank	KWG1801959-4	84
Lab Control Sample	KWG1801959-3	82

Surrogate Recovery Control Limits (%)

Sur1 = 1,4-Difluorobenzene 50-150

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Extracted:**	04/05/2018
Sample Matrix:	Ground water	**Date Analyzed:**	04/05/2018

Duplicate Sample Summary
Gasoline Range Organics

Sample Name:	FTP-1-20180328	**Units:**	ug/L
Lab Code:	K1802993-009	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx	**Extraction Lot:**	KWG1801959

				FTP-1-20180328DUP KWG1801959-2 Duplicate Sample			
Analyte Name	**LOQ**	**MDL**	**Sample Result**	**Result**	**Average**	**Relative Percent Difference**	**RPD Limit**
Gasoline Range Organics-NWTPH	250	12	1100	1000	1100	6	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Extracted:**	04/05/2018
Sample Matrix:	Ground water	**Date Analyzed:**	04/05/2018

Lab Control Spike Summary
Gasoline Range Organics

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	NWTPH-Gx	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1801959

	Lab Control Sample KWG1801959-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Gasoline Range Organics-NWTPH	505	500	101	80-119

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Extracted:**	04/05/2018
Sample Matrix:	Ground water	**Date Analyzed:**	04/05/2018
		Time Analyzed:	09:57

Method Blank Summary
Gasoline Range Organics

Sample Name:	Method Blank	**Instrument ID:**	GC39
Lab Code:	KWG1801959-4	**File ID:**	J:\GC39\DATA\040518\0405F005.D
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx	**Extraction Lot:**	KWG1801959

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Lab Control Sample	KWG1801959-3	J:\GC39\DATA\040518\0405F006.D	04/05/18	10:44
FTP-1-20180328	K1802993-009	J:\GC39\DATA\040518\0405F015.D	04/05/18	14:21
FTP-1-20180328DUP	KWG1801959-2	J:\GC39\DATA\040518\0405F016.D	04/05/18	14:45

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Extracted:**	04/05/2018
Sample Matrix:	Ground water	**Date Analyzed:**	04/05/2018
		Time Analyzed:	10:44

Lab Control Sample Summary
Gasoline Range Organics

Sample Name:	Lab Control Sample	**Instrument ID:**	GC39
Lab Code:	KWG1801959-3	**File ID:**	J:\GC39\DATA\040518\0405F006.D
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx	**Extraction Lot:**	KWG1801959

This Lab Control Sample applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Method Blank	KWG1801959-4	J:\GC39\DATA\040518\0405F005.D	04/05/18	09:57
FTP-1-20180328	K1802993-009	J:\GC39\DATA\040518\0405F015.D	04/05/18	14:21
FTP-1-20180328DUP	KWG1801959-2	J:\GC39\DATA\040518\0405F016.D	04/05/18	14:45

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305 **Calibration Date:** 03/27/2018

Initial Calibration Summary
Gasoline Range Organics

Calibration ID: CAL15712 **Column:** DB-624
Instrument ID: GC39

Level ID	File ID	Level ID	File ID
A	J:\GC39\DATA\0032718\0327F008.D	E	J:\GC39\DATA\0032718\0327F012.D
B	J:\GC39\DATA\0032718\0327F009.D	F	J:\GC39\DATA\0032718\0327F013.D
C	J:\GC39\DATA\0032718\0327F010.D	G	J:\GC39\DATA\0032718\0327F014.D
D	J:\GC39\DATA\0032718\0327F011.D		

Analyte Name	Level ID	Amt	RF	Level ID	Amt	RF	Level ID	Amt	RF	Level ID	Amt	RF	Level ID	Amt	RF
Gasoline Range Organics-NWTPH	A	50	69700	B	100	71000	C	200	62700	D	500	69000	E	1000	68300
	F	5000	68300	G	10000	70400									
1,4-Difluorobenzene	A	20	1.38E+5	B	25	1.25E+5	C	50	1.54E+5	D	100	1.52E+5	E	150	1.49E+5

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305 **Calibration Date:** 03/27/2018

Initial Calibration Summary
Gasoline Range Organics

Calibration ID: CAL15712 **Column:** DB-624
Instrument ID: GC39

Analyte Name	Compound Type	Calibration Evaluation				
		Fit Type	Eval.	Eval. Result	Q	Control Criteria
Gasoline Range Organics-NWTPH	MS	AverageRF	% RSD	4.0		≤ 20
1,4-Difluorobenzene	SURR	AverageRF	% RSD	8.5		≤ 20

Results flagged with an asterisk (*) indicate values outside control criteria.

QA/QC Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Calibration Date: 03/27/2018
Date Analyzed: 03/27/2018

Second Source Calibration Verification
Gasoline Range Organics

Calibration Type: External Standard
Analysis Method: NWTPH-Gx

Calibration ID: CAL15712
Units: ug/L

File ID: J:\GC39\DATA\0032718\0327F018.D

Column ID: DB-624

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Gasoline Range Organics-NWTPH	500	520	68500	73400	7	NA	± 15 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

QA/QC Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Analyzed:**	04/05/2018

Continuing Calibration Verification Summary
Gasoline Range Organics

Calibration Type:	External Standard	**Calibration Date:**	03/27/2018
Analysis Method:	NWTPH-Gx	**Calibration ID:**	CAL15712
		Analysis Lot:	KWG1801958
		Units:	ug/L
File ID:	J:\GC39\DATA\040518\0405F003.D	**Column ID:**	DB-624

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Gasoline Range Organics-NWTPH	500	500	68500	69100	1	NA	± 20	AverageRF
1,4-Difluorobenzene	100	87	144000	125000	-13	NA	± 20	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

QA/QC Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Analyzed:**	04/05/2018

Continuing Calibration Verification Summary
Gasoline Range Organics

Calibration Type:	External Standard	**Calibration Date:**	03/27/2018
Analysis Method:	NWTPH-Gx	**Calibration ID:**	CAL15712
		Analysis Lot:	KWG1801958
		Units:	ug/L
File ID:	J:\GC39\DATA\040518\0405F017.D	**Column ID:**	DB-624

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Gasoline Range Organics-NWTPH	500	500	68500	67800	-1	NA	± 20	AverageRF
1,4-Difluorobenzene	100	85	144000	122000	-15	NA	± 20	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305

Analysis Run Log
Gasoline Range Organics

Analysis Method: NWTPH-Gx **Analysis Lot:** KWG1801958
Instrument ID: GC39
Column: DB-624

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0405F003.D	Continuing Calibration Verification	KWG1801958-1	4/5/2018	09:09		4/5/2018	09:24
0405F004.D	Instrument Blank	KWG1801958-3	4/5/2018	09:33		4/5/2018	09:48
0405F005.D	Method Blank	KWG1801959-4	4/5/2018	09:57		4/5/2018	10:12
0405F006.D	Lab Control Sample	KWG1801959-3	4/5/2018	10:44		4/5/2018	10:59
0405F007.D	ZZZZZZ	ZZZZZZ	4/5/2018	11:08		4/5/2018	11:23
0405F008.D	ZZZZZZ	ZZZZZZ	4/5/2018	11:32		4/5/2018	11:47
0405F009.D	ZZZZZZ	ZZZZZZ	4/5/2018	11:57		4/5/2018	12:12
0405F010.D	ZZZZZZ	ZZZZZZ	4/5/2018	12:21		4/5/2018	12:36
0405F011.D	ZZZZZZ	ZZZZZZ	4/5/2018	12:45		4/5/2018	13:00
0405F012.D	ZZZZZZ	ZZZZZZ	4/5/2018	13:09		4/5/2018	13:24
0405F013.D	ZZZZZZ	ZZZZZZ	4/5/2018	13:33		4/5/2018	13:48
0405F014.D	ZZZZZZ	ZZZZZZ	4/5/2018	13:57		4/5/2018	14:12
0405F015.D	FTP-1-20180328	K1802993-009	4/5/2018	14:21		4/5/2018	14:36
0405F016.D	FTP-1-20180328DUP	KWG1801959-2	4/5/2018	14:45		4/5/2018	15:00
0405F017.D	Continuing Calibration Verification	KWG1801958-2	4/5/2018	15:09		4/5/2018	15:24
0405F018.D	Instrument Blank	KWG1801958-4	4/5/2018	15:33		4/5/2018	15:48

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

QA/QC Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Extracted: 04/05/2018

Extraction Prep Log
Gasoline Range Organics

Extraction Method: EPA 5030B
Analysis Method: NWTPH-Gx

Extraction Lot: KWG1801959
Level: Low

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Volume	% Solids	Note
FTP-1-20180328	K1802993-009	03/28/18	04/02/18	10ml	10ml	NA	
FTP-1-20180328DUP	KWG1801959-2	03/28/18	04/02/18	10ml	10ml	NA	
Method Blank	KWG1801959-4	NA	NA	10ml	10ml	NA	
Lab Control Sample	KWG1801959-3	NA	NA	10ml	10ml	NA	

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

Volatile Organic Compounds

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305

Cover Page - Organic Analysis Data Package
Volatile Organic Compounds

Sample Name	Lab Code	Date Collected	Date Received
TVR-PAIC-20180329	K1802993-001	03/29/2018	04/02/2018
TVR-POMONA-20180329	K1802993-002	03/29/2018	04/02/2018
TVR-6-20180329	K1802993-003	03/29/2018	04/02/2018
TVR-MTS-1-20180329	K1802993-004	03/29/2018	04/02/2018
TVR-3A-20180329	K1802993-005	03/29/2018	04/02/2018
TVR-3-20180329	K1802993-006	03/29/2018	04/02/2018
TVR-MTS-4-20180329	K1802993-007	03/29/2018	04/02/2018
TVR-7-20180329	K1802993-008	03/29/2018	04/02/2018
FTP-1-20180328	K1802993-009	03/28/2018	04/02/2018
TVR-815-2-20180329	K1802993-010	03/29/2018	04/02/2018
TVR-2-20180329	K1802993-011	03/29/2018	04/02/2018
TVR-MTS-2-20180329	K1802993-012	03/29/2018	04/02/2018
TVR-5-20180329	K1802993-013	03/29/2018	04/02/2018
TVR-MMP-120180329	K1802993-014	03/29/2018	04/02/2018
TVR-1-20180329	K1802993-015	03/29/2018	04/02/2018
YTC-TB-001-20180329	K1802993-016	03/29/2018	04/02/2018
TVR-6-20180329MS	KWG1801833-1	03/29/2018	04/02/2018
TVR-6-20180329DMS	KWG1801833-2	03/29/2018	04/02/2018
FTP-1-20180328MS	KWG1801867-1	03/28/2018	04/02/2018
FTP-1-20180328DMS	KWG1801867-2	03/28/2018	04/02/2018

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-PAIC-20180329
Lab Code: K1802993-001

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	04/09/18	04/09/18	KWG1801867	*
Chloromethane	ND	U	0.50	0.20	0.068	1	04/09/18	04/09/18	KWG1801867	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	04/09/18	04/09/18	KWG1801867	
Bromomethane	ND	U	0.50	0.30	0.16	1	04/09/18	04/09/18	KWG1801867	
Chloroethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	04/09/18	04/09/18	KWG1801867	
Acetone	ND	U	20	10	3.3	1	04/09/18	04/09/18	KWG1801867	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	04/09/18	04/09/18	KWG1801867	*
Methylene Chloride	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	04/09/18	04/09/18	KWG1801867	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	04/09/18	04/09/18	KWG1801867	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	04/09/18	04/09/18	KWG1801867	
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	04/09/18	04/09/18	KWG1801867	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	04/09/18	04/09/18	KWG1801867	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Chloroform	ND	U	0.50	0.20	0.072	1	04/09/18	04/09/18	KWG1801867	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	04/09/18	04/09/18	KWG1801867	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
Benzene	ND	U	0.50	0.10	0.062	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	04/09/18	04/09/18	KWG1801867	
Trichloroethene (TCE)	ND	U	0.50	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	04/09/18	04/09/18	KWG1801867	
Dibromomethane	ND	U	0.50	0.50	0.15	1	04/09/18	04/09/18	KWG1801867	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	04/09/18	04/09/18	KWG1801867	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	04/09/18	04/09/18	KWG1801867	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	04/09/18	04/09/18	KWG1801867	
Toluene	**0.060**	J	0.50	0.10	0.054	1	04/09/18	04/09/18	KWG1801867	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	04/09/18	04/09/18	KWG1801867	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	04/09/18	04/09/18	KWG1801867	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	04/09/18	04/09/18	KWG1801867	
2-Hexanone	ND	U	20	10	2.7	1	04/09/18	04/09/18	KWG1801867	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	04/09/18	04/09/18	KWG1801867	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	04/09/18	04/09/18	KWG1801867	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-PAIC-20180329
Lab Code: K1802993-001

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
Chlorobenzene	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	04/09/18	04/09/18	KWG1801867	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
m,p-Xylenes	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
o-Xylene	ND	U	0.50	0.20	0.074	1	04/09/18	04/09/18	KWG1801867	
Styrene	ND	U	0.50	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
Bromoform	ND	U	0.50	0.50	0.16	1	04/09/18	04/09/18	KWG1801867	
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	04/09/18	04/09/18	KWG1801867	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Bromobenzene	ND	U	2.0	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	04/09/18	04/09/18	KWG1801867	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	04/09/18	04/09/18	KWG1801867	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	04/09/18	04/09/18	KWG1801867	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	04/09/18	04/09/18	KWG1801867	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	04/09/18	04/09/18	KWG1801867	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	04/09/18	04/09/18	KWG1801867	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	04/09/18	04/09/18	KWG1801867	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,4-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	04/09/18	04/09/18	KWG1801867	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	04/09/18	04/09/18	KWG1801867	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	04/09/18	04/09/18	KWG1801867	
Naphthalene	ND	U	2.0	0.30	0.088	1	04/09/18	04/09/18	KWG1801867	*
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	04/09/18	04/09/18	KWG1801867	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/29/2018
Sample Matrix:	Ground water	**Date Received:**	04/02/2018

Volatile Organic Compounds

Sample Name:	TVR-PAIC-20180329	**Units:**	ug/L
Lab Code:	K1802993-001	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	127	80-119	04/09/18	Outside Control Limits
1,2-Dichloroethane-d4	118	81-118	04/09/18	Acceptable
Toluene-d8	114	89-112	04/09/18	Outside Control Limits
4-Bromofluorobenzene	86	85-114	04/09/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-POMONA-20180329
Lab Code: K1802993-002

Units: ug/L
Basis: NA

Extraction Method: EPA 5030B
Analysis Method: 8260C

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	04/09/18	04/09/18	KWG1801867	*
Chloromethane	ND	U	0.50	0.20	0.068	1	04/09/18	04/09/18	KWG1801867	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	04/09/18	04/09/18	KWG1801867	
Bromomethane	ND	U	0.50	0.30	0.16	1	04/09/18	04/09/18	KWG1801867	
Chloroethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	04/09/18	04/09/18	KWG1801867	
Acetone	ND	U	20	10	3.3	1	04/09/18	04/09/18	KWG1801867	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	04/09/18	04/09/18	KWG1801867	*
Methylene Chloride	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	04/09/18	04/09/18	KWG1801867	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	04/09/18	04/09/18	KWG1801867	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	04/09/18	04/09/18	KWG1801867	
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	04/09/18	04/09/18	KWG1801867	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	04/09/18	04/09/18	KWG1801867	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Chloroform	ND	U	0.50	0.20	0.072	1	04/09/18	04/09/18	KWG1801867	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	04/09/18	04/09/18	KWG1801867	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
Benzene	ND	U	0.50	0.10	0.062	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	04/09/18	04/09/18	KWG1801867	
Trichloroethene (TCE)	ND	U	0.50	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	04/09/18	04/09/18	KWG1801867	
Dibromomethane	ND	U	0.50	0.50	0.15	1	04/09/18	04/09/18	KWG1801867	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	04/09/18	04/09/18	KWG1801867	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	04/09/18	04/09/18	KWG1801867	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	04/09/18	04/09/18	KWG1801867	
Toluene	ND	U	0.50	0.10	0.054	1	04/09/18	04/09/18	KWG1801867	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	04/09/18	04/09/18	KWG1801867	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	04/09/18	04/09/18	KWG1801867	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	04/09/18	04/09/18	KWG1801867	
2-Hexanone	ND	U	20	10	2.7	1	04/09/18	04/09/18	KWG1801867	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	04/09/18	04/09/18	KWG1801867	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	04/09/18	04/09/18	KWG1801867	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-POMONA-20180329
Lab Code: K1802993-002

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
Chlorobenzene	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	04/09/18	04/09/18	KWG1801867	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
m,p-Xylenes	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
o-Xylene	ND	U	0.50	0.20	0.074	1	04/09/18	04/09/18	KWG1801867	
Styrene	ND	U	0.50	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
Bromoform	ND	U	0.50	0.50	0.16	1	04/09/18	04/09/18	KWG1801867	
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	04/09/18	04/09/18	KWG1801867	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Bromobenzene	ND	U	2.0	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	04/09/18	04/09/18	KWG1801867	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	04/09/18	04/09/18	KWG1801867	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	04/09/18	04/09/18	KWG1801867	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	04/09/18	04/09/18	KWG1801867	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	04/09/18	04/09/18	KWG1801867	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	04/09/18	04/09/18	KWG1801867	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	04/09/18	04/09/18	KWG1801867	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,4-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	04/09/18	04/09/18	KWG1801867	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	04/09/18	04/09/18	KWG1801867	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	04/09/18	04/09/18	KWG1801867	
Naphthalene	ND	U	2.0	0.30	0.088	1	04/09/18	04/09/18	KWG1801867	*
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	04/09/18	04/09/18	KWG1801867	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/29/2018
Sample Matrix:	Ground water	**Date Received:**	04/02/2018

Volatile Organic Compounds

Sample Name:	TVR-POMONA-20180329	**Units:**	ug/L
Lab Code:	K1802993-002	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	127	80-119	04/09/18	Outside Control Limits
1,2-Dichloroethane-d4	118	81-118	04/09/18	Acceptable
Toluene-d8	113	89-112	04/09/18	Outside Control Limits
4-Bromofluorobenzene	88	85-114	04/09/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-6-20180329
Lab Code: K1802993-003

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	04/06/18	04/06/18	KWG1801833	
Chloromethane	ND	U	0.50	0.20	0.068	1	04/06/18	04/06/18	KWG1801833	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	04/06/18	04/06/18	KWG1801833	
Bromomethane	ND	U	0.50	0.30	0.16	1	04/06/18	04/06/18	KWG1801833	
Chloroethane	ND	U	0.50	0.20	0.16	1	04/06/18	04/06/18	KWG1801833	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	04/06/18	04/06/18	KWG1801833	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	04/06/18	04/06/18	KWG1801833	
Acetone	ND	U	20	10	3.3	1	04/06/18	04/06/18	KWG1801833	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	04/06/18	04/06/18	KWG1801833	
Methylene Chloride	ND	U	2.0	0.20	0.10	1	04/06/18	04/06/18	KWG1801833	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	04/06/18	04/06/18	KWG1801833	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	04/06/18	04/06/18	KWG1801833	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	04/06/18	04/06/18	KWG1801833	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	04/06/18	04/06/18	KWG1801833	
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	04/06/18	04/06/18	KWG1801833	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	04/06/18	04/06/18	KWG1801833	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	04/06/18	04/06/18	KWG1801833	
Chloroform	ND	U	0.50	0.20	0.072	1	04/06/18	04/06/18	KWG1801833	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	04/06/18	04/06/18	KWG1801833	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	04/06/18	04/06/18	KWG1801833	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	04/06/18	04/06/18	KWG1801833	
Benzene	ND	U	0.50	0.10	0.062	1	04/06/18	04/06/18	KWG1801833	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	04/06/18	04/06/18	KWG1801833	
Trichloroethene (TCE)	**2.8**		0.50	0.20	0.10	1	04/06/18	04/06/18	KWG1801833	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	04/06/18	04/06/18	KWG1801833	
Dibromomethane	ND	U	0.50	0.50	0.15	1	04/06/18	04/06/18	KWG1801833	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	04/06/18	04/06/18	KWG1801833	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	04/06/18	04/06/18	KWG1801833	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	04/06/18	04/06/18	KWG1801833	
Toluene	ND	U	0.50	0.10	0.054	1	04/06/18	04/06/18	KWG1801833	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	04/06/18	04/06/18	KWG1801833	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	04/06/18	04/06/18	KWG1801833	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	04/06/18	04/06/18	KWG1801833	
2-Hexanone	ND	U	20	10	2.7	1	04/06/18	04/06/18	KWG1801833	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	04/06/18	04/06/18	KWG1801833	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	04/06/18	04/06/18	KWG1801833	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-6-20180329
Lab Code: K1802993-003

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	04/06/18	04/06/18	KWG1801833	
Chlorobenzene	ND	U	0.50	0.20	0.11	1	04/06/18	04/06/18	KWG1801833	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	04/06/18	04/06/18	KWG1801833	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	04/06/18	04/06/18	KWG1801833	
m,p-Xylenes	ND	U	0.50	0.20	0.11	1	04/06/18	04/06/18	KWG1801833	
o-Xylene	ND	U	0.50	0.20	0.074	1	04/06/18	04/06/18	KWG1801833	
Styrene	ND	U	0.50	0.20	0.089	1	04/06/18	04/06/18	KWG1801833	
Bromoform	ND	U	0.50	0.50	0.16	1	04/06/18	04/06/18	KWG1801833	
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	04/06/18	04/06/18	KWG1801833	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	04/06/18	04/06/18	KWG1801833	
Bromobenzene	ND	U	2.0	0.20	0.12	1	04/06/18	04/06/18	KWG1801833	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	04/06/18	04/06/18	KWG1801833	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	04/06/18	04/06/18	KWG1801833	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	04/06/18	04/06/18	KWG1801833	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	04/06/18	04/06/18	KWG1801833	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	04/06/18	04/06/18	KWG1801833	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	04/06/18	04/06/18	KWG1801833	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	04/06/18	04/06/18	KWG1801833	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	04/06/18	04/06/18	KWG1801833	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	04/06/18	04/06/18	KWG1801833	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	04/06/18	04/06/18	KWG1801833	
1,4-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/06/18	04/06/18	KWG1801833	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	04/06/18	04/06/18	KWG1801833	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/06/18	04/06/18	KWG1801833	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	04/06/18	04/06/18	KWG1801833	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	04/06/18	04/06/18	KWG1801833	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	04/06/18	04/06/18	KWG1801833	
Naphthalene	ND	U	2.0	0.30	0.088	1	04/06/18	04/06/18	KWG1801833	*
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	04/06/18	04/06/18	KWG1801833	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/29/2018
Sample Matrix:	Ground water	**Date Received:**	04/02/2018

Volatile Organic Compounds

Sample Name:	TVR-6-20180329	**Units:**	ug/L
Lab Code:	K1802993-003	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	126	80-119	04/06/18	Outside Control Limits
1,2-Dichloroethane-d4	119	81-118	04/06/18	Outside Control Limits
Toluene-d8	112	89-112	04/06/18	Acceptable
4-Bromofluorobenzene	87	85-114	04/06/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-MTS-1-20180329
Lab Code: K1802993-004

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	04/09/18	04/09/18	KWG1801867	*
Chloromethane	ND	U	0.50	0.20	0.068	1	04/09/18	04/09/18	KWG1801867	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	04/09/18	04/09/18	KWG1801867	
Bromomethane	ND	U	0.50	0.30	0.16	1	04/09/18	04/09/18	KWG1801867	
Chloroethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	04/09/18	04/09/18	KWG1801867	
Acetone	ND	U	20	10	3.3	1	04/09/18	04/09/18	KWG1801867	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	04/09/18	04/09/18	KWG1801867	*
Methylene Chloride	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	04/09/18	04/09/18	KWG1801867	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	04/09/18	04/09/18	KWG1801867	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	04/09/18	04/09/18	KWG1801867	
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	04/09/18	04/09/18	KWG1801867	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	04/09/18	04/09/18	KWG1801867	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Chloroform	ND	U	0.50	0.20	0.072	1	04/09/18	04/09/18	KWG1801867	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	04/09/18	04/09/18	KWG1801867	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
Benzene	ND	U	0.50	0.10	0.062	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	04/09/18	04/09/18	KWG1801867	
Trichloroethene (TCE)	**3.7**		0.50	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	04/09/18	04/09/18	KWG1801867	
Dibromomethane	ND	U	0.50	0.50	0.15	1	04/09/18	04/09/18	KWG1801867	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	04/09/18	04/09/18	KWG1801867	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	04/09/18	04/09/18	KWG1801867	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	04/09/18	04/09/18	KWG1801867	
Toluene	ND	U	0.50	0.10	0.054	1	04/09/18	04/09/18	KWG1801867	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	04/09/18	04/09/18	KWG1801867	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	04/09/18	04/09/18	KWG1801867	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	04/09/18	04/09/18	KWG1801867	
2-Hexanone	ND	U	20	10	2.7	1	04/09/18	04/09/18	KWG1801867	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	04/09/18	04/09/18	KWG1801867	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	04/09/18	04/09/18	KWG1801867	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-MTS-1-20180329
Lab Code: K1802993-004

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
Chlorobenzene	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	04/09/18	04/09/18	KWG1801867	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
m,p-Xylenes	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
o-Xylene	ND	U	0.50	0.20	0.074	1	04/09/18	04/09/18	KWG1801867	
Styrene	ND	U	0.50	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
Bromoform	ND	U	0.50	0.50	0.16	1	04/09/18	04/09/18	KWG1801867	
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	04/09/18	04/09/18	KWG1801867	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Bromobenzene	ND	U	2.0	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	04/09/18	04/09/18	KWG1801867	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	04/09/18	04/09/18	KWG1801867	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	04/09/18	04/09/18	KWG1801867	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	04/09/18	04/09/18	KWG1801867	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	04/09/18	04/09/18	KWG1801867	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	04/09/18	04/09/18	KWG1801867	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	04/09/18	04/09/18	KWG1801867	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,4-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	04/09/18	04/09/18	KWG1801867	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	04/09/18	04/09/18	KWG1801867	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	04/09/18	04/09/18	KWG1801867	
Naphthalene	ND	U	2.0	0.30	0.088	1	04/09/18	04/09/18	KWG1801867	*
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	04/09/18	04/09/18	KWG1801867	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/29/2018
Sample Matrix:	Ground water	**Date Received:**	04/02/2018

Volatile Organic Compounds

Sample Name:	TVR-MTS-1-20180329	**Units:**	ug/L
Lab Code:	K1802993-004	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	129	80-119	04/09/18	Outside Control Limits
1,2-Dichloroethane-d4	115	81-118	04/09/18	Acceptable
Toluene-d8	113	89-112	04/09/18	Outside Control Limits
4-Bromofluorobenzene	88	85-114	04/09/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-3A-20180329
Lab Code: K1802993-005

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	04/09/18	04/09/18	KWG1801867	*
Chloromethane	ND	U	0.50	0.20	0.068	1	04/09/18	04/09/18	KWG1801867	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	04/09/18	04/09/18	KWG1801867	
Bromomethane	ND	U	0.50	0.30	0.16	1	04/09/18	04/09/18	KWG1801867	
Chloroethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	04/09/18	04/09/18	KWG1801867	
Acetone	**5.5**	J	20	10	3.3	1	04/09/18	04/09/18	KWG1801867	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	04/09/18	04/09/18	KWG1801867	*
Methylene Chloride	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	04/09/18	04/09/18	KWG1801867	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	04/09/18	04/09/18	KWG1801867	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	04/09/18	04/09/18	KWG1801867	
cis-1,2-Dichloroethene	**0.13**	J	0.50	0.20	0.067	1	04/09/18	04/09/18	KWG1801867	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	04/09/18	04/09/18	KWG1801867	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Chloroform	**0.14**	J	0.50	0.20	0.072	1	04/09/18	04/09/18	KWG1801867	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	04/09/18	04/09/18	KWG1801867	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
Benzene	ND	U	0.50	0.10	0.062	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	04/09/18	04/09/18	KWG1801867	
Trichloroethene (TCE)	**6.5**		0.50	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	04/09/18	04/09/18	KWG1801867	
Dibromomethane	ND	U	0.50	0.50	0.15	1	04/09/18	04/09/18	KWG1801867	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	04/09/18	04/09/18	KWG1801867	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	04/09/18	04/09/18	KWG1801867	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	04/09/18	04/09/18	KWG1801867	
Toluene	**0.080**	J	0.50	0.10	0.054	1	04/09/18	04/09/18	KWG1801867	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	04/09/18	04/09/18	KWG1801867	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	04/09/18	04/09/18	KWG1801867	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	04/09/18	04/09/18	KWG1801867	
2-Hexanone	ND	U	20	10	2.7	1	04/09/18	04/09/18	KWG1801867	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	04/09/18	04/09/18	KWG1801867	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	04/09/18	04/09/18	KWG1801867	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-3A-20180329
Lab Code: K1802993-005

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
Chlorobenzene	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	04/09/18	04/09/18	KWG1801867	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
m,p-Xylenes	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
o-Xylene	ND	U	0.50	0.20	0.074	1	04/09/18	04/09/18	KWG1801867	
Styrene	ND	U	0.50	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
Bromoform	ND	U	0.50	0.50	0.16	1	04/09/18	04/09/18	KWG1801867	
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	04/09/18	04/09/18	KWG1801867	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Bromobenzene	ND	U	2.0	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	04/09/18	04/09/18	KWG1801867	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	04/09/18	04/09/18	KWG1801867	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	04/09/18	04/09/18	KWG1801867	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	04/09/18	04/09/18	KWG1801867	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	04/09/18	04/09/18	KWG1801867	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	04/09/18	04/09/18	KWG1801867	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	04/09/18	04/09/18	KWG1801867	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,4-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	04/09/18	04/09/18	KWG1801867	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	04/09/18	04/09/18	KWG1801867	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	04/09/18	04/09/18	KWG1801867	
Naphthalene	ND	U	2.0	0.30	0.088	1	04/09/18	04/09/18	KWG1801867	*
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	04/09/18	04/09/18	KWG1801867	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/29/2018
Sample Matrix:	Ground water	**Date Received:**	04/02/2018

Volatile Organic Compounds

Sample Name:	TVR-3A-20180329	**Units:**	ug/L
Lab Code:	K1802993-005	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	128	80-119	04/09/18	Outside Control Limits
1,2-Dichloroethane-d4	114	81-118	04/09/18	Acceptable
Toluene-d8	111	89-112	04/09/18	Acceptable
4-Bromofluorobenzene	87	85-114	04/09/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-3-20180329
Lab Code: K1802993-006

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	04/09/18	04/09/18	KWG1801867	*
Chloromethane	ND	U	0.50	0.20	0.068	1	04/09/18	04/09/18	KWG1801867	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	04/09/18	04/09/18	KWG1801867	
Bromomethane	ND	U	0.50	0.30	0.16	1	04/09/18	04/09/18	KWG1801867	
Chloroethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	04/09/18	04/09/18	KWG1801867	
Acetone	ND	U	20	10	3.3	1	04/09/18	04/09/18	KWG1801867	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	04/09/18	04/09/18	KWG1801867	*
Methylene Chloride	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	04/09/18	04/09/18	KWG1801867	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	04/09/18	04/09/18	KWG1801867	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	04/09/18	04/09/18	KWG1801867	
cis-1,2-Dichloroethene	**0.12**	J	0.50	0.20	0.067	1	04/09/18	04/09/18	KWG1801867	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	04/09/18	04/09/18	KWG1801867	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Chloroform	**0.16**	J	0.50	0.20	0.072	1	04/09/18	04/09/18	KWG1801867	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	04/09/18	04/09/18	KWG1801867	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
Benzene	ND	U	0.50	0.10	0.062	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	04/09/18	04/09/18	KWG1801867	
Trichloroethene (TCE)	**6.7**		0.50	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	04/09/18	04/09/18	KWG1801867	
Dibromomethane	ND	U	0.50	0.50	0.15	1	04/09/18	04/09/18	KWG1801867	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	04/09/18	04/09/18	KWG1801867	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	04/09/18	04/09/18	KWG1801867	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	04/09/18	04/09/18	KWG1801867	
Toluene	ND	U	0.50	0.10	0.054	1	04/09/18	04/09/18	KWG1801867	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	04/09/18	04/09/18	KWG1801867	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	04/09/18	04/09/18	KWG1801867	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	04/09/18	04/09/18	KWG1801867	
2-Hexanone	ND	U	20	10	2.7	1	04/09/18	04/09/18	KWG1801867	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	04/09/18	04/09/18	KWG1801867	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	04/09/18	04/09/18	KWG1801867	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-3-20180329
Lab Code: K1802993-006

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
Chlorobenzene	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	04/09/18	04/09/18	KWG1801867	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
m,p-Xylenes	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
o-Xylene	ND	U	0.50	0.20	0.074	1	04/09/18	04/09/18	KWG1801867	
Styrene	ND	U	0.50	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
Bromoform	ND	U	0.50	0.50	0.16	1	04/09/18	04/09/18	KWG1801867	
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	04/09/18	04/09/18	KWG1801867	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Bromobenzene	ND	U	2.0	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	04/09/18	04/09/18	KWG1801867	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	04/09/18	04/09/18	KWG1801867	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	04/09/18	04/09/18	KWG1801867	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	04/09/18	04/09/18	KWG1801867	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	04/09/18	04/09/18	KWG1801867	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	04/09/18	04/09/18	KWG1801867	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	04/09/18	04/09/18	KWG1801867	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,4-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	04/09/18	04/09/18	KWG1801867	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	04/09/18	04/09/18	KWG1801867	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	04/09/18	04/09/18	KWG1801867	
Naphthalene	ND	U	2.0	0.30	0.088	1	04/09/18	04/09/18	KWG1801867	*
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	04/09/18	04/09/18	KWG1801867	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/29/2018
Sample Matrix:	Ground water	**Date Received:**	04/02/2018

Volatile Organic Compounds

Sample Name:	TVR-3-20180329	**Units:**	ug/L
Lab Code:	K1802993-006	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	129	80-119	04/09/18	Outside Control Limits
1,2-Dichloroethane-d4	118	81-118	04/09/18	Acceptable
Toluene-d8	113	89-112	04/09/18	Outside Control Limits
4-Bromofluorobenzene	89	85-114	04/09/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-MTS-4-20180329
Lab Code: K1802993-007

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	04/09/18	04/09/18	KWG1801867	*
Chloromethane	ND	U	0.50	0.20	0.068	1	04/09/18	04/09/18	KWG1801867	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	04/09/18	04/09/18	KWG1801867	
Bromomethane	ND	U	0.50	0.30	0.16	1	04/09/18	04/09/18	KWG1801867	
Chloroethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	04/09/18	04/09/18	KWG1801867	
Acetone	ND	U	20	10	3.3	1	04/09/18	04/09/18	KWG1801867	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	04/09/18	04/09/18	KWG1801867	*
Methylene Chloride	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	04/09/18	04/09/18	KWG1801867	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	04/09/18	04/09/18	KWG1801867	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	04/09/18	04/09/18	KWG1801867	
cis-1,2-Dichloroethene	**0.19**	J	0.50	0.20	0.067	1	04/09/18	04/09/18	KWG1801867	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	04/09/18	04/09/18	KWG1801867	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Chloroform	ND	U	0.50	0.20	0.072	1	04/09/18	04/09/18	KWG1801867	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	04/09/18	04/09/18	KWG1801867	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
Benzene	ND	U	0.50	0.10	0.062	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	04/09/18	04/09/18	KWG1801867	
Trichloroethene (TCE)	**6.1**		0.50	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	04/09/18	04/09/18	KWG1801867	
Dibromomethane	ND	U	0.50	0.50	0.15	1	04/09/18	04/09/18	KWG1801867	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	04/09/18	04/09/18	KWG1801867	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	04/09/18	04/09/18	KWG1801867	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	04/09/18	04/09/18	KWG1801867	
Toluene	ND	U	0.50	0.10	0.054	1	04/09/18	04/09/18	KWG1801867	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	04/09/18	04/09/18	KWG1801867	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	04/09/18	04/09/18	KWG1801867	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	04/09/18	04/09/18	KWG1801867	
2-Hexanone	ND	U	20	10	2.7	1	04/09/18	04/09/18	KWG1801867	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	04/09/18	04/09/18	KWG1801867	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	04/09/18	04/09/18	KWG1801867	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-MTS-4-20180329
Lab Code: K1802993-007

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
Chlorobenzene	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	04/09/18	04/09/18	KWG1801867	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
m,p-Xylenes	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
o-Xylene	ND	U	0.50	0.20	0.074	1	04/09/18	04/09/18	KWG1801867	
Styrene	ND	U	0.50	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
Bromoform	ND	U	0.50	0.50	0.16	1	04/09/18	04/09/18	KWG1801867	
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	04/09/18	04/09/18	KWG1801867	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Bromobenzene	ND	U	2.0	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	04/09/18	04/09/18	KWG1801867	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	04/09/18	04/09/18	KWG1801867	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	04/09/18	04/09/18	KWG1801867	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	04/09/18	04/09/18	KWG1801867	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	04/09/18	04/09/18	KWG1801867	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	04/09/18	04/09/18	KWG1801867	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	04/09/18	04/09/18	KWG1801867	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,4-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	04/09/18	04/09/18	KWG1801867	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	04/09/18	04/09/18	KWG1801867	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	04/09/18	04/09/18	KWG1801867	
Naphthalene	ND	U	2.0	0.30	0.088	1	04/09/18	04/09/18	KWG1801867	*
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	04/09/18	04/09/18	KWG1801867	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/29/2018
Sample Matrix:	Ground water	**Date Received:**	04/02/2018

Volatile Organic Compounds

Sample Name:	TVR-MTS-4-20180329	**Units:**	ug/L
Lab Code:	K1802993-007	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	128	80-119	04/09/18	Outside Control Limits
1,2-Dichloroethane-d4	116	81-118	04/09/18	Acceptable
Toluene-d8	112	89-112	04/09/18	Acceptable
4-Bromofluorobenzene	81	85-114	04/09/18	Outside Control Limits

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-7-20180329
Lab Code: K1802993-008

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	04/09/18	04/09/18	KWG1801867	*
Chloromethane	ND	U	0.50	0.20	0.068	1	04/09/18	04/09/18	KWG1801867	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	04/09/18	04/09/18	KWG1801867	
Bromomethane	ND	U	0.50	0.30	0.16	1	04/09/18	04/09/18	KWG1801867	
Chloroethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	04/09/18	04/09/18	KWG1801867	
Acetone	ND	U	20	10	3.3	1	04/09/18	04/09/18	KWG1801867	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	04/09/18	04/09/18	KWG1801867	*
Methylene Chloride	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	04/09/18	04/09/18	KWG1801867	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	04/09/18	04/09/18	KWG1801867	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	04/09/18	04/09/18	KWG1801867	
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	04/09/18	04/09/18	KWG1801867	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	04/09/18	04/09/18	KWG1801867	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Chloroform	**0.15**	J	0.50	0.20	0.072	1	04/09/18	04/09/18	KWG1801867	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	04/09/18	04/09/18	KWG1801867	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
Benzene	ND	U	0.50	0.10	0.062	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	04/09/18	04/09/18	KWG1801867	
Trichloroethene (TCE)	**5.9**		0.50	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	04/09/18	04/09/18	KWG1801867	
Dibromomethane	ND	U	0.50	0.50	0.15	1	04/09/18	04/09/18	KWG1801867	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	04/09/18	04/09/18	KWG1801867	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	04/09/18	04/09/18	KWG1801867	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	04/09/18	04/09/18	KWG1801867	
Toluene	ND	U	0.50	0.10	0.054	1	04/09/18	04/09/18	KWG1801867	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	04/09/18	04/09/18	KWG1801867	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	04/09/18	04/09/18	KWG1801867	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	04/09/18	04/09/18	KWG1801867	
2-Hexanone	ND	U	20	10	2.7	1	04/09/18	04/09/18	KWG1801867	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	04/09/18	04/09/18	KWG1801867	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	04/09/18	04/09/18	KWG1801867	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-7-20180329
Lab Code: K1802993-008

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
Chlorobenzene	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	04/09/18	04/09/18	KWG1801867	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
m,p-Xylenes	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
o-Xylene	ND	U	0.50	0.20	0.074	1	04/09/18	04/09/18	KWG1801867	
Styrene	ND	U	0.50	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
Bromoform	ND	U	0.50	0.50	0.16	1	04/09/18	04/09/18	KWG1801867	
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	04/09/18	04/09/18	KWG1801867	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Bromobenzene	ND	U	2.0	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	04/09/18	04/09/18	KWG1801867	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	04/09/18	04/09/18	KWG1801867	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	04/09/18	04/09/18	KWG1801867	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	04/09/18	04/09/18	KWG1801867	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	04/09/18	04/09/18	KWG1801867	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	04/09/18	04/09/18	KWG1801867	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	04/09/18	04/09/18	KWG1801867	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,4-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	04/09/18	04/09/18	KWG1801867	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	04/09/18	04/09/18	KWG1801867	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	04/09/18	04/09/18	KWG1801867	
Naphthalene	ND	U	2.0	0.30	0.088	1	04/09/18	04/09/18	KWG1801867	*
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	04/09/18	04/09/18	KWG1801867	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/29/2018
Sample Matrix:	Ground water	**Date Received:**	04/02/2018

Volatile Organic Compounds

Sample Name:	TVR-7-20180329	**Units:**	ug/L
Lab Code:	K1802993-008	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	128	80-119	04/09/18	Outside Control Limits
1,2-Dichloroethane-d4	119	81-118	04/09/18	Outside Control Limits
Toluene-d8	112	89-112	04/09/18	Acceptable
4-Bromofluorobenzene	84	85-114	04/09/18	Outside Control Limits

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/28/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: FTP-1-20180328
Lab Code: K1802993-009

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	04/09/18	04/09/18	KWG1801867	*
Chloromethane	ND	U	0.50	0.20	0.068	1	04/09/18	04/09/18	KWG1801867	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	04/09/18	04/09/18	KWG1801867	
Bromomethane	ND	U	0.50	0.30	0.16	1	04/09/18	04/09/18	KWG1801867	
Chloroethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	04/09/18	04/09/18	KWG1801867	
Acetone	**5.3**	J	20	10	3.3	1	04/09/18	04/09/18	KWG1801867	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	04/09/18	04/09/18	KWG1801867	*
Methylene Chloride	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	04/09/18	04/09/18	KWG1801867	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	04/09/18	04/09/18	KWG1801867	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	04/09/18	04/09/18	KWG1801867	
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	04/09/18	04/09/18	KWG1801867	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	04/09/18	04/09/18	KWG1801867	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Chloroform	ND	U	0.50	0.20	0.072	1	04/09/18	04/09/18	KWG1801867	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	04/09/18	04/09/18	KWG1801867	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
Benzene	**3.0**		0.50	0.10	0.062	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	04/09/18	04/09/18	KWG1801867	
Trichloroethene (TCE)	ND	U	0.50	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	04/09/18	04/09/18	KWG1801867	
Dibromomethane	ND	U	0.50	0.50	0.15	1	04/09/18	04/09/18	KWG1801867	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	04/09/18	04/09/18	KWG1801867	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	04/09/18	04/09/18	KWG1801867	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	04/09/18	04/09/18	KWG1801867	
Toluene	**0.30**	J	0.50	0.10	0.054	1	04/09/18	04/09/18	KWG1801867	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	04/09/18	04/09/18	KWG1801867	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	04/09/18	04/09/18	KWG1801867	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	04/09/18	04/09/18	KWG1801867	
2-Hexanone	ND	U	20	10	2.7	1	04/09/18	04/09/18	KWG1801867	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	04/09/18	04/09/18	KWG1801867	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	04/09/18	04/09/18	KWG1801867	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/28/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: FTP-1-20180328
Lab Code: K1802993-009

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
Chlorobenzene	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
Ethylbenzene	**5.0**	J	0.50	0.10	0.050	1	04/09/18	04/09/18	KWG1801867	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
m,p-Xylenes	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
o-Xylene	**0.57**		0.50	0.20	0.074	1	04/09/18	04/09/18	KWG1801867	
Styrene	ND	U	0.50	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
Bromoform	ND	U	0.50	0.50	0.16	1	04/09/18	04/09/18	KWG1801867	
Isopropylbenzene	**5.1**	J	2.0	0.20	0.051	1	04/09/18	04/09/18	KWG1801867	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Bromobenzene	ND	U	2.0	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
n-Propylbenzene	**7.0**	J	2.0	0.20	0.054	1	04/09/18	04/09/18	KWG1801867	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	04/09/18	04/09/18	KWG1801867	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,3,5-Trimethylbenzene	**0.28**	J	2.0	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	04/09/18	04/09/18	KWG1801867	
tert-Butylbenzene	**0.29**	J	2.0	0.20	0.059	1	04/09/18	04/09/18	KWG1801867	
1,2,4-Trimethylbenzene	**56**	J	2.0	0.20	0.069	1	04/09/18	04/09/18	KWG1801867	
sec-Butylbenzene	**3.2**	J	2.0	0.10	0.062	1	04/09/18	04/09/18	KWG1801867	
4-Isopropyltoluene	**3.9**		2.0	0.20	0.060	1	04/09/18	04/09/18	KWG1801867	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,4-Dichlorobenzene	**0.16**	J	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
n-Butylbenzene	**6.3**	J	2.0	0.10	0.054	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichlorobenzene	**0.87**		0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	04/09/18	04/09/18	KWG1801867	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	04/09/18	04/09/18	KWG1801867	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	04/09/18	04/09/18	KWG1801867	
Naphthalene	**66**	JD	20	3.0	0.88	10	04/09/18	04/09/18	KWG1801867	*
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	04/09/18	04/09/18	KWG1801867	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/28/2018
Sample Matrix:	Ground water	**Date Received:**	04/02/2018

Volatile Organic Compounds

Sample Name:	FTP-1-20180328	**Units:**	ug/L
Lab Code:	K1802993-009	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	124	80-119	04/09/18	Outside Control Limits
1,2-Dichloroethane-d4	111	81-118	04/09/18	Acceptable
Toluene-d8	112	89-112	04/09/18	Acceptable
4-Bromofluorobenzene	98	85-114	04/09/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-815-2-20180329
Lab Code: K1802993-010

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	04/11/18	04/11/18	KWG1801914	
Chloromethane	ND	U	0.50	0.20	0.068	1	04/11/18	04/11/18	KWG1801914	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	04/11/18	04/11/18	KWG1801914	
Bromomethane	ND	U	0.50	0.30	0.16	1	04/11/18	04/11/18	KWG1801914	
Chloroethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	04/11/18	04/11/18	KWG1801914	
Acetone	ND	U	20	10	3.3	1	04/11/18	04/11/18	KWG1801914	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	04/11/18	04/11/18	KWG1801914	*
Methylene Chloride	ND	U	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	04/11/18	04/11/18	KWG1801914	*
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	04/11/18	04/11/18	KWG1801914	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	04/11/18	04/11/18	KWG1801914	*
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	04/11/18	04/11/18	KWG1801914	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	04/11/18	04/11/18	KWG1801914	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Chloroform	ND	U	0.50	0.20	0.072	1	04/11/18	04/11/18	KWG1801914	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	04/11/18	04/11/18	KWG1801914	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
Benzene	ND	U	0.50	0.10	0.062	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	04/11/18	04/11/18	KWG1801914	
Trichloroethene (TCE)	**0.51**		0.50	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	04/11/18	04/11/18	KWG1801914	
Dibromomethane	ND	U	0.50	0.50	0.15	1	04/11/18	04/11/18	KWG1801914	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	04/11/18	04/11/18	KWG1801914	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	04/11/18	04/11/18	KWG1801914	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	04/11/18	04/11/18	KWG1801914	
Toluene	ND	U	0.50	0.10	0.054	1	04/11/18	04/11/18	KWG1801914	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	04/11/18	04/11/18	KWG1801914	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	04/11/18	04/11/18	KWG1801914	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	04/11/18	04/11/18	KWG1801914	
2-Hexanone	ND	U	20	10	2.7	1	04/11/18	04/11/18	KWG1801914	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	04/11/18	04/11/18	KWG1801914	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	04/11/18	04/11/18	KWG1801914	

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/29/2018
Sample Matrix:	Ground water	**Date Received:**	04/02/2018

Volatile Organic Compounds

Sample Name:	TVR-815-2-20180329	**Units:**	ug/L
Lab Code:	K1802993-010	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
Chlorobenzene	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	04/11/18	04/11/18	KWG1801914	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
m,p-Xylenes	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
o-Xylene	ND	U	0.50	0.20	0.074	1	04/11/18	04/11/18	KWG1801914	
Styrene	ND	U	0.50	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
Bromoform	ND	U	0.50	0.50	0.16	1	04/11/18	04/11/18	KWG1801914	
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	04/11/18	04/11/18	KWG1801914	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Bromobenzene	ND	U	2.0	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	04/11/18	04/11/18	KWG1801914	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	04/11/18	04/11/18	KWG1801914	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	04/11/18	04/11/18	KWG1801914	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	04/11/18	04/11/18	KWG1801914	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	04/11/18	04/11/18	KWG1801914	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	04/11/18	04/11/18	KWG1801914	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	04/11/18	04/11/18	KWG1801914	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,4-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	04/11/18	04/11/18	KWG1801914	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	04/11/18	04/11/18	KWG1801914	*
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	04/11/18	04/11/18	KWG1801914	
Naphthalene	ND	U	2.0	0.30	0.088	1	04/11/18	04/11/18	KWG1801914	*
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	04/11/18	04/11/18	KWG1801914	*

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/29/2018
Sample Matrix:	Ground water	**Date Received:**	04/02/2018

Volatile Organic Compounds

Sample Name:	TVR-815-2-20180329	**Units:**	ug/L
Lab Code:	K1802993-010	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	111	80-119	04/11/18	Acceptable
1,2-Dichloroethane-d4	101	81-118	04/11/18	Acceptable
Toluene-d8	122	89-112	04/11/18	Outside Control Limits
4-Bromofluorobenzene	98	85-114	04/11/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-2-20180329
Lab Code: K1802993-011

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	04/11/18	04/11/18	KWG1801914	
Chloromethane	ND	U	0.50	0.20	0.068	1	04/11/18	04/11/18	KWG1801914	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	04/11/18	04/11/18	KWG1801914	
Bromomethane	ND	U	0.50	0.30	0.16	1	04/11/18	04/11/18	KWG1801914	
Chloroethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	04/11/18	04/11/18	KWG1801914	
Acetone	ND	U	20	10	3.3	1	04/11/18	04/11/18	KWG1801914	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	04/11/18	04/11/18	KWG1801914	*
Methylene Chloride	ND	U	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	04/11/18	04/11/18	KWG1801914	*
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	04/11/18	04/11/18	KWG1801914	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	04/11/18	04/11/18	KWG1801914	*
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	04/11/18	04/11/18	KWG1801914	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	04/11/18	04/11/18	KWG1801914	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Chloroform	ND	U	0.50	0.20	0.072	1	04/11/18	04/11/18	KWG1801914	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	04/11/18	04/11/18	KWG1801914	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
Benzene	ND	U	0.50	0.10	0.062	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	04/11/18	04/11/18	KWG1801914	
Trichloroethene (TCE)	**2.3**		0.50	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	04/11/18	04/11/18	KWG1801914	
Dibromomethane	ND	U	0.50	0.50	0.15	1	04/11/18	04/11/18	KWG1801914	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	04/11/18	04/11/18	KWG1801914	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	04/11/18	04/11/18	KWG1801914	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	04/11/18	04/11/18	KWG1801914	
Toluene	ND	U	0.50	0.10	0.054	1	04/11/18	04/11/18	KWG1801914	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	04/11/18	04/11/18	KWG1801914	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	04/11/18	04/11/18	KWG1801914	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	04/11/18	04/11/18	KWG1801914	
2-Hexanone	ND	U	20	10	2.7	1	04/11/18	04/11/18	KWG1801914	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	04/11/18	04/11/18	KWG1801914	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	04/11/18	04/11/18	KWG1801914	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-2-20180329
Lab Code: K1802993-011

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
Chlorobenzene	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	04/11/18	04/11/18	KWG1801914	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
m,p-Xylenes	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
o-Xylene	ND	U	0.50	0.20	0.074	1	04/11/18	04/11/18	KWG1801914	
Styrene	ND	U	0.50	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
Bromoform	ND	U	0.50	0.50	0.16	1	04/11/18	04/11/18	KWG1801914	
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	04/11/18	04/11/18	KWG1801914	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Bromobenzene	ND	U	2.0	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	04/11/18	04/11/18	KWG1801914	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	04/11/18	04/11/18	KWG1801914	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	04/11/18	04/11/18	KWG1801914	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	04/11/18	04/11/18	KWG1801914	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	04/11/18	04/11/18	KWG1801914	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	04/11/18	04/11/18	KWG1801914	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	04/11/18	04/11/18	KWG1801914	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,4-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	04/11/18	04/11/18	KWG1801914	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	04/11/18	04/11/18	KWG1801914	*
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	04/11/18	04/11/18	KWG1801914	
Naphthalene	ND	U	2.0	0.30	0.088	1	04/11/18	04/11/18	KWG1801914	*
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	04/11/18	04/11/18	KWG1801914	*

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/29/2018
Sample Matrix:	Ground water	**Date Received:**	04/02/2018

Volatile Organic Compounds

Sample Name:	TVR-2-20180329	**Units:**	ug/L
Lab Code:	K1802993-011	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	113	80-119	04/11/18	Acceptable
1,2-Dichloroethane-d4	103	81-118	04/11/18	Acceptable
Toluene-d8	122	89-112	04/11/18	Outside Control Limits
4-Bromofluorobenzene	97	85-114	04/11/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-MTS-2-20180329
Lab Code: K1802993-012

Units: ug/L
Basis: NA

Extraction Method: EPA 5030B
Analysis Method: 8260C

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	04/11/18	04/11/18	KWG1801914	
Chloromethane	ND	U	0.50	0.20	0.068	1	04/11/18	04/11/18	KWG1801914	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	04/11/18	04/11/18	KWG1801914	
Bromomethane	ND	U	0.50	0.30	0.16	1	04/11/18	04/11/18	KWG1801914	
Chloroethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	04/11/18	04/11/18	KWG1801914	
Acetone	ND	U	20	10	3.3	1	04/11/18	04/11/18	KWG1801914	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	04/11/18	04/11/18	KWG1801914	*
Methylene Chloride	ND	U	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	04/11/18	04/11/18	KWG1801914	*
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	04/11/18	04/11/18	KWG1801914	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	04/11/18	04/11/18	KWG1801914	*
cis-1,2-Dichloroethene	**0.19**	J	0.50	0.20	0.067	1	04/11/18	04/11/18	KWG1801914	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	04/11/18	04/11/18	KWG1801914	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Chloroform	ND	U	0.50	0.20	0.072	1	04/11/18	04/11/18	KWG1801914	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	04/11/18	04/11/18	KWG1801914	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
Benzene	ND	U	0.50	0.10	0.062	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	04/11/18	04/11/18	KWG1801914	
Trichloroethene (TCE)	**8.0**		0.50	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	04/11/18	04/11/18	KWG1801914	
Dibromomethane	ND	U	0.50	0.50	0.15	1	04/11/18	04/11/18	KWG1801914	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	04/11/18	04/11/18	KWG1801914	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	04/11/18	04/11/18	KWG1801914	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	04/11/18	04/11/18	KWG1801914	
Toluene	ND	U	0.50	0.10	0.054	1	04/11/18	04/11/18	KWG1801914	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	04/11/18	04/11/18	KWG1801914	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	04/11/18	04/11/18	KWG1801914	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	04/11/18	04/11/18	KWG1801914	
2-Hexanone	ND	U	20	10	2.7	1	04/11/18	04/11/18	KWG1801914	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	04/11/18	04/11/18	KWG1801914	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	04/11/18	04/11/18	KWG1801914	

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/29/2018
Sample Matrix:	Ground water	**Date Received:**	04/02/2018

Volatile Organic Compounds

Sample Name:	TVR-MTS-2-20180329	**Units:**	ug/L
Lab Code:	K1802993-012	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
Chlorobenzene	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	04/11/18	04/11/18	KWG1801914	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
m,p-Xylenes	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
o-Xylene	ND	U	0.50	0.20	0.074	1	04/11/18	04/11/18	KWG1801914	
Styrene	ND	U	0.50	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
Bromoform	ND	U	0.50	0.50	0.16	1	04/11/18	04/11/18	KWG1801914	
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	04/11/18	04/11/18	KWG1801914	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Bromobenzene	ND	U	2.0	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	04/11/18	04/11/18	KWG1801914	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	04/11/18	04/11/18	KWG1801914	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	04/11/18	04/11/18	KWG1801914	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	04/11/18	04/11/18	KWG1801914	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	04/11/18	04/11/18	KWG1801914	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	04/11/18	04/11/18	KWG1801914	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	04/11/18	04/11/18	KWG1801914	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,4-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	04/11/18	04/11/18	KWG1801914	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	04/11/18	04/11/18	KWG1801914	*
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	04/11/18	04/11/18	KWG1801914	
Naphthalene	ND	U	2.0	0.30	0.088	1	04/11/18	04/11/18	KWG1801914	*
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	04/11/18	04/11/18	KWG1801914	*

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/29/2018
Sample Matrix:	Ground water	**Date Received:**	04/02/2018

Volatile Organic Compounds

Sample Name:	TVR-MTS-2-20180329	**Units:**	ug/L
Lab Code:	K1802993-012	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	112	80-119	04/11/18	Acceptable
1,2-Dichloroethane-d4	101	81-118	04/11/18	Acceptable
Toluene-d8	122	89-112	04/11/18	Outside Control Limits
4-Bromofluorobenzene	96	85-114	04/11/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-5-20180329
Lab Code: K1802993-013

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	04/11/18	04/11/18	KWG1801914	
Chloromethane	ND	U	0.50	0.20	0.068	1	04/11/18	04/11/18	KWG1801914	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	04/11/18	04/11/18	KWG1801914	
Bromomethane	ND	U	0.50	0.30	0.16	1	04/11/18	04/11/18	KWG1801914	
Chloroethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	04/11/18	04/11/18	KWG1801914	
Acetone	ND	U	20	10	3.3	1	04/11/18	04/11/18	KWG1801914	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	04/11/18	04/11/18	KWG1801914	*
Methylene Chloride	ND	U	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	04/11/18	04/11/18	KWG1801914	*
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	04/11/18	04/11/18	KWG1801914	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	04/11/18	04/11/18	KWG1801914	*
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	04/11/18	04/11/18	KWG1801914	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	04/11/18	04/11/18	KWG1801914	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Chloroform	ND	U	0.50	0.20	0.072	1	04/11/18	04/11/18	KWG1801914	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	04/11/18	04/11/18	KWG1801914	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
Benzene	ND	U	0.50	0.10	0.062	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	04/11/18	04/11/18	KWG1801914	
Trichloroethene (TCE)	**0.10**	J	0.50	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	04/11/18	04/11/18	KWG1801914	
Dibromomethane	ND	U	0.50	0.50	0.15	1	04/11/18	04/11/18	KWG1801914	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	04/11/18	04/11/18	KWG1801914	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	04/11/18	04/11/18	KWG1801914	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	04/11/18	04/11/18	KWG1801914	
Toluene	ND	U	0.50	0.10	0.054	1	04/11/18	04/11/18	KWG1801914	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	04/11/18	04/11/18	KWG1801914	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	04/11/18	04/11/18	KWG1801914	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	04/11/18	04/11/18	KWG1801914	
2-Hexanone	ND	U	20	10	2.7	1	04/11/18	04/11/18	KWG1801914	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	04/11/18	04/11/18	KWG1801914	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	04/11/18	04/11/18	KWG1801914	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-5-20180329
Lab Code: K1802993-013

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
Chlorobenzene	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	04/11/18	04/11/18	KWG1801914	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
m,p-Xylenes	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
o-Xylene	ND	U	0.50	0.20	0.074	1	04/11/18	04/11/18	KWG1801914	
Styrene	ND	U	0.50	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
Bromoform	ND	U	0.50	0.50	0.16	1	04/11/18	04/11/18	KWG1801914	
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	04/11/18	04/11/18	KWG1801914	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Bromobenzene	ND	U	2.0	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	04/11/18	04/11/18	KWG1801914	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	04/11/18	04/11/18	KWG1801914	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	04/11/18	04/11/18	KWG1801914	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	04/11/18	04/11/18	KWG1801914	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	04/11/18	04/11/18	KWG1801914	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	04/11/18	04/11/18	KWG1801914	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	04/11/18	04/11/18	KWG1801914	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,4-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	04/11/18	04/11/18	KWG1801914	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	04/11/18	04/11/18	KWG1801914	*
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	04/11/18	04/11/18	KWG1801914	
Naphthalene	ND	U	2.0	0.30	0.088	1	04/11/18	04/11/18	KWG1801914	*
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	04/11/18	04/11/18	KWG1801914	*

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/29/2018
Sample Matrix:	Ground water	**Date Received:**	04/02/2018

Volatile Organic Compounds

Sample Name:	TVR-5-20180329	**Units:**	ug/L
Lab Code:	K1802993-013	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	112	80-119	04/11/18	Acceptable
1,2-Dichloroethane-d4	102	81-118	04/11/18	Acceptable
Toluene-d8	121	89-112	04/11/18	Outside Control Limits
4-Bromofluorobenzene	98	85-114	04/11/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-MMP-120180329
Lab Code: K1802993-014

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	04/11/18	04/11/18	KWG1801914	
Chloromethane	ND	U	0.50	0.20	0.068	1	04/11/18	04/11/18	KWG1801914	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	04/11/18	04/11/18	KWG1801914	
Bromomethane	ND	U	0.50	0.30	0.16	1	04/11/18	04/11/18	KWG1801914	
Chloroethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	04/11/18	04/11/18	KWG1801914	
Acetone	ND	U	20	10	3.3	1	04/11/18	04/11/18	KWG1801914	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	04/11/18	04/11/18	KWG1801914	*
Methylene Chloride	ND	U	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	04/11/18	04/11/18	KWG1801914	*
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	04/11/18	04/11/18	KWG1801914	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	04/11/18	04/11/18	KWG1801914	*
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	04/11/18	04/11/18	KWG1801914	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	04/11/18	04/11/18	KWG1801914	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Chloroform	ND	U	0.50	0.20	0.072	1	04/11/18	04/11/18	KWG1801914	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	04/11/18	04/11/18	KWG1801914	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
Benzene	ND	U	0.50	0.10	0.062	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	04/11/18	04/11/18	KWG1801914	
Trichloroethene (TCE)	**0.10**	J	0.50	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	04/11/18	04/11/18	KWG1801914	
Dibromomethane	ND	U	0.50	0.50	0.15	1	04/11/18	04/11/18	KWG1801914	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	04/11/18	04/11/18	KWG1801914	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	04/11/18	04/11/18	KWG1801914	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	04/11/18	04/11/18	KWG1801914	
Toluene	ND	U	0.50	0.10	0.054	1	04/11/18	04/11/18	KWG1801914	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	04/11/18	04/11/18	KWG1801914	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	04/11/18	04/11/18	KWG1801914	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	04/11/18	04/11/18	KWG1801914	
2-Hexanone	ND	U	20	10	2.7	1	04/11/18	04/11/18	KWG1801914	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	04/11/18	04/11/18	KWG1801914	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	04/11/18	04/11/18	KWG1801914	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-MMP-120180329
Lab Code: K1802993-014

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
Chlorobenzene	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	04/11/18	04/11/18	KWG1801914	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
m,p-Xylenes	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
o-Xylene	ND	U	0.50	0.20	0.074	1	04/11/18	04/11/18	KWG1801914	
Styrene	ND	U	0.50	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
Bromoform	ND	U	0.50	0.50	0.16	1	04/11/18	04/11/18	KWG1801914	
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	04/11/18	04/11/18	KWG1801914	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Bromobenzene	ND	U	2.0	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	04/11/18	04/11/18	KWG1801914	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	04/11/18	04/11/18	KWG1801914	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	04/11/18	04/11/18	KWG1801914	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	04/11/18	04/11/18	KWG1801914	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	04/11/18	04/11/18	KWG1801914	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	04/11/18	04/11/18	KWG1801914	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	04/11/18	04/11/18	KWG1801914	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,4-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	04/11/18	04/11/18	KWG1801914	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	04/11/18	04/11/18	KWG1801914	*
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	04/11/18	04/11/18	KWG1801914	
Naphthalene	ND	U	2.0	0.30	0.088	1	04/11/18	04/11/18	KWG1801914	*
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	04/11/18	04/11/18	KWG1801914	*

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/29/2018
Sample Matrix:	Ground water	**Date Received:**	04/02/2018

Volatile Organic Compounds

Sample Name:	TVR-MMP-120180329	**Units:**	ug/L
Lab Code:	K1802993-014	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	114	80-119	04/11/18	Acceptable
1,2-Dichloroethane-d4	103	81-118	04/11/18	Acceptable
Toluene-d8	122	89-112	04/11/18	Outside Control Limits
4-Bromofluorobenzene	97	85-114	04/11/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-1-20180329
Lab Code: K1802993-015

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	04/11/18	04/11/18	KWG1801914	
Chloromethane	ND	U	0.50	0.20	0.068	1	04/11/18	04/11/18	KWG1801914	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	04/11/18	04/11/18	KWG1801914	
Bromomethane	ND	U	0.50	0.30	0.16	1	04/11/18	04/11/18	KWG1801914	
Chloroethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	04/11/18	04/11/18	KWG1801914	
Acetone	ND	U	20	10	3.3	1	04/11/18	04/11/18	KWG1801914	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	04/11/18	04/11/18	KWG1801914	*
Methylene Chloride	ND	U	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	04/11/18	04/11/18	KWG1801914	*
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	04/11/18	04/11/18	KWG1801914	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	04/11/18	04/11/18	KWG1801914	*
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	04/11/18	04/11/18	KWG1801914	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	04/11/18	04/11/18	KWG1801914	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Chloroform	ND	U	0.50	0.20	0.072	1	04/11/18	04/11/18	KWG1801914	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	04/11/18	04/11/18	KWG1801914	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
Benzene	ND	U	0.50	0.10	0.062	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	04/11/18	04/11/18	KWG1801914	
Trichloroethene (TCE)	**7.5**		0.50	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	04/11/18	04/11/18	KWG1801914	
Dibromomethane	ND	U	0.50	0.50	0.15	1	04/11/18	04/11/18	KWG1801914	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	04/11/18	04/11/18	KWG1801914	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	04/11/18	04/11/18	KWG1801914	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	04/11/18	04/11/18	KWG1801914	
Toluene	ND	U	0.50	0.10	0.054	1	04/11/18	04/11/18	KWG1801914	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	04/11/18	04/11/18	KWG1801914	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	04/11/18	04/11/18	KWG1801914	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	04/11/18	04/11/18	KWG1801914	
2-Hexanone	ND	U	20	10	2.7	1	04/11/18	04/11/18	KWG1801914	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	04/11/18	04/11/18	KWG1801914	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	04/11/18	04/11/18	KWG1801914	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: TVR-1-20180329
Lab Code: K1802993-015

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
Chlorobenzene	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	04/11/18	04/11/18	KWG1801914	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
m,p-Xylenes	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
o-Xylene	ND	U	0.50	0.20	0.074	1	04/11/18	04/11/18	KWG1801914	
Styrene	ND	U	0.50	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
Bromoform	ND	U	0.50	0.50	0.16	1	04/11/18	04/11/18	KWG1801914	
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	04/11/18	04/11/18	KWG1801914	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Bromobenzene	ND	U	2.0	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	04/11/18	04/11/18	KWG1801914	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	04/11/18	04/11/18	KWG1801914	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	04/11/18	04/11/18	KWG1801914	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	04/11/18	04/11/18	KWG1801914	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	04/11/18	04/11/18	KWG1801914	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	04/11/18	04/11/18	KWG1801914	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	04/11/18	04/11/18	KWG1801914	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,4-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	04/11/18	04/11/18	KWG1801914	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	04/11/18	04/11/18	KWG1801914	*
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	04/11/18	04/11/18	KWG1801914	
Naphthalene	ND	U	2.0	0.30	0.088	1	04/11/18	04/11/18	KWG1801914	*
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	04/11/18	04/11/18	KWG1801914	*

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/29/2018
Sample Matrix:	Ground water	**Date Received:**	04/02/2018

Volatile Organic Compounds

Sample Name:	TVR-1-20180329	**Units:**	ug/L
Lab Code:	K1802993-015	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	112	80-119	04/11/18	Acceptable
1,2-Dichloroethane-d4	102	81-118	04/11/18	Acceptable
Toluene-d8	122	89-112	04/11/18	Outside Control Limits
4-Bromofluorobenzene	97	85-114	04/11/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: YTC-TB-001-20180329
Lab Code: K1802993-016

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	04/11/18	04/11/18	KWG1801914	
Chloromethane	ND	U	0.50	0.20	0.068	1	04/11/18	04/11/18	KWG1801914	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	04/11/18	04/11/18	KWG1801914	
Bromomethane	ND	U	0.50	0.30	0.16	1	04/11/18	04/11/18	KWG1801914	
Chloroethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	04/11/18	04/11/18	KWG1801914	
Acetone	ND	U	20	10	3.3	1	04/11/18	04/11/18	KWG1801914	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	04/11/18	04/11/18	KWG1801914	*
Methylene Chloride	**0.10**	J	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	04/11/18	04/11/18	KWG1801914	*
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	04/11/18	04/11/18	KWG1801914	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	04/11/18	04/11/18	KWG1801914	*
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	04/11/18	04/11/18	KWG1801914	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	04/11/18	04/11/18	KWG1801914	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Chloroform	ND	U	0.50	0.20	0.072	1	04/11/18	04/11/18	KWG1801914	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	04/11/18	04/11/18	KWG1801914	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
Benzene	ND	U	0.50	0.10	0.062	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	04/11/18	04/11/18	KWG1801914	
Trichloroethene (TCE)	ND	U	0.50	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	04/11/18	04/11/18	KWG1801914	
Dibromomethane	ND	U	0.50	0.50	0.15	1	04/11/18	04/11/18	KWG1801914	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	04/11/18	04/11/18	KWG1801914	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	04/11/18	04/11/18	KWG1801914	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	04/11/18	04/11/18	KWG1801914	
Toluene	ND	U	0.50	0.10	0.054	1	04/11/18	04/11/18	KWG1801914	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	04/11/18	04/11/18	KWG1801914	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	04/11/18	04/11/18	KWG1801914	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	04/11/18	04/11/18	KWG1801914	
2-Hexanone	ND	U	20	10	2.7	1	04/11/18	04/11/18	KWG1801914	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	04/11/18	04/11/18	KWG1801914	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	04/11/18	04/11/18	KWG1801914	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: 03/29/2018
Date Received: 04/02/2018

Volatile Organic Compounds

Sample Name: YTC-TB-001-20180329
Lab Code: K1802993-016

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
Chlorobenzene	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	04/11/18	04/11/18	KWG1801914	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
m,p-Xylenes	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
o-Xylene	ND	U	0.50	0.20	0.074	1	04/11/18	04/11/18	KWG1801914	
Styrene	ND	U	0.50	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
Bromoform	ND	U	0.50	0.50	0.16	1	04/11/18	04/11/18	KWG1801914	
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	04/11/18	04/11/18	KWG1801914	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Bromobenzene	ND	U	2.0	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	04/11/18	04/11/18	KWG1801914	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	04/11/18	04/11/18	KWG1801914	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	04/11/18	04/11/18	KWG1801914	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	04/11/18	04/11/18	KWG1801914	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	04/11/18	04/11/18	KWG1801914	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	04/11/18	04/11/18	KWG1801914	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	04/11/18	04/11/18	KWG1801914	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,4-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	04/11/18	04/11/18	KWG1801914	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	04/11/18	04/11/18	KWG1801914	*
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	04/11/18	04/11/18	KWG1801914	
Naphthalene	ND	U	2.0	0.30	0.088	1	04/11/18	04/11/18	KWG1801914	*
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	04/11/18	04/11/18	KWG1801914	*

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/29/2018
Sample Matrix:	Ground water	**Date Received:**	04/02/2018

Volatile Organic Compounds

Sample Name:	YTC-TB-001-20180329	**Units:**	ug/L
Lab Code:	K1802993-016	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	112	80-119	04/11/18	Acceptable
1,2-Dichloroethane-d4	101	81-118	04/11/18	Acceptable
Toluene-d8	121	89-112	04/11/18	Outside Control Limits
4-Bromofluorobenzene	97	85-114	04/11/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: NA
Date Received: NA

Volatile Organic Compounds

Sample Name: Method Blank
Lab Code: KWG1801833-4

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	04/06/18	04/06/18	KWG1801833	
Chloromethane	ND	U	0.50	0.20	0.068	1	04/06/18	04/06/18	KWG1801833	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	04/06/18	04/06/18	KWG1801833	
Bromomethane	ND	U	0.50	0.30	0.16	1	04/06/18	04/06/18	KWG1801833	
Chloroethane	ND	U	0.50	0.20	0.16	1	04/06/18	04/06/18	KWG1801833	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	04/06/18	04/06/18	KWG1801833	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	04/06/18	04/06/18	KWG1801833	
Acetone	ND	U	20	10	3.3	1	04/06/18	04/06/18	KWG1801833	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	04/06/18	04/06/18	KWG1801833	
Methylene Chloride	**0.22**	J	2.0	0.20	0.10	1	04/06/18	04/06/18	KWG1801833	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	04/06/18	04/06/18	KWG1801833	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	04/06/18	04/06/18	KWG1801833	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	04/06/18	04/06/18	KWG1801833	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	04/06/18	04/06/18	KWG1801833	
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	04/06/18	04/06/18	KWG1801833	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	04/06/18	04/06/18	KWG1801833	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	04/06/18	04/06/18	KWG1801833	
Chloroform	ND	U	0.50	0.20	0.072	1	04/06/18	04/06/18	KWG1801833	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	04/06/18	04/06/18	KWG1801833	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	04/06/18	04/06/18	KWG1801833	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	04/06/18	04/06/18	KWG1801833	
Benzene	ND	U	0.50	0.10	0.062	1	04/06/18	04/06/18	KWG1801833	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	04/06/18	04/06/18	KWG1801833	
Trichloroethene (TCE)	ND	U	0.50	0.20	0.10	1	04/06/18	04/06/18	KWG1801833	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	04/06/18	04/06/18	KWG1801833	
Dibromomethane	ND	U	0.50	0.50	0.15	1	04/06/18	04/06/18	KWG1801833	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	04/06/18	04/06/18	KWG1801833	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	04/06/18	04/06/18	KWG1801833	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	04/06/18	04/06/18	KWG1801833	
Toluene	ND	U	0.50	0.10	0.054	1	04/06/18	04/06/18	KWG1801833	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	04/06/18	04/06/18	KWG1801833	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	04/06/18	04/06/18	KWG1801833	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	04/06/18	04/06/18	KWG1801833	
2-Hexanone	ND	U	20	10	2.7	1	04/06/18	04/06/18	KWG1801833	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	04/06/18	04/06/18	KWG1801833	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	04/06/18	04/06/18	KWG1801833	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Collected: NA
Date Received: NA

Volatile Organic Compounds

Sample Name: Method Blank
Lab Code: KWG1801833-4

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	04/06/18	04/06/18	KWG1801833	
Chlorobenzene	ND	U	0.50	0.20	0.11	1	04/06/18	04/06/18	KWG1801833	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	04/06/18	04/06/18	KWG1801833	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	04/06/18	04/06/18	KWG1801833	
m,p-Xylenes	ND	U	0.50	0.20	0.11	1	04/06/18	04/06/18	KWG1801833	
o-Xylene	ND	U	0.50	0.20	0.074	1	04/06/18	04/06/18	KWG1801833	
Styrene	ND	U	0.50	0.20	0.089	1	04/06/18	04/06/18	KWG1801833	
Bromoform	ND	U	0.50	0.50	0.16	1	04/06/18	04/06/18	KWG1801833	
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	04/06/18	04/06/18	KWG1801833	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	04/06/18	04/06/18	KWG1801833	
Bromobenzene	ND	U	2.0	0.20	0.12	1	04/06/18	04/06/18	KWG1801833	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	04/06/18	04/06/18	KWG1801833	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	04/06/18	04/06/18	KWG1801833	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	04/06/18	04/06/18	KWG1801833	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	04/06/18	04/06/18	KWG1801833	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	04/06/18	04/06/18	KWG1801833	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	04/06/18	04/06/18	KWG1801833	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	04/06/18	04/06/18	KWG1801833	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	04/06/18	04/06/18	KWG1801833	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	04/06/18	04/06/18	KWG1801833	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	04/06/18	04/06/18	KWG1801833	
1,4-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/06/18	04/06/18	KWG1801833	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	04/06/18	04/06/18	KWG1801833	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/06/18	04/06/18	KWG1801833	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	04/06/18	04/06/18	KWG1801833	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	04/06/18	04/06/18	KWG1801833	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	04/06/18	04/06/18	KWG1801833	
Naphthalene	ND	U	2.0	0.30	0.088	1	04/06/18	04/06/18	KWG1801833	*
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	04/06/18	04/06/18	KWG1801833	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	NA
Sample Matrix:	Ground water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1801833-4	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	128	80-119	04/06/18	Outside Control Limits
1,2-Dichloroethane-d4	120	81-118	04/06/18	Outside Control Limits
Toluene-d8	112	89-112	04/06/18	Acceptable
4-Bromofluorobenzene	89	85-114	04/06/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Water

Service Request: K1802993
Date Collected: NA
Date Received: NA

Volatile Organic Compounds

Sample Name: Method Blank
Lab Code: KWG1801867-4

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	04/09/18	04/09/18	KWG1801867	*
Chloromethane	ND	U	0.50	0.20	0.068	1	04/09/18	04/09/18	KWG1801867	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	04/09/18	04/09/18	KWG1801867	
Bromomethane	ND	U	0.50	0.30	0.16	1	04/09/18	04/09/18	KWG1801867	
Chloroethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	04/09/18	04/09/18	KWG1801867	
Acetone	ND	U	20	10	3.3	1	04/09/18	04/09/18	KWG1801867	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	04/09/18	04/09/18	KWG1801867	*
Methylene Chloride	**0.22**	J	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	04/09/18	04/09/18	KWG1801867	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	04/09/18	04/09/18	KWG1801867	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	04/09/18	04/09/18	KWG1801867	
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	04/09/18	04/09/18	KWG1801867	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	04/09/18	04/09/18	KWG1801867	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Chloroform	ND	U	0.50	0.20	0.072	1	04/09/18	04/09/18	KWG1801867	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	04/09/18	04/09/18	KWG1801867	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	04/09/18	04/09/18	KWG1801867	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
Benzene	ND	U	0.50	0.10	0.062	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	04/09/18	04/09/18	KWG1801867	
Trichloroethene (TCE)	ND	U	0.50	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	04/09/18	04/09/18	KWG1801867	
Dibromomethane	ND	U	0.50	0.50	0.15	1	04/09/18	04/09/18	KWG1801867	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	04/09/18	04/09/18	KWG1801867	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	04/09/18	04/09/18	KWG1801867	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	04/09/18	04/09/18	KWG1801867	
Toluene	ND	U	0.50	0.10	0.054	1	04/09/18	04/09/18	KWG1801867	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	04/09/18	04/09/18	KWG1801867	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	04/09/18	04/09/18	KWG1801867	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	04/09/18	04/09/18	KWG1801867	
2-Hexanone	ND	U	20	10	2.7	1	04/09/18	04/09/18	KWG1801867	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	04/09/18	04/09/18	KWG1801867	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	04/09/18	04/09/18	KWG1801867	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Water

Service Request: K1802993
Date Collected: NA
Date Received: NA

Volatile Organic Compounds

Sample Name: Method Blank
Lab Code: KWG1801867-4

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
Chlorobenzene	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	04/09/18	04/09/18	KWG1801867	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
m,p-Xylenes	ND	U	0.50	0.20	0.11	1	04/09/18	04/09/18	KWG1801867	
o-Xylene	ND	U	0.50	0.20	0.074	1	04/09/18	04/09/18	KWG1801867	
Styrene	ND	U	0.50	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
Bromoform	ND	U	0.50	0.50	0.16	1	04/09/18	04/09/18	KWG1801867	
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	04/09/18	04/09/18	KWG1801867	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	04/09/18	04/09/18	KWG1801867	
Bromobenzene	ND	U	2.0	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	04/09/18	04/09/18	KWG1801867	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	04/09/18	04/09/18	KWG1801867	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	04/09/18	04/09/18	KWG1801867	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	04/09/18	04/09/18	KWG1801867	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	04/09/18	04/09/18	KWG1801867	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	04/09/18	04/09/18	KWG1801867	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	04/09/18	04/09/18	KWG1801867	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	04/09/18	04/09/18	KWG1801867	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	04/09/18	04/09/18	KWG1801867	
1,4-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	04/09/18	04/09/18	KWG1801867	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/09/18	04/09/18	KWG1801867	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	04/09/18	04/09/18	KWG1801867	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	04/09/18	04/09/18	KWG1801867	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	04/09/18	04/09/18	KWG1801867	
Naphthalene	ND	U	2.0	0.30	0.088	1	04/09/18	04/09/18	KWG1801867	*
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	04/09/18	04/09/18	KWG1801867	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1801867-4	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	122	80-119	04/09/18	Outside Control Limits
1,2-Dichloroethane-d4	116	81-118	04/09/18	Acceptable
Toluene-d8	114	89-112	04/09/18	Outside Control Limits
4-Bromofluorobenzene	90	85-114	04/09/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Water

Service Request: K1802993
Date Collected: NA
Date Received: NA

Volatile Organic Compounds

Sample Name: Method Blank
Lab Code: KWG1801914-4

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	04/11/18	04/11/18	KWG1801914	
Chloromethane	ND	U	0.50	0.20	0.068	1	04/11/18	04/11/18	KWG1801914	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	04/11/18	04/11/18	KWG1801914	
Bromomethane	ND	U	0.50	0.30	0.16	1	04/11/18	04/11/18	KWG1801914	
Chloroethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	04/11/18	04/11/18	KWG1801914	
Acetone	ND	U	20	10	3.3	1	04/11/18	04/11/18	KWG1801914	
Carbon Disulfide	**0.080**	J	0.50	0.20	0.069	1	04/11/18	04/11/18	KWG1801914	*
Methylene Chloride	**0.22**	J	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	04/11/18	04/11/18	KWG1801914	*
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	04/11/18	04/11/18	KWG1801914	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	04/11/18	04/11/18	KWG1801914	*
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	04/11/18	04/11/18	KWG1801914	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	04/11/18	04/11/18	KWG1801914	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Chloroform	ND	U	0.50	0.20	0.072	1	04/11/18	04/11/18	KWG1801914	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	04/11/18	04/11/18	KWG1801914	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	04/11/18	04/11/18	KWG1801914	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
Benzene	ND	U	0.50	0.10	0.062	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	04/11/18	04/11/18	KWG1801914	
Trichloroethene (TCE)	ND	U	0.50	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	04/11/18	04/11/18	KWG1801914	
Dibromomethane	ND	U	0.50	0.50	0.15	1	04/11/18	04/11/18	KWG1801914	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	04/11/18	04/11/18	KWG1801914	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	04/11/18	04/11/18	KWG1801914	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	04/11/18	04/11/18	KWG1801914	
Toluene	ND	U	0.50	0.10	0.054	1	04/11/18	04/11/18	KWG1801914	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	04/11/18	04/11/18	KWG1801914	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	04/11/18	04/11/18	KWG1801914	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	04/11/18	04/11/18	KWG1801914	
2-Hexanone	ND	U	20	10	2.7	1	04/11/18	04/11/18	KWG1801914	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	04/11/18	04/11/18	KWG1801914	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	04/11/18	04/11/18	KWG1801914	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Water

Service Request: K1802993
Date Collected: NA
Date Received: NA

Volatile Organic Compounds

Sample Name: Method Blank
Lab Code: KWG1801914-4

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
Chlorobenzene	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	04/11/18	04/11/18	KWG1801914	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
m,p-Xylenes	ND	U	0.50	0.20	0.11	1	04/11/18	04/11/18	KWG1801914	
o-Xylene	ND	U	0.50	0.20	0.074	1	04/11/18	04/11/18	KWG1801914	
Styrene	ND	U	0.50	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
Bromoform	ND	U	0.50	0.50	0.16	1	04/11/18	04/11/18	KWG1801914	
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	04/11/18	04/11/18	KWG1801914	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	04/11/18	04/11/18	KWG1801914	
Bromobenzene	ND	U	2.0	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	04/11/18	04/11/18	KWG1801914	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	04/11/18	04/11/18	KWG1801914	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	04/11/18	04/11/18	KWG1801914	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	04/11/18	04/11/18	KWG1801914	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	04/11/18	04/11/18	KWG1801914	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	04/11/18	04/11/18	KWG1801914	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	04/11/18	04/11/18	KWG1801914	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	04/11/18	04/11/18	KWG1801914	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	04/11/18	04/11/18	KWG1801914	
1,4-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	04/11/18	04/11/18	KWG1801914	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	04/11/18	04/11/18	KWG1801914	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	04/11/18	04/11/18	KWG1801914	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	04/11/18	04/11/18	KWG1801914	*
Hexachlorobutadiene	**0.12**	J	2.0	0.30	0.11	1	04/11/18	04/11/18	KWG1801914	
Naphthalene	ND	U	2.0	0.30	0.088	1	04/11/18	04/11/18	KWG1801914	*
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	04/11/18	04/11/18	KWG1801914	*

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1801914-4	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	111	80-119	04/11/18	Acceptable
1,2-Dichloroethane-d4	101	81-118	04/11/18	Acceptable
Toluene-d8	122	89-112	04/11/18	Outside Control Limits
4-Bromofluorobenzene	97	85-114	04/11/18	Acceptable

Comments:

QA/QC Report

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305
Sample Matrix: Ground water

Surrogate Recovery Summary
Volatile Organic Compounds

Extraction Method: EPA 5030B **Units:** Percent
Analysis Method: 8260C **Level:** Low

Sample Name	Lab Code	Sur1		Sur2		Sur3		Sur4	
TVR-PAIC-20180329	K1802993-001	127	*	118		114	*	86	
TVR-POMONA-20180329	K1802993-002	127	*	118		113	*	88	
TVR-6-20180329	K1802993-003	126	*	119	*	112		87	
TVR-MTS-1-20180329	K1802993-004	129	*	115		113	*	88	
TVR-3A-20180329	K1802993-005	128	*	114		111		87	
TVR-3-20180329	K1802993-006	129	*	118		113	*	89	
TVR-MTS-4-20180329	K1802993-007	128	*	116		112		81	*
TVR-7-20180329	K1802993-008	128	*	119	*	112		84	*
FTP-1-20180328	K1802993-009	124	*	111		112		98	
TVR-815-2-20180329	K1802993-010	111		101		122	*	98	
TVR-2-20180329	K1802993-011	113		103		122	*	97	
TVR-MTS-2-20180329	K1802993-012	112		101		122	*	96	
TVR-5-20180329	K1802993-013	112		102		121	*	98	
TVR-MMP-120180329	K1802993-014	114		103		122	*	97	
TVR-1-20180329	K1802993-015	112		102		122	*	97	
YTC-TB-001-20180329	K1802993-016	112		101		121	*	97	
Method Blank	KWG1801833-4	128	*	120	*	112		89	
Method Blank	KWG1801867-4	122	*	116		114	*	90	
Method Blank	KWG1801914-4	111		101		122	*	97	
TVR-6-20180329MS	KWG1801833-1	118		107		116	*	101	
TVR-6-20180329DMS	KWG1801833-2	117		108		117	*	100	
FTP-1-20180328MS	KWG1801867-1	117		105		119	*	99	
FTP-1-20180328DMS Lab	KWG1801867-2	116		106		119	*	100	
Control Sample	KWG1801833-3	117		109		119	*	102	
Lab Control Sample	KWG1801867-3	117		106		118	*	102	
Lab Control Sample	KWG1801914-3	112		99		126	*	103	

Surrogate Recovery Control Limits (%)

Sur1	=	Dibromofluoromethane	80-119
Sur2	=	1,2-Dichloroethane-d4	81-118
Sur3	=	Toluene-d8	89-112
Sur4	=	4-Bromofluorobenzene	85-114

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Date Analyzed: 04/06/2018
Time Analyzed: 10:12

Internal Standard Area and RT Summary
Volatile Organic Compounds

File ID: J:\MS27\DATA\040618\0406F004.D
Instrument ID: MS27
Analysis Method: 8260C

Lab Code: KWG1801832-2
Analysis Lot: KWG1801832

		Fluorobenzene		Chlorobenzene-d5		1,4-Dichlorobenzene-d4	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Result ==>	596,179	6.49	237,429	9.64	179,138	11.96
	Upper Limit ==>	1,192,358	6.66	474,858	9.81	358,276	12.13
	Lower Limit ==>	298,090	6.32	118,715	9.47	89,569	11.79
Associated Analyses							
Continuing Calibration VerificationCCV	KWG1801832-2	370,293	6.48	152,686	9.64	126,013	11.96
Lab Control Sample	KWG1801833-3	375,522	6.48	156,823	9.64	132,825	11.96
TVR-6-20180329MS	KWG1801833-1	385,760	6.48	159,740	9.64	129,097	11.96
TVR-6-20180329DMS	KWG1801833-2	372,259	6.49	158,491	9.64	128,078	11.96
Method Blank	KWG1801833-4	316,179	6.49	131,077	9.64	94,516	11.96
TVR-6-20180329	K1802993-003	333,365	6.48	135,930	9.64	98,980	11.96

Results flagged with an asterisk (*) indicate values outside control criteria.

QA/QC Report

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Date Analyzed: 04/09/2018
Time Analyzed: 11:02

Internal Standard Area and RT Summary
Volatile Organic Compounds

File ID: J:\MS27\DATA\040918\0409F004.D
Instrument ID: MS27
Analysis Method: 8260C

Lab Code: KWG1801866-2
Analysis Lot: KWG1801866

		Fluorobenzene		Chlorobenzene-d5		1,4-Dichlorobenzene-d4	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Result ==>	596,179	6.49	237,429	9.64	179,138	11.96
	Upper Limit ==>	1,192,358	6.66	474,858	9.81	358,276	12.13
	Lower Limit ==>	298,090	6.32	118,715	9.47	89,569	11.79
Associated Analyses							
Continuing Calibration VerificationCCV	KWG1801866-2	381,055	6.48	153,708	9.64	125,701	11.96
Lab Control Sample	KWG1801867-3	370,834	6.48	154,751	9.64	131,121	11.96
FTP-1-20180328MS	KWG1801867-1	390,251	6.48	172,262	9.64	130,170	11.96
FTP-1-20180328DMS	KWG1801867-2	410,398	6.49	177,293	9.64	139,841	11.96
Method Blank	KWG1801867-4	374,723	6.48	158,333	9.64	114,634	11.96
TVR-PAIC-20180329	K1802993-001	351,714	6.49	146,463	9.64	107,220	11.96
TVR-POMONA-20180329	K1802993-002	352,173	6.49	147,745	9.64	108,932	11.96
TVR-MTS-1-20180329	K1802993-004	347,408	6.49	143,763	9.64	103,265	11.96
TVR-3A-20180329	K1802993-005	345,052	6.49	141,521	9.64	104,566	11.96
TVR-3-20180329	K1802993-006	333,365	6.48	139,168	9.63	105,297	11.96
TVR-MTS-4-20180329	K1802993-007	352,626	6.49	147,137	9.64	104,927	11.96
TVR-7-20180329	K1802993-008	343,555	6.48	145,622	9.63	103,017	11.96
FTP-1-20180328DL	K1802993-009	317,146	6.49	133,895	9.64	109,866	11.96
FTP-1-20180328	K1802993-009	366,940	6.49	155,486	9.64	133,701	11.96

Results flagged with an asterisk (*) indicate values outside control criteria.

QA/QC Report

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Date Analyzed: 04/11/2018
Time Analyzed: 09:57

Internal Standard Area and RT Summary
Volatile Organic Compounds

File ID: J:\MS13\DATA\041118\0411F003.D
Instrument ID: MS13
Analysis Method: 8260C

Lab Code: KWG1801912-2
Analysis Lot: KWG1801912

		Fluorobenzene		Chlorobenzene-d5		1,4-Dichlorobenzene-d4	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Result ==>	1,172,926	5.79	415,734	9.73	327,637	12.30
	Upper Limit ==>	2,345,852	5.96	831,468	9.90	655,274	12.47
	Lower Limit ==>	586,463	5.62	207,867	9.56	163,819	12.13
Associated Analyses							
Continuing Calibration VerificationCCV	KWG1801912-2	957,058	5.79	354,086	9.73	283,790	12.30
Lab Control Sample	KWG1801914-3	942,289	5.79	341,422	9.73	270,978	12.30
Method Blank	KWG1801914-4	918,662	5.79	326,485	9.73	245,814	12.30
YTC-TB-001-20180329	K1802993-016	964,713	5.79	347,991	9.73	258,911	12.30
TVR-815-2-20180329	K1802993-010	1,003,387	5.79	364,108	9.73	276,974	12.30
TVR-MTS-2-20180329	K1802993-012	894,476	5.79	319,095	9.73	236,599	12.30
TVR-5-20180329	K1802993-013	922,972	5.79	327,811	9.74	247,206	12.30
TVR-MMP-120180329	K1802993-014	862,516	5.79	309,143	9.73	231,691	12.30
TVR-1-20180329	K1802993-015	854,187	5.79	304,677	9.73	228,120	12.30
TVR-2-20180329	K1802993-011	927,749	5.79	332,393	9.73	253,163	12.30

Results flagged with an asterisk (*) indicate values outside control criteria.

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Extracted:**	04/06/2018
Sample Matrix:	Ground water	**Date Analyzed:**	04/06/2018

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	TVR-6-20180329	**Units:**	ug/L
Lab Code:	K1802993-003	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C	**Extraction Lot:**	KWG1801833

		TVR-6-20180329MS KWG1801833-1 Matrix Spike			TVR-6-20180329DMS KWG1801833-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dichlorodifluoromethane	ND	9.35	10.0	94	8.97	10.0	90	32-152	4	20
Chloromethane	ND	10.8	10.0	108	10.9	10.0	109	50-139	0	20
Vinyl Chloride	ND	10.5	10.0	105	10.2	10.0	102	58-137	3	20
Bromomethane	ND	12.8	10.0	128	11.8	10.0	118	53-141	8	20
Chloroethane	ND	12.1	10.0	121	11.6	10.0	116	60-138	4	20
Trichlorofluoromethane	ND	11.1	10.0	111	10.7	10.0	107	65-141	3	20
1,1-Dichloroethene	ND	13.1	10.0	131	12.7	10.0	127	71-131	3	20
Acetone	ND	54.5	50.0	109	55.6	50.0	111	39-160	2	20
Carbon Disulfide	ND	21.0	20.0	105	20.5	20.0	103	64-133	2	20
Methylene Chloride	ND	10.6	10.0	106	10.8	10.0	108	74-124	3	20
Methyl tert-Butyl Ether	ND	10.5	10.0	105	11.0	10.0	110	71-124	4	20
trans-1,2-Dichloroethene	ND	12.0	10.0	120	11.6	10.0	116	75-124	3	20
1,1-Dichloroethane	ND	11.9	10.0	119	12.0	10.0	120	77-125	0	20
2,2-Dichloropropane	ND	13.3	10.0	133	13.1	10.0	131	60-139	1	20
cis-1,2-Dichloroethene	ND	11.9	10.0	119	11.9	10.0	119	78-123	1	20
2-Butanone (MEK)	ND	51.9	50.0	104	55.9	50.0	112	56-143	7	20
Bromochloromethane	ND	9.99	10.0	100	10.4	10.0	104	78-123	4	20
Chloroform	ND	11.3	10.0	113	11.4	10.0	114	79-124	0	20
1,1,1-Trichloroethane (TCA)	ND	11.7	10.0	117	11.7	10.0	117	74-131	0	20
Carbon Tetrachloride	ND	12.2	10.0	122	11.9	10.0	119	72-136	3	20
1,1-Dichloropropene	ND	12.3	10.0	123	12.0	10.0	120	79-125	2	20
Benzene	ND	11.8	10.0	118	11.4	10.0	114	79-120	3	20
1,2-Dichloroethane (EDC)	ND	11.1	10.0	111	11.2	10.0	112	73-128	1	20
Trichloroethene (TCE)	2.8	14.5	10.0	117	14.6	10.0	117	79-123	0	20
1,2-Dichloropropane	ND	10.9	10.0	109	11.0	10.0	110	78-122	1	20
Dibromomethane	ND	11.3	10.0	113	11.2	10.0	112	79-123	1	20
Bromodichloromethane	ND	11.3	10.0	113	11.6	10.0	116	79-125	3	20
cis-1,3-Dichloropropene	ND	11.6	10.0	116	11.8	10.0	118	75-124	2	20
4-Methyl-2-pentanone (MIBK)	ND	55.5	50.0	111	58.3	50.0	117	67-130	5	20
Toluene	ND	11.8	10.0	118	12.0	10.0	120	80-121	1	20
trans-1,3-Dichloropropene	ND	10.1	10.0	101	10.1	10.0	101	73-127	1	20
1,1,2-Trichloroethane	ND	10.2	10.0	102	10.1	10.0	101	80-119	1	20
Tetrachloroethene (PCE)	ND	12.1	10.0	121	11.4	10.0	114	74-129	6	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Extracted:**	04/06/2018
Sample Matrix:	Ground water	**Date Analyzed:**	04/06/2018

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	TVR-6-20180329	**Units:**	ug/L
Lab Code:	K1802993-003	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C	**Extraction Lot:**	KWG1801833

		TVR-6-20180329MS KWG1801833-1 Matrix Spike			TVR-6-20180329DMS KWG1801833-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
2-Hexanone	ND	54.8	50.0	110	56.7	50.0	113	57-139	3	20
1,3-Dichloropropane	ND	10.9	10.0	109	10.8	10.0	108	80-119	1	20
Dibromochloromethane	ND	9.72	10.0	97	9.92	10.0	99	74-126	2	20
1,2-Dibromoethane (EDB)	ND	10.1	10.0	101	10.4	10.0	104	77-121	3	20
Chlorobenzene	ND	11.4	10.0	114	11.1	10.0	111	82-118	2	20
Ethylbenzene	ND	11.9	10.0	119	12.0	10.0	120	79-121	0	20
1,1,1,2-Tetrachloroethane	ND	10.6	10.0	106	10.6	10.0	106	78-124	0	20
m,p-Xylenes	ND	21.9	20.0	109	21.0	20.0	105	80-121	4	20
o-Xylene	ND	12.2	10.0	122	11.7	10.0	117	78-122	4	20
Styrene	ND	12.1	10.0	121	11.8	10.0	118	78-123	3	20
Bromoform	ND	10.1	10.0	101	10.5	10.0	105	66-130	5	20
Isopropylbenzene	ND	12.5	10.0	125	12.2	10.0	122	72-131	2	20
1,1,2,2-Tetrachloroethane	ND	9.67	10.0	97	9.73	10.0	97	71-121	1	20
Bromobenzene	ND	10.5	10.0	105	10.7	10.0	107	80-120	2	20
n-Propylbenzene	ND	12.3	10.0	123	11.7	10.0	117	76-126	4	20
1,2,3-Trichloropropane	ND	10.1	10.0	101	9.87	10.0	99	73-122	2	20
2-Chlorotoluene	ND	11.7	10.0	117	11.1	10.0	111	79-122	5	20
1,3,5-Trimethylbenzene	ND	12.1	10.0	121	11.3	10.0	113	75-124	6	20
4-Chlorotoluene	ND	12.0	10.0	120	11.5	10.0	115	78-122	4	20
tert-Butylbenzene	ND	11.8	10.0	118	11.6	10.0	116	78-124	2	20
1,2,4-Trimethylbenzene	ND	10.5	10.0	105	10.3	10.0	103	76-124	2	20
sec-Butylbenzene	ND	12.2	10.0	122	12.0	10.0	120	77-126	2	20
4-Isopropyltoluene	ND	10.8	10.0	108	10.4	10.0	104	77-127	4	20
1,3-Dichlorobenzene	ND	10.8	10.0	108	10.5	10.0	105	80-119	3	20
1,4-Dichlorobenzene	ND	11.0	10.0	110	10.9	10.0	109	79-118	1	20
n-Butylbenzene	ND	12.6	10.0	126	12.0	10.0	120	75-128	5	20
1,2-Dichlorobenzene	ND	10.8	10.0	108	10.5	10.0	105	80-119	3	20
1,2-Dibromo-3-chloropropane	ND	10.6	10.0	106	9.97	10.0	100	62-128	6	20
1,2,4-Trichlorobenzene	ND	9.99	10.0	100	10.2	10.0	102	69-130	2	20
Hexachlorobutadiene	ND	11.0	10.0	110	10.0	10.0	100	66-134	9	20
Naphthalene	ND	8.01	10.0	80	8.24	10.0	82	61-128	3	20
1,2,3-Trichlorobenzene	ND	9.85	10.0	99	9.93	10.0	99	69-129	1	20

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Extracted:**	04/09/2018
Sample Matrix:	Ground water	**Date Analyzed:**	04/09/2018

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	FTP-1-20180328	**Units:**	ug/L
Lab Code:	K1802993-009	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C	**Extraction Lot:**	KWG1801867

		FTP-1-20180328MS KWG1801867-1 Matrix Spike				FTP-1-20180328DMS KWG1801867-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**		**Result**	**Spike Amount**	**%Rec**		**%Rec Limits**	**RPD**	**RPD Limit**
Dichlorodifluoromethane	ND	8.50	10.0	85		8.66	10.0	87		32-152	2	20
Chloromethane	ND	10.3	10.0	103		10.4	10.0	104		50-139	1	20
Vinyl Chloride	ND	10.4	10.0	104		10.5	10.0	105		58-137	1	20
Bromomethane	ND	13.0	10.0	130		12.5	10.0	125		53-141	3	20
Chloroethane	ND	12.8	10.0	128		11.9	10.0	119		60-138	7	20
Trichlorofluoromethane	ND	10.9	10.0	109		10.8	10.0	108		65-141	1	20
1,1-Dichloroethene	ND	13.1	10.0	131		12.9	10.0	129		71-131	2	20
Acetone	5.3	54.5	50.0	98		57.6	50.0	105		39-160	6	20
Carbon Disulfide	ND	21.0	20.0	105		20.7	20.0	103		64-133	2	20
Methylene Chloride	ND	10.9	10.0	109		10.8	10.0	108		74-124	1	20
Methyl tert-Butyl Ether	ND	10.5	10.0	105		11.3	10.0	113		71-124	8	20
trans-1,2-Dichloroethene	ND	11.6	10.0	116		11.9	10.0	119		75-124	3	20
1,1-Dichloroethane	ND	12.1	10.0	121		12.2	10.0	122		77-125	1	20
2,2-Dichloropropane	ND	12.9	10.0	129		13.0	10.0	130		60-139	1	20
cis-1,2-Dichloroethene	ND	12.0	10.0	120		11.7	10.0	117		78-123	2	20
2-Butanone (MEK)	ND	53.4	50.0	107		55.0	50.0	110		56-143	3	20
Bromochloromethane	ND	10.4	10.0	104		10.6	10.0	106		78-123	2	20
Chloroform	ND	11.5	10.0	115		11.1	10.0	111		79-124	3	20
1,1,1-Trichloroethane (TCA)	ND	11.7	10.0	117		11.6	10.0	116		74-131	1	20
Carbon Tetrachloride	ND	12.2	10.0	122		11.8	10.0	118		72-136	3	20
1,1-Dichloropropene	ND	12.2	10.0	122		12.4	10.0	124		79-125	1	20
Benzene	3.0	14.8	10.0	118		14.9	10.0	119		79-120	1	20
1,2-Dichloroethane (EDC)	ND	10.7	10.0	107		10.8	10.0	108		73-128	0	20
Trichloroethene (TCE)	ND	11.9	10.0	119		11.7	10.0	117		79-123	1	20
1,2-Dichloropropane	ND	10.8	10.0	108		11.0	10.0	110		78-122	1	20
Dibromomethane	ND	11.4	10.0	114		11.2	10.0	112		79-123	2	20
Bromodichloromethane	ND	11.4	10.0	114		11.3	10.0	113		79-125	1	20
cis-1,3-Dichloropropene	ND	11.3	10.0	113		11.8	10.0	118		75-124	4	20
4-Methyl-2-pentanone (MIBK)	ND	57.8	50.0	116		63.7	50.0	127		67-130	10	20
Toluene	0.30	12.6	10.0	123	*	12.8	10.0	125	*	80-121	2	20
trans-1,3-Dichloropropene	ND	9.24	10.0	92		9.96	10.0	100		73-127	8	20
1,1,2-Trichloroethane	ND	9.35	10.0	94		10.2	10.0	102		80-119	9	20
Tetrachloroethene (PCE)	ND	11.6	10.0	116		11.4	10.0	114		74-129	2	20

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Extracted:**	04/09/2018
Sample Matrix:	Ground water	**Date Analyzed:**	04/09/2018

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	FTP-1-20180328	**Units:**	ug/L
Lab Code:	K1802993-009	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C	**Extraction Lot:**	KWG1801867

		FTP-1-20180328MS KWG1801867-1 Matrix Spike			FTP-1-20180328DMS KWG1801867-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
2-Hexanone	ND	60.6	50.0	121	67.5	50.0	135	57-139	11	20
1,3-Dichloropropane	ND	10.1	10.0	101	10.6	10.0	106	80-119	5	20
Dibromochloromethane	ND	9.33	10.0	93	9.90	10.0	99	74-126	6	20
1,2-Dibromoethane (EDB)	ND	9.90	10.0	99	10.5	10.0	105	77-121	6	20
Chlorobenzene	ND	10.8	10.0	108	10.9	10.0	109	82-118	1	20
Ethylbenzene	5.0	17.1	10.0	121	17.7	10.0	127 *	79-121	3	20
1,1,1,2-Tetrachloroethane	ND	10.8	10.0	108	10.4	10.0	104	78-124	4	20
m,p-Xylenes	ND	21.0	20.0	105	21.5	20.0	107	80-121	2	20
o-Xylene	0.57	12.0	10.0	114	12.7	10.0	122	78-122	6	20
Styrene	ND	11.7	10.0	117	12.0	10.0	120	78-123	2	20
Bromoform	ND	10.2	10.0	102	10.2	10.0	102	66-130	0	20
Isopropylbenzene	5.1	17.8	10.0	128	18.3	10.0	132 *	72-131	2	20
1,1,2,2-Tetrachloroethane	ND	10.2	10.0	102	10.1	10.0	101	71-121	0	20
Bromobenzene	ND	11.1	10.0	111	10.9	10.0	109	80-120	2	20
n-Propylbenzene	7.0	20.7	10.0	138 *	20.3	10.0	133 *	76-126	2	20
1,2,3-Trichloropropane	ND	10.1	10.0	101	10.6	10.0	106	73-122	5	20
2-Chlorotoluene	ND	11.6	10.0	116	11.5	10.0	115	79-122	0	20
1,3,5-Trimethylbenzene	0.28	12.5	10.0	122	12.0	10.0	117	75-124	4	20
4-Chlorotoluene	ND	11.9	10.0	119	11.8	10.0	118	78-122	1	20
tert-Butylbenzene	0.29	13.2	10.0	129 *	12.9	10.0	126 *	78-124	2	20
1,2,4-Trimethylbenzene	56	70.1	10.0	143 #	68.0	10.0	122 #	76-124	3	20
sec-Butylbenzene	3.2	16.4	10.0	132 *	15.8	10.0	126	77-126	3	20
4-Isopropyltoluene	3.9	15.6	10.0	117	15.2	10.0	114	77-127	2	20
1,3-Dichlorobenzene	ND	11.2	10.0	112	10.9	10.0	109	80-119	2	20
1,4-Dichlorobenzene	0.16	11.3	10.0	112	11.0	10.0	109	79-118	3	20
n-Butylbenzene	6.3	20.2	10.0	139 *	20.0	10.0	137 *	75-128	1	20
1,2-Dichlorobenzene	0.87	12.3	10.0	114	11.6	10.0	107	80-119	6	20
1,2-Dibromo-3-chloropropane	ND	10.7	10.0	107	11.2	10.0	112	62-128	5	20
1,2,4-Trichlorobenzene	ND	11.9	10.0	119	11.7	10.0	117	69-130	2	20
Hexachlorobutadiene	ND	11.0	10.0	110	9.84	10.0	98	66-134	11	20
Naphthalene	66	92.3E	10.0	262 #	92.4E	10.0	263 #	61-128	0	20
1,2,3-Trichlorobenzene	ND	12.4	10.0	124	11.8	10.0	118	69-129	5	20

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Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Extracted:**	04/06/2018
Sample Matrix:	Ground water	**Date Analyzed:**	04/06/2018

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	8260C	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1801833

Lab Control Sample
KWG1801833-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dichlorodifluoromethane	7.62	10.0	76	32-152
Chloromethane	9.41	10.0	94	50-139
Vinyl Chloride	8.86	10.0	89	58-137
Bromomethane	10.6	10.0	106	53-141
Chloroethane	10.0	10.0	100	60-138
Trichlorofluoromethane	9.33	10.0	93	65-141
1,1-Dichloroethene	11.1	10.0	111	71-131
Acetone	53.9	50.0	108	39-160
Carbon Disulfide	17.9	20.0	90	64-133
Methylene Chloride	10.5	10.0	105	74-124
Methyl tert-Butyl Ether	9.86	10.0	99	71-124
trans-1,2-Dichloroethene	10.4	10.0	104	75-124
1,1-Dichloroethane	10.7	10.0	107	77-125
2,2-Dichloropropane	11.3	10.0	113	60-139
cis-1,2-Dichloroethene	10.9	10.0	109	78-123
2-Butanone (MEK)	54.5	50.0	109	56-143
Bromochloromethane	9.91	10.0	99	78-123
Chloroform	10.3	10.0	103	79-124
1,1,1-Trichloroethane (TCA)	10.2	10.0	102	74-131
Carbon Tetrachloride	10.2	10.0	102	72-136
1,1-Dichloropropene	10.4	10.0	104	79-125
Benzene	10.4	10.0	104	79-120
1,2-Dichloroethane (EDC)	10.8	10.0	108	73-128
Trichloroethene (TCE)	10.6	10.0	106	79-123
1,2-Dichloropropane	10.1	10.0	101	78-122
Dibromomethane	10.7	10.0	107	79-123
Bromodichloromethane	10.9	10.0	109	79-125
cis-1,3-Dichloropropene	10.9	10.0	109	75-124
4-Methyl-2-pentanone (MIBK)	52.0	50.0	104	67-130
Toluene	10.9	10.0	109	80-121
trans-1,3-Dichloropropene	9.44	10.0	94	73-127
1,1,2-Trichloroethane	9.85	10.0	99	80-119
Tetrachloroethene (PCE)	10.1	10.0	101	74-129
2-Hexanone	52.2	50.0	104	57-139
1,3-Dichloropropane	10.2	10.0	102	80-119

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Extracted: 04/06/2018
Date Analyzed: 04/06/2018

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1801833

Lab Control Sample
KWG1801833-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dibromochloromethane	9.54	10.0	95	74-126
1,2-Dibromoethane (EDB)	10.1	10.0	101	77-121
Chlorobenzene	10.3	10.0	103	82-118
Ethylbenzene	10.7	10.0	107	79-121
1,1,1,2-Tetrachloroethane	10.3	10.0	103	78-124
m,p-Xylenes	19.5	20.0	97	80-121
o-Xylene	11.1	10.0	111	78-122
Styrene	11.2	10.0	112	78-123
Bromoform	9.95	10.0	100	66-130
Isopropylbenzene	10.8	10.0	108	72-131
1,1,2,2-Tetrachloroethane	8.96	10.0	90	71-121
Bromobenzene	9.52	10.0	95	80-120
n-Propylbenzene	10.1	10.0	101	76-126
1,2,3-Trichloropropane	9.12	10.0	91	73-122
2-Chlorotoluene	10.1	10.0	101	79-122
1,3,5-Trimethylbenzene	9.98	10.0	100	75-124
4-Chlorotoluene	10.3	10.0	103	78-122
tert-Butylbenzene	9.90	10.0	99	78-124
1,2,4-Trimethylbenzene	9.16	10.0	92	76-124
sec-Butylbenzene	10.3	10.0	103	77-126
4-Isopropyltoluene	9.05	10.0	91	77-127
1,3-Dichlorobenzene	9.89	10.0	99	80-119
1,4-Dichlorobenzene	10.1	10.0	101	79-118
n-Butylbenzene	10.3	10.0	103	75-128
1,2-Dichlorobenzene	9.47	10.0	95	80-119
1,2-Dibromo-3-chloropropane	8.69	10.0	87	62-128
1,2,4-Trichlorobenzene	9.30	10.0	93	69-130
Hexachlorobutadiene	9.19	10.0	92	66-134
Naphthalene	7.25	10.0	73	61-128
1,2,3-Trichlorobenzene	9.33	10.0	93	69-129

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Water

Service Request: K1802993
Date Extracted: 04/09/2018
Date Analyzed: 04/09/2018

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1801867

Lab Control Sample
KWG1801867-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dichlorodifluoromethane	5.55	10.0	56	32-152
Chloromethane	8.16	10.0	82	50-139
Vinyl Chloride	7.10	10.0	71	58-137
Bromomethane	10.8	10.0	108	53-141
Chloroethane	10.0	10.0	100	60-138
Trichlorofluoromethane	7.02	10.0	70	65-141
1,1-Dichloroethene	8.97	10.0	90	71-131
Acetone	53.2	50.0	106	39-160
Carbon Disulfide	14.7	20.0	73	64-133
Methylene Chloride	10.2	10.0	102	74-124
Methyl tert-Butyl Ether	9.79	10.0	98	71-124
trans-1,2-Dichloroethene	9.14	10.0	91	75-124
1,1-Dichloroethane	9.42	10.0	94	77-125
2,2-Dichloropropane	9.30	10.0	93	60-139
cis-1,2-Dichloroethene	10.3	10.0	103	78-123
2-Butanone (MEK)	52.7	50.0	105	56-143
Bromochloromethane	10.0	10.0	100	78-123
Chloroform	9.90	10.0	99	79-124
1,1,1-Trichloroethane (TCA)	8.22	10.0	82	74-131
Carbon Tetrachloride	8.26	10.0	83	72-136
1,1-Dichloropropene	8.30	10.0	83	79-125
Benzene	9.36	10.0	94	79-120
1,2-Dichloroethane (EDC)	10.4	10.0	104	73-128
Trichloroethene (TCE)	9.15	10.0	92	79-123
1,2-Dichloropropane	9.73	10.0	97	78-122
Dibromomethane	11.0	10.0	110	79-123
Bromodichloromethane	10.5	10.0	105	79-125
cis-1,3-Dichloropropene	10.7	10.0	107	75-124
4-Methyl-2-pentanone (MIBK)	52.9	50.0	106	67-130
Toluene	9.85	10.0	99	80-121
trans-1,3-Dichloropropene	9.40	10.0	94	73-127
1,1,2-Trichloroethane	9.60	10.0	96	80-119
Tetrachloroethene (PCE)	8.65	10.0	87	74-129
2-Hexanone	54.1	50.0	108	57-139
1,3-Dichloropropane	10.3	10.0	103	80-119

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Water

Service Request: K1802993
Date Extracted: 04/09/2018
Date Analyzed: 04/09/2018

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1801867

Lab Control Sample
KWG1801867-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dibromochloromethane	9.76	10.0	98	74-126
1,2-Dibromoethane (EDB)	10.1	10.0	101	77-121
Chlorobenzene	9.93	10.0	99	82-118
Ethylbenzene	9.58	10.0	96	79-121
1,1,1,2-Tetrachloroethane	10.2	10.0	102	78-124
m,p-Xylenes	17.4	20.0	87	80-121
o-Xylene	10.1	10.0	101	78-122
Styrene	11.0	10.0	110	78-123
Bromoform	10.2	10.0	102	66-130
Isopropylbenzene	9.15	10.0	92	72-131
1,1,2,2-Tetrachloroethane	9.00	10.0	90	71-121
Bromobenzene	9.79	10.0	98	80-120
n-Propylbenzene	8.71	10.0	87	76-126
1,2,3-Trichloropropane	9.44	10.0	94	73-122
2-Chlorotoluene	9.35	10.0	94	79-122
1,3,5-Trimethylbenzene	9.08	10.0	91	75-124
4-Chlorotoluene	9.85	10.0	99	78-122
tert-Butylbenzene	8.55	10.0	86	78-124
1,2,4-Trimethylbenzene	8.45	10.0	85	76-124
sec-Butylbenzene	8.73	10.0	87	77-126
4-Isopropyltoluene	7.97	10.0	80	77-127
1,3-Dichlorobenzene	9.66	10.0	97	80-119
1,4-Dichlorobenzene	9.94	10.0	99	79-118
n-Butylbenzene	8.81	10.0	88	75-128
1,2-Dichlorobenzene	9.96	10.0	100	80-119
1,2-Dibromo-3-chloropropane	8.64	10.0	86	62-128
1,2,4-Trichlorobenzene	9.64	10.0	96	69-130
Hexachlorobutadiene	8.84	10.0	88	66-134
Naphthalene	7.55	10.0	76	61-128
1,2,3-Trichlorobenzene	9.92	10.0	99	69-129

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Extracted:**	04/11/2018
Sample Matrix:	Water	**Date Analyzed:**	04/11/2018

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	8260C	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1801914

Lab Control Sample
KWG1801914-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dichlorodifluoromethane	7.87	10.0	79	32-152
Chloromethane	7.55	10.0	76	50-139
Vinyl Chloride	8.23	10.0	82	58-137
Bromomethane	6.34	10.0	63	53-141
Chloroethane	8.51	10.0	85	60-138
Trichlorofluoromethane	8.26	10.0	83	65-141
1,1-Dichloroethene	10.4	10.0	104	71-131
Acetone	48.0	50.0	96	39-160
Carbon Disulfide	16.3	20.0	81	64-133
Methylene Chloride	9.24	10.0	92	74-124
Methyl tert-Butyl Ether	7.19	10.0	72	71-124
trans-1,2-Dichloroethene	9.57	10.0	96	75-124
1,1-Dichloroethane	9.48	10.0	95	77-125
2,2-Dichloropropane	6.89	10.0	69	60-139
cis-1,2-Dichloroethene	9.68	10.0	97	78-123
2-Butanone (MEK)	49.9	50.0	100	56-143
Bromochloromethane	9.68	10.0	97	78-123
Chloroform	9.78	10.0	98	79-124
1,1,1-Trichloroethane (TCA)	8.70	10.0	87	74-131
Carbon Tetrachloride	9.55	10.0	96	72-136
1,1-Dichloropropene	9.72	10.0	97	79-125
Benzene	9.44	10.0	94	79-120
1,2-Dichloroethane (EDC)	9.73	10.0	97	73-128
Trichloroethene (TCE)	9.46	10.0	95	79-123
1,2-Dichloropropane	8.82	10.0	88	78-122
Dibromomethane	9.49	10.0	95	79-123
Bromodichloromethane	10.1	10.0	101	79-125
cis-1,3-Dichloropropene	8.42	10.0	84	75-124
4-Methyl-2-pentanone (MIBK)	46.7	50.0	93	67-130
Toluene	9.87	10.0	99	80-121
trans-1,3-Dichloropropene	7.60	10.0	76	73-127
1,1,2-Trichloroethane	9.30	10.0	93	80-119
Tetrachloroethene (PCE)	9.66	10.0	97	74-129
2-Hexanone	45.0	50.0	90	57-139
1,3-Dichloropropane	9.20	10.0	92	80-119

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Water

Service Request: K1802993
Date Extracted: 04/11/2018
Date Analyzed: 04/11/2018

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1801914

Lab Control Sample
KWG1801914-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dibromochloromethane	7.62	10.0	76	74-126
1,2-Dibromoethane (EDB)	9.15	10.0	92	77-121
Chlorobenzene	9.41	10.0	94	82-118
Ethylbenzene	9.68	10.0	97	79-121
1,1,1,2-Tetrachloroethane	9.44	10.0	94	78-124
m,p-Xylenes	19.1	20.0	96	80-121
o-Xylene	9.48	10.0	95	78-122
Styrene	9.42	10.0	94	78-123
Bromoform	9.64	10.0	96	66-130
Isopropylbenzene	9.62	10.0	96	72-131
1,1,2,2-Tetrachloroethane	9.35	10.0	94	71-121
Bromobenzene	9.23	10.0	92	80-120
n-Propylbenzene	9.75	10.0	98	76-126
1,2,3-Trichloropropane	9.28	10.0	93	73-122
2-Chlorotoluene	9.37	10.0	94	79-122
1,3,5-Trimethylbenzene	9.77	10.0	98	75-124
4-Chlorotoluene	9.57	10.0	96	78-122
tert-Butylbenzene	9.40	10.0	94	78-124
1,2,4-Trimethylbenzene	9.88	10.0	99	76-124
sec-Butylbenzene	9.80	10.0	98	77-126
4-Isopropyltoluene	9.97	10.0	100	77-127
1,3-Dichlorobenzene	9.14	10.0	91	80-119
1,4-Dichlorobenzene	9.25	10.0	93	79-118
n-Butylbenzene	10.7	10.0	107	75-128
1,2-Dichlorobenzene	9.16	10.0	92	80-119
1,2-Dibromo-3-chloropropane	8.33	10.0	83	62-128
1,2,4-Trichlorobenzene	8.40	10.0	84	69-130
Hexachlorobutadiene	9.93	10.0	99	66-134
Naphthalene	6.76	10.0	68	61-128
1,2,3-Trichlorobenzene	7.63	10.0	76	69-129

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Extracted:**	04/06/2018
Sample Matrix:	Ground water	**Date Analyzed:**	04/06/2018
		Time Analyzed:	13:01

Method Blank Summary
Volatile Organic Compounds

Sample Name:	Method Blank	**Instrument ID:**	MS27
Lab Code:	KWG1801833-4	**File ID:**	J:\MS27\DATA\040618\0406F010.D
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C	**Extraction Lot:**	KWG1801833

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Lab Control Sample	KWG1801833-3	J:\MS27\DATA\040618\0406F005.D	04/06/18	10:44
TVR-6-20180329MS	KWG1801833-1	J:\MS27\DATA\040618\0406F006.D	04/06/18	11:11
TVR-6-20180329DMS	KWG1801833-2	J:\MS27\DATA\040618\0406F007.D	04/06/18	11:38
TVR-6-20180329	K1802993-003	J:\MS27\DATA\040618\0406F012.D	04/06/18	13:56

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Extracted:**	04/09/2018
Sample Matrix:	Water	**Date Analyzed:**	04/09/2018
		Time Analyzed:	13:53

Method Blank Summary
Volatile Organic Compounds

Sample Name:	Method Blank	**Instrument ID:**	MS27
Lab Code:	KWG1801867-4	**File ID:**	J:\MS27\DATA\040918\0409F010.D
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C	**Extraction Lot:**	KWG1801867

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Lab Control Sample	KWG1801867-3	J:\MS27\DATA\040918\0409F005.D	04/09/18	11:35
FTP-1-20180328MS	KWG1801867-1	J:\MS27\DATA\040918\0409F006.D	04/09/18	12:03
FTP-1-20180328DMS	KWG1801867-2	J:\MS27\DATA\040918\0409F007.D	04/09/18	12:30
TVR-PAIC-20180329	K1802993-001	J:\MS27\DATA\040918\0409F018.D	04/09/18	17:32
TVR-POMONA-20180329	K1802993-002	J:\MS27\DATA\040918\0409F019.D	04/09/18	18:00
TVR-MTS-1-20180329	K1802993-004	J:\MS27\DATA\040918\0409F020.D	04/09/18	18:27
TVR-3A-20180329	K1802993-005	J:\MS27\DATA\040918\0409F021.D	04/09/18	18:55
TVR-3-20180329	K1802993-006	J:\MS27\DATA\040918\0409F022.D	04/09/18	19:22
TVR-MTS-4-20180329	K1802993-007	J:\MS27\DATA\040918\0409F023.D	04/09/18	19:50
TVR-7-20180329	K1802993-008	J:\MS27\DATA\040918\0409F024.D	04/09/18	20:17
FTP-1-20180328	K1802993-009	J:\MS27\DATA\040918\0409F025.D	04/09/18	20:45
FTP-1-20180328	K1802993-009	J:\MS27\DATA\040918\0409F026.D	04/09/18	21:12

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Extracted:**	04/11/2018
Sample Matrix:	Water	**Date Analyzed:**	04/11/2018
		Time Analyzed:	12:39

Method Blank Summary
Volatile Organic Compounds

Sample Name:	Method Blank	**Instrument ID:**	MS13
Lab Code:	KWG1801914-4	**File ID:**	J:\MS13\DATA\041118\0411F009.D
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C	**Extraction Lot:**	KWG1801914

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Lab Control Sample	KWG1801914-3	J:\MS13\DATA\041118\0411F004.D	04/11/18	10:30
YTC-TB-001-20180329	K1802993-016	J:\MS13\DATA\041118\0411F020.D	04/11/18	17:36
TVR-815-2-20180329	K1802993-010	J:\MS13\DATA\041118\0411F021.D	04/11/18	18:02
TVR-MTS-2-20180329	K1802993-012	J:\MS13\DATA\041118\0411F022.D	04/11/18	18:28
TVR-5-20180329	K1802993-013	J:\MS13\DATA\041118\0411F023.D	04/11/18	18:54
TVR-MMP-120180329	K1802993-014	J:\MS13\DATA\041118\0411F024.D	04/11/18	19:19
TVR-1-20180329	K1802993-015	J:\MS13\DATA\041118\0411F025.D	04/11/18	19:45
TVR-2-20180329	K1802993-011	J:\MS13\DATA\041118\0411F026.D	04/11/18	20:11

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Extracted:**	04/06/2018
Sample Matrix:	Ground water	**Date Analyzed:**	04/06/2018
		Time Analyzed:	10:44

Lab Control Sample Summary
Volatile Organic Compounds

Sample Name:	Lab Control Sample	**Instrument ID:**	MS27
Lab Code:	KWG1801833-3	**File ID:**	J:\MS27\DATA\040618\0406F005.D
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C	**Extraction Lot:**	KWG1801833

This Lab Control Sample applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
TVR-6-20180329MS	KWG1801833-1	J:\MS27\DATA\040618\0406F006.D	04/06/18	11:11
TVR-6-20180329DMS	KWG1801833-2	J:\MS27\DATA\040618\0406F007.D	04/06/18	11:38
Method Blank	KWG1801833-4	J:\MS27\DATA\040618\0406F010.D	04/06/18	13:01
TVR-6-20180329	K1802993-003	J:\MS27\DATA\040618\0406F012.D	04/06/18	13:56

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Extracted:**	04/09/2018
Sample Matrix:	Water	**Date Analyzed:**	04/09/2018
		Time Analyzed:	11:35

Lab Control Sample Summary
Volatile Organic Compounds

Sample Name:	Lab Control Sample	**Instrument ID:**	MS27
Lab Code:	KWG1801867-3	**File ID:**	J:\MS27\DATA\040918\0409F005.D
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C	**Extraction Lot:**	KWG1801867

This Lab Control Sample applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
FTP-1-20180328MS	KWG1801867-1	J:\MS27\DATA\040918\0409F006.D	04/09/18	12:03
FTP-1-20180328DMS	KWG1801867-2	J:\MS27\DATA\040918\0409F007.D	04/09/18	12:30
Method Blank	KWG1801867-4	J:\MS27\DATA\040918\0409F010.D	04/09/18	13:53
TVR-PAIC-20180329	K1802993-001	J:\MS27\DATA\040918\0409F018.D	04/09/18	17:32
TVR-POMONA-20180329	K1802993-002	J:\MS27\DATA\040918\0409F019.D	04/09/18	18:00
TVR-MTS-1-20180329	K1802993-004	J:\MS27\DATA\040918\0409F020.D	04/09/18	18:27
TVR-3A-20180329	K1802993-005	J:\MS27\DATA\040918\0409F021.D	04/09/18	18:55
TVR-3-20180329	K1802993-006	J:\MS27\DATA\040918\0409F022.D	04/09/18	19:22
TVR-MTS-4-20180329	K1802993-007	J:\MS27\DATA\040918\0409F023.D	04/09/18	19:50
TVR-7-20180329	K1802993-008	J:\MS27\DATA\040918\0409F024.D	04/09/18	20:17
FTP-1-20180328	K1802993-009	J:\MS27\DATA\040918\0409F025.D	04/09/18	20:45
FTP-1-20180328	K1802993-009	J:\MS27\DATA\040918\0409F026.D	04/09/18	21:12

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Extracted:**	04/11/2018
Sample Matrix:	Water	**Date Analyzed:**	04/11/2018
		Time Analyzed:	10:30

Lab Control Sample Summary
Volatile Organic Compounds

Sample Name:	Lab Control Sample	**Instrument ID:**	MS13
Lab Code:	KWG1801914-3	**File ID:**	J:\MS13\DATA\041118\0411F004.D
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C	**Extraction Lot:**	KWG1801914

This Lab Control Sample applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Method Blank	KWG1801914-4	J:\MS13\DATA\041118\0411F009.D	04/11/18	12:39
YTC-TB-001-20180329	K1802993-016	J:\MS13\DATA\041118\0411F020.D	04/11/18	17:36
TVR-815-2-20180329	K1802993-010	J:\MS13\DATA\041118\0411F021.D	04/11/18	18:02
TVR-MTS-2-20180329	K1802993-012	J:\MS13\DATA\041118\0411F022.D	04/11/18	18:28
TVR-5-20180329	K1802993-013	J:\MS13\DATA\041118\0411F023.D	04/11/18	18:54
TVR-MMP-120180329	K1802993-014	J:\MS13\DATA\041118\0411F024.D	04/11/18	19:19
TVR-1-20180329	K1802993-015	J:\MS13\DATA\041118\0411F025.D	04/11/18	19:45
TVR-2-20180329	K1802993-011	J:\MS13\DATA\041118\0411F026.D	04/11/18	20:11

QA/QC Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Date Analyzed: 04/06/2018
Time Analyzed: 09:38

Tune Summary
Volatile Organic Compounds

File ID: J:\MS27\DATA\040618\0406F003.D
Instrument ID: MS27
Column:

Analysis Method: 8260C
Analysis Lot: KWG1801832

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	21.3	4839	PASS
75	95	30	60	48.5	11037	PASS
95	95	100	100	100.0	22744	PASS
96	95	5	9	7.3	1650	PASS
173	174	0	2	1.6	266	PASS
174	95	50	120	73.1	16636	PASS
175	174	5	9	7.1	1189	PASS
176	174	95	101	98.9	16455	PASS
177	176	5	9	7.1	1174	PASS

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed	Q
Continuing Calibration Verification	KWG1801832-2	J:\MS27\DATA\040618\0406F004.D	04/06/2018	10:12	
Lab Control Sample	KWG1801833-3	J:\MS27\DATA\040618\0406F005.D	04/06/2018	10:44	
TVR-6-20180329MS	KWG1801833-1	J:\MS27\DATA\040618\0406F006.D	04/06/2018	11:11	
TVR-6-20180329DMS	KWG1801833-2	J:\MS27\DATA\040618\0406F007.D	04/06/2018	11:38	
Method Blank	KWG1801833-4	J:\MS27\DATA\040618\0406F010.D	04/06/2018	13:01	
TVR-6-20180329	K1802993-003	J:\MS27\DATA\040618\0406F012.D	04/06/2018	13:56	
Continuing Calibration Verification	KWG1801832-3	J:\MS27\DATA\040618\0406F028.D	04/06/2018	21:16	

Results flagged with an asterisk (*) indicate the analysis performed outside specified tune window

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Date Analyzed: 04/09/2018
Time Analyzed: 10:33

Tune Summary
Volatile Organic Compounds

File ID: J:\MS27\DATA\040918\0409F003.D
Instrument ID: MS27
Column:

Analysis Method: 8260C
Analysis Lot: KWG1801866

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	20.4	5137	PASS
75	95	30	60	53.1	13367	PASS
95	95	100	100	100.0	25154	PASS
96	95	5	9	6.2	1547	PASS
173	174	0	2	1.7	332	PASS
174	95	50	120	78.4	19722	PASS
175	174	5	9	7.3	1436	PASS
176	174	95	101	97.4	19200	PASS
177	176	5	9	6.7	1282	PASS

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed	Q
Continuing Calibration Verification	KWG1801866-2	J:\MS27\DATA\040918\0409F004.D	04/09/2018	11:02	
Lab Control Sample	KWG1801867-3	J:\MS27\DATA\040918\0409F005.D	04/09/2018	11:35	
FTP-1-20180328MS	KWG1801867-1	J:\MS27\DATA\040918\0409F006.D	04/09/2018	12:03	
FTP-1-20180328DMS	KWG1801867-2	J:\MS27\DATA\040918\0409F007.D	04/09/2018	12:30	
Method Blank	KWG1801867-4	J:\MS27\DATA\040918\0409F010.D	04/09/2018	13:53	
TVR-PAIC-20180329	K1802993-001	J:\MS27\DATA\040918\0409F018.D	04/09/2018	17:32	
TVR-POMONA-20180329	K1802993-002	J:\MS27\DATA\040918\0409F019.D	04/09/2018	18:00	
TVR-MTS-1-20180329	K1802993-004	J:\MS27\DATA\040918\0409F020.D	04/09/2018	18:27	
TVR-3A-20180329	K1802993-005	J:\MS27\DATA\040918\0409F021.D	04/09/2018	18:55	
TVR-3-20180329	K1802993-006	J:\MS27\DATA\040918\0409F022.D	04/09/2018	19:22	
TVR-MTS-4-20180329	K1802993-007	J:\MS27\DATA\040918\0409F023.D	04/09/2018	19:50	
TVR-7-20180329	K1802993-008	J:\MS27\DATA\040918\0409F024.D	04/09/2018	20:17	
FTP-1-20180328	K1802993-009	J:\MS27\DATA\040918\0409F025.D	04/09/2018	20:45	
FTP-1-20180328	K1802993-009	J:\MS27\DATA\040918\0409F026.D	04/09/2018	21:12	
Continuing Calibration Verification	KWG1801866-3	J:\MS27\DATA\040918\0409F027.D	04/09/2018	21:40	

Results flagged with an asterisk (*) indicate the analysis performed outside specified tune window

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Date Analyzed: 04/11/2018
Time Analyzed: 09:21

Tune Summary
Volatile Organic Compounds

File ID: J:\MS13\DATA\041118\0411F002.D
Instrument ID: MS13
Column:

Analysis Method: 8260C
Analysis Lot: KWG1801912

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	17.7	10222	PASS
75	95	30	60	48.3	27856	PASS
95	95	100	100	100.0	57728	PASS
96	95	5	9	6.5	3741	PASS
173	174	0	2	0.3	122	PASS
174	95	50	120	83.6	48285	PASS
175	174	5	9	7.8	3777	PASS
176	174	95	101	97.3	46978	PASS
177	176	5	9	7.0	3304	PASS

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed	Q
Continuing Calibration Verification	KWG1801912-2	J:\MS13\DATA\041118\0411F003.D	04/11/2018	09:57	
Lab Control Sample	KWG1801914-3	J:\MS13\DATA\041118\0411F004.D	04/11/2018	10:30	
Method Blank	KWG1801914-4	J:\MS13\DATA\041118\0411F009.D	04/11/2018	12:39	
YTC-TB-001-20180329	K1802993-016	J:\MS13\DATA\041118\0411F020.D	04/11/2018	17:36	
TVR-815-2-20180329	K1802993-010	J:\MS13\DATA\041118\0411F021.D	04/11/2018	18:02	
TVR-MTS-2-20180329	K1802993-012	J:\MS13\DATA\041118\0411F022.D	04/11/2018	18:28	
TVR-5-20180329	K1802993-013	J:\MS13\DATA\041118\0411F023.D	04/11/2018	18:54	
TVR-MMP-120180329	K1802993-014	J:\MS13\DATA\041118\0411F024.D	04/11/2018	19:19	
TVR-1-20180329	K1802993-015	J:\MS13\DATA\041118\0411F025.D	04/11/2018	19:45	
TVR-2-20180329	K1802993-011	J:\MS13\DATA\041118\0411F026.D	04/11/2018	20:11	
Continuing Calibration Verification	KWG1801912-3	J:\MS13\DATA\041118\0411F028.D	04/11/2018	21:03	

Results flagged with an asterisk (*) indicate the analysis performed outside specified tune window

QA/QC Results

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305 **Calibration Date:** 01/18/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15671 **Column:** MS
Instrument ID: MS13

Level ID	File ID	Level ID	File ID
A	J:\MS13\DATA\011818\0118F018.D	G	J:\MS13\DATA\011818\0118F024.D
B	J:\MS13\DATA\011818\0118F019.D	H	J:\MS13\DATA\011818\0118F025.D
C	J:\MS13\DATA\011818\0118F020.D	I	J:\MS13\DATA\011818\0118F026.D
D	J:\MS13\DATA\011818\0118F021.D	J	J:\MS13\DATA\011818\0118F027.D
E	J:\MS13\DATA\011818\0118F022.D	K	J:\MS13\DATA\011818\0118F028.D
F	J:\MS13\DATA\011818\0118F023.D		

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
Dichlorodifluoromethane				B	0.20	0.223	C	0.50	0.246	D	1.0	0.239	E	2.0	0.241
	F	5.0	0.267	G	10	0.269	H	20	0.196	I	40	0.218	J	60	0.266
	K	80	0.271												
Chloromethane	A	0.10	0.327	B	0.20	0.314	C	0.50	0.301	D	1.0	0.308	E	2.0	0.274
	F	5.0	0.297	G	10	0.296	H	20	0.239	I	40	0.261	J	60	0.300
	K	80	0.307												
Vinyl Chloride	A	0.10	0.357	B	0.20	0.304	C	0.50	0.312	D	1.0	0.297	E	2.0	0.273
	F	5.0	0.306	G	10	0.313	H	20	0.235	I	40	0.263	J	60	0.315
	K	80	0.319												
Bromomethane							C	0.50	0.252	D	1.0	0.224	E	2.0	0.189
	F	5.0	0.185	G	10	0.181	H	20	0.147	I	40	0.157	J	60	0.176
	K	80	0.178												
Chloroethane	A	0.10	0.198	B	0.20	0.178	C	0.50	0.177	D	1.0	0.182	E	2.0	0.163
	F	5.0	0.181	G	10	0.187	H	20	0.147	I	40	0.162	J	60	0.186
	K	80	0.188												
Trichlorofluoromethane	A	0.10	0.394	B	0.20	0.350	C	0.50	0.361	D	1.0	0.361	E	2.0	0.320
	F	5.0	0.367	G	10	0.379	H	20	0.277	I	40	0.312	J	60	0.379
	K	80	0.386												
1,1-Dichloroethene	A	0.10	0.210	B	0.20	0.181	C	0.50	0.201	D	1.0	0.179	E	2.0	0.173
	F	5.0	0.195	G	10	0.195	H	20	0.148	I	40	0.168	J	60	0.199
	K	80	0.201												
Acetone	A	4.0	0.0252	B	8.0	0.0265	C	20	0.0255	D	40	0.0259	E	80	0.0238
	F	100	0.0230	G	200	0.0260	H	400	0.0242	I	800	0.0254	J	1600	0.0259
	K	2000	0.0271												
Carbon Disulfide				B	0.20	0.750	C	0.50	0.671	D	1.0	0.624	E	2.0	0.561
	F	5.0	0.638	G	10	0.660	H	20	0.516	I	40	0.598	J	60	0.711
	K	80	0.730												
Methylene Chloride							C	0.50	0.290	D	1.0	0.246	E	2.0	0.206
	F	5.0	0.215	G	10	0.216	H	20	0.193	I	40	0.204	J	60	0.216
	K	80	0.217												

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305 **Calibration Date:** 01/18/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15671 **Column:** MS
Instrument ID: MS13

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
Methyl tert-Butyl Ether	A	0.20	0.405	B	0.40	0.365	C	1.0	0.371	D	2.0	0.384	E	4.0	0.330
	F	10	0.385	G	20	0.398	H	40	0.373	I	80	0.400	J	120	0.419
	K	160	0.430												
trans-1,2-Dichloroethene	A	0.10	0.242	B	0.20	0.227	C	0.50	0.219	D	1.0	0.232	E	2.0	0.195
	F	5.0	0.224	G	10	0.231	H	20	0.187	I	40	0.206	J	60	0.232
	K	80	0.236												
1,1-Dichloroethane	A	0.10	0.405	B	0.20	0.367	C	0.50	0.381	D	1.0	0.386	E	2.0	0.327
	F	5.0	0.378	G	10	0.390	H	20	0.334	I	40	0.365	J	60	0.403
	K	80	0.409												
2,2-Dichloropropane				B	0.20	0.267	C	0.50	0.277	D	1.0	0.258	E	2.0	0.234
	F	5.0	0.269	G	10	0.283	H	20	0.226	I	40	0.259	J	60	0.306
	K	80	0.314												
cis-1,2-Dichloroethene	A	0.10	0.264	B	0.20	0.215	C	0.50	0.240	D	1.0	0.243	E	2.0	0.207
	F	5.0	0.235	G	10	0.237	H	20	0.210	I	40	0.226	J	60	0.244
	K	80	0.250												
2-Butanone (MEK)	A	4.0	0.00999	B	8.0	0.0102	C	20	0.0103	D	40	0.0107	E	80	0.0100
	F	100	0.00937	G	200	0.0110	H	400	0.0104	I	800	0.0108	J	1600	0.0111
	K	2000	0.0118												
Bromochloromethane	A	0.10	0.110	B	0.20	0.0812	C	0.50	0.0943	D	1.0	0.0892	E	2.0	0.0801
	F	5.0	0.0920	G	10	0.0926	H	20	0.0863	I	40	0.0925	J	60	0.0968
	K	80	0.0984												
Chloroform				B	0.20	0.341	C	0.50	0.357	D	1.0	0.351	E	2.0	0.316
	F	5.0	0.358	G	10	0.362	H	20	0.319	I	40	0.342	J	60	0.368
	K	80	0.377												
1,1,1-Trichloroethane (TCA)	A	0.10	0.326	B	0.20	0.295	C	0.50	0.301	D	1.0	0.290	E	2.0	0.265
	F	5.0	0.307	G	10	0.323	H	20	0.257	I	40	0.294	J	60	0.344
	K	80	0.355												
Carbon Tetrachloride				B	0.20	0.212	C	0.50	0.230	D	1.0	0.230	E	2.0	0.212
	F	5.0	0.244	G	10	0.261	H	20	0.204	I	40	0.238	J	60	0.290
	K	80	0.299												
1,1-Dichloropropene				B	0.20	0.304	C	0.50	0.321	D	1.0	0.318	E	2.0	0.280
	F	5.0	0.312	G	10	0.328	H	20	0.251	I	40	0.284	J	60	0.335
	K	80	0.343												
Benzene	A	0.10	1.08	B	0.20	0.914	C	0.50	0.952	D	1.0	0.951	E	2.0	0.837
	F	5.0	0.952	G	10	0.972	H	20	0.824	I	40	0.901	J	60	0.993
	K	80	1.02												

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305 **Calibration Date:** 01/18/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15671 **Column:** MS
Instrument ID: MS13

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
1,2-Dichloroethane (EDC)	A	0.10	0.230	B	0.20	0.221	C	0.50	0.236	D	1.0	0.228	E	2.0	0.194
	F	5.0	0.223	G	10	0.222	H	20	0.203	I	40	0.214	J	60	0.222
	K	80	0.228												
Trichloroethene (TCE)	A	0.10	0.257	B	0.20	0.226	C	0.50	0.234	D	1.0	0.232	E	2.0	0.206
	F	5.0	0.230	G	10	0.236	H	20	0.190	I	40	0.210	J	60	0.240
	K	80	0.245												
1,2-Dichloropropane	A	0.10	0.204	B	0.20	0.214	C	0.50	0.223	D	1.0	0.217	E	2.0	0.186
	F	5.0	0.213	G	10	0.216	H	20	0.194	I	40	0.211	J	60	0.225
	K	80	0.231												
Dibromomethane	A	0.10	0.102	B	0.20	0.0949	C	0.50	0.0843	D	1.0	0.0906	E	2.0	0.0770
	F	5.0	0.0880	G	10	0.0905	H	20	0.0836	I	40	0.0895	J	60	0.0930
	K	80	0.0947												
Bromodichloromethane	A	0.10	0.180	B	0.20	0.183	C	0.50	0.193	D	1.0	0.196	E	2.0	0.170
	F	5.0	0.205	G	10	0.215	H	20	0.204	I	40	0.225	J	60	0.243
	K	80	0.251												
cis-1,3-Dichloropropene	A	0.10	0.240	B	0.20	0.220	C	0.50	0.239	D	1.0	0.239	E	2.0	0.221
	F	5.0	0.264	G	10	0.285	H	20	0.270	I	40	0.300	J	60	0.322
	K	80	0.333												
4-Methyl-2-pentanone (MIBK)	A	4.0	0.0292	B	8.0	0.0307	C	20	0.0328	D	40	0.0350	E	80	0.0335
	F	100	0.0320	G	200	0.0374	H	400	0.0351	I	800	0.0363	J	1600	0.0372
	K	2000	0.0396												
Toluene	A	0.10	0.624	B	0.20	0.542	C	0.50	0.580	D	1.0	0.596	E	2.0	0.530
	F	5.0	0.610	G	10	0.622	H	20	0.523	I	40	0.572	J	60	0.631
	K	80	0.649												
trans-1,3-Dichloropropene				B	0.20	0.479	C	0.50	0.480	D	1.0	0.473	E	2.0	0.433
	F	5.0	0.535	G	10	0.577	H	20	0.548	I	40	0.634	J	60	0.664
1,1,2-Trichloroethane	A	0.10	0.335	B	0.20	0.311	C	0.50	0.302	D	1.0	0.310	E	2.0	0.278
	F	5.0	0.325	G	10	0.332	H	20	0.304	I	40	0.326	J	60	0.336
	K	80	0.340												
Tetrachloroethene (PCE)	A	0.10	0.570	B	0.20	0.466	C	0.50	0.555	D	1.0	0.555	E	2.0	0.516
	F	5.0	0.552	G	10	0.566	H	20	0.437	I	40	0.494	J	60	0.556
	K	80	0.564												
2-Hexanone	A	4.0	0.0271	B	8.0	0.0274	C	20	0.0276	D	40	0.0307	E	80	0.0295
	F	100	0.0286	G	200	0.0335	H	400	0.0310	I	800	0.0329	J	1600	0.0331
	K	2000	0.0350												

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305 **Calibration Date:** 01/18/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15671 **Column:** MS
Instrument ID: MS13

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
1,3-Dichloropropane	A	0.10	0.749	B	0.20	0.703	C	0.50	0.647	D	1.0	0.691	E	2.0	0.611
	F	5.0	0.678	G	10	0.698	H	20	0.630	I	40	0.680	J	60	0.695
	K	80	0.708												
Dibromochloromethane							C	0.50	0.296	D	1.0	0.298	E	2.0	0.281
	F	5.0	0.352	G	10	0.387	H	20	0.367	I	40	0.424	J	60	0.443
	K	80	0.460												
1,2-Dibromoethane (EDB)	A	0.10	0.307	B	0.20	0.332	C	0.50	0.320	D	1.0	0.312	E	2.0	0.285
	F	5.0	0.344	G	10	0.353	H	20	0.325	I	40	0.354	J	60	0.359
	K	80	0.366												
Chlorobenzene	A	0.10	1.91	B	0.20	1.70	C	0.50	1.78	D	1.0	1.76	E	2.0	1.53
	F	5.0	1.76	G	10	1.80	H	20	1.52	I	40	1.67	J	60	1.76
	K	80	1.79												
Ethylbenzene	A	0.10	1.02	B	0.20	0.908	C	0.50	1.00	D	1.0	1.02	E	2.0	0.886
	F	5.0	1.02	G	10	1.07	H	20	0.867	I	40	0.967	J	60	1.05
	K	80	1.08												
1,1,1,2-Tetrachloroethane	A	0.10	0.460	B	0.20	0.351	C	0.50	0.380	D	1.0	0.409	E	2.0	0.371
	F	5.0	0.450	G	10	0.484	H	20	0.440	I	40	0.496	J	60	0.528
	K	80	0.547												
m,p-Xylenes	A	0.20	1.21	B	0.40	1.09	C	1.0	1.24	D	2.0	1.25	E	4.0	1.12
	F	10	1.29	G	20	1.32	H	40	1.09	I	80	1.21	J	120	1.32
	K	160	1.35												
o-Xylene				B	0.20	1.03	C	0.50	1.09	D	1.0	1.15	E	2.0	1.00
	F	5.0	1.19	G	10	1.23	H	20	1.03	I	40	1.13	J	60	1.21
	K	80	1.24												
Styrene				B	0.20	0.875	C	0.50	0.796	D	1.0	0.818	E	2.0	0.746
	F	5.0	0.887	G	10	0.926	H	20	0.820	I	40	0.910	J	60	0.955
	K	80	0.976												
Bromoform							C	0.50	0.132	D	1.0	0.135	E	2.0	0.117
	F	5.0	0.148	G	10	0.167	H	20	0.162	I	40	0.193	J	60	0.207
	K	80	0.220												
Isopropylbenzene				B	0.20	2.64	C	0.50	2.87	D	1.0	2.89	E	2.0	2.63
	F	5.0	3.07	G	10	3.16	H	20	2.54	I	40	2.84	J	60	3.17
	K	80	3.23												
1,1,2,2-Tetrachloroethane	A	0.10	0.421	B	0.20	0.378	C	0.50	0.395	D	1.0	0.430	E	2.0	0.362
	F	5.0	0.436	G	10	0.452	H	20	0.424	I	40	0.438	J	60	0.451
	K	80	0.484												

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† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305 **Calibration Date:** 01/18/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15671 **Column:** MS
Instrument ID: MS13

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
Bromobenzene	A	0.10	0.888	B	0.20	0.762	C	0.50	0.818	D	1.0	0.839	E	2.0	0.745
	F	5.0	0.838	G	10	0.855	H	20	0.775	I	40	0.795	J	60	0.824
	K	80	0.875												
n-Propylbenzene				B	0.20	3.83	C	0.50	4.11	D	1.0	4.22	E	2.0	3.86
	F	5.0	4.42	G	10	4.56	H	20	3.75	I	40	4.00	J	60	4.50
	K	80	4.74												
1,2,3-Trichloropropane				B	0.20	0.117	C	0.50	0.125	D	1.0	0.138	E	2.0	0.126
	F	5.0	0.133	G	10	0.139	H	20	0.129	I	40	0.130	J	60	0.135
	K	80	0.144												
2-Chlorotoluene	A	0.10	2.75	B	0.20	2.41	C	0.50	2.54	D	1.0	2.57	E	2.0	2.28
	F	5.0	2.55	G	10	2.64	H	20	2.25	I	40	2.37	J	60	2.56
	K	80	2.73												
1,3,5-Trimethylbenzene				B	0.20	2.46	C	0.50	2.72	D	1.0	2.81	E	2.0	2.57
	F	5.0	2.98	G	10	3.12	H	20	2.64	I	40	2.82	J	60	3.12
	K	80	3.32												
4-Chlorotoluene	A	0.10	3.17	B	0.20	2.70	C	0.50	2.89	D	1.0	2.92	E	2.0	2.60
	F	5.0	2.96	G	10	3.04	H	20	2.65	I	40	2.76	J	60	2.99
	K	80	3.18												
tert-Butylbenzene				B	0.20	2.38	C	0.50	2.56	D	1.0	2.54	E	2.0	2.28
	F	5.0	2.60	G	10	2.68	H	20	2.20	I	40	2.35	J	60	2.64
	K	80	2.82												
1,2,4-Trimethylbenzene				B	0.20	2.26	C	0.50	2.46	D	1.0	2.62	E	2.0	2.33
	F	5.0	2.80	G	10	2.92	H	20	2.56	I	40	2.74	J	60	3.00
	K	80	3.20												
sec-Butylbenzene				B	0.20	3.20	C	0.50	3.35	D	1.0	3.41	E	2.0	3.08
	F	5.0	3.58	G	10	3.71	H	20	3.03	I	40	3.27	J	60	3.70
	K	80	3.93												
4-Isopropyltoluene							C	0.50	2.42	D	1.0	2.50	E	2.0	2.33
	F	5.0	2.80	G	10	2.97	H	20	2.49	I	40	2.70	J	60	3.05
	K	80	3.25												
1,3-Dichlorobenzene	A	0.10	2.06	B	0.20	1.52	C	0.50	1.56	D	1.0	1.57	E	2.0	1.40
	F	5.0	1.60	G	10	1.62	H	20	1.45	I	40	1.51	J	60	1.60
	K	80	1.70												
1,4-Dichlorobenzene				B	0.20	1.61	C	0.50	1.59	D	1.0	1.59	E	2.0	1.42
	F	5.0	1.57	G	10	1.62	H	20	1.46	I	40	1.52	J	60	1.59
	K	80	1.70												

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† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305 **Calibration Date:** 01/18/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15671 **Column:** MS
Instrument ID: MS13

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
n-Butylbenzene				B	0.20	1.53	C	0.50	1.60	D	1.0	1.78	E	2.0	1.64
	F	5.0	2.07	G	10	2.27	H	20	1.94	I	40	2.18	J	60	2.50
	K	80	2.70												
1,2-Dichlorobenzene	A	0.10	1.59	B	0.20	1.25	C	0.50	1.30	D	1.0	1.33	E	2.0	1.18
	F	5.0	1.32	G	10	1.36	H	20	1.26	I	40	1.30	J	60	1.36
	K	80	1.44												
1,2-Dibromo-3-chloropropane							C	0.50	0.0212	D	1.0	0.0235	E	2.0	0.0185
	F	5.0	0.0273	G	10	0.0300	H	20	0.0273	I	40	0.0326	J	60	0.0358
	K	80	0.0376												
1,2,4-Trichlorobenzene										D	1.0	0.135	E	2.0	0.124
	F	5.0	0.172	G	10	0.197	H	20	0.190	I	40	0.216	J	60	0.224
	K	80	0.231												
Hexachlorobutadiene				B	0.20	0.148	C	0.50	0.148	D	1.0	0.176	E	2.0	0.164
	F	5.0	0.187	G	10	0.202	H	20	0.181	I	40	0.201	J	60	0.221
	K	80	0.226												
Naphthalene										D	1.0	0.174	E	2.0	0.151
	F	5.0	0.212	G	10	0.245	H	20	0.241	I	40	0.277	J	60	0.277
	K	80	0.285												
1,2,3-Trichlorobenzene										D	1.0	0.0503	E	2.0	0.0540
	F	5.0	0.0693	G	10	0.0766	H	20	0.0805	I	40	0.0902	J	60	0.0907
	K	80	0.0937												
Dibromofluoromethane										D	4.0	0.165	E	6.0	0.165
	F	8.0	0.171	G	10	0.163	H	12	0.164	I	14	0.166	J	16	0.179
	K	20	0.189												
1,2-Dichloroethane-d4										D	4.0	0.187	E	6.0	0.188
	F	8.0	0.183	G	10	0.182	H	12	0.174	I	14	0.177	J	16	0.190
	K	20	0.195												
Toluene-d8										D	4.0	0.797	E	6.0	0.755
	F	8.0	0.787	G	10	0.712	H	12	0.739	I	14	0.739	J	16	0.805
	K	20	0.860												
4-Bromofluorobenzene										D	4.0	0.755	E	6.0	0.747
	F	8.0	0.778	G	10	0.720	H	12	0.703	I	14	0.730	J	16	0.772
	K	20	0.815												

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† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305 **Calibration Date:** 01/18/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15671 **Column:** MS
Instrument ID: MS13

Analyte Name	Compound Type	Calibration Evaluation: Fit Type	Eval.	Eval. Result	Q	Control Criteria	RRF Evaluation: Average RRF	Q	Minimum RRF
Dichlorodifluoromethane	MS	AverageRF	% RSD	10.4		≤ 15	0.243		0.100
Chloromethane	MS	AverageRF	% RSD	8.7		≤ 15	0.293		0.100
Vinyl Chloride	MS	AverageRF	% RSD	10.8		≤ 15	0.299		0.100
Bromomethane	MS	Linear(0,0)	R2	0.996		≥ 0.990	0.188		0.100
Chloroethane	MS	AverageRF	% RSD	8.2		≤ 15	0.177		0.100
Trichlorofluoromethane	MS	AverageRF	% RSD	10.2		≤ 15	0.353		0.100
1,1-Dichloroethene	MS	AverageRF	% RSD	9.9		≤ 15	0.186		.100
Acetone	MS	AverageRF	% RSD	4.8		≤ 15	0.0253		0.01
Carbon Disulfide	MS	AverageRF	% RSD	11.5		≤ 15	0.646		0.100
Methylene Chloride	MS	AverageRF	% RSD	13.1		≤ 15	0.223		0.100
Methyl tert-Butyl Ether	MS	AverageRF	% RSD	7.1		≤ 15	0.387		0.100
trans-1,2-Dichloroethene	MS	AverageRF	% RSD	8.0		≤ 15	0.221		0.100
1,1-Dichloroethane	MS	AverageRF	% RSD	7.2		≤ 15	0.377		.200
2,2-Dichloropropane	MS	AverageRF	% RSD	10.4		≤ 15	0.269		0.01
cis-1,2-Dichloroethene	MS	AverageRF	% RSD	7.5		≤ 15	0.234		0.100
2-Butanone (MEK)	MS	AverageRF	% RSD	6.2		≤ 15	0.0105		0.01
Bromochloromethane	MS	AverageRF	% RSD	9.0		≤ 15	0.0921		0.01
Chloroform	MS	AverageRF	% RSD	5.7		≤ 15	0.349		0.200
1,1,1-Trichloroethane (TCA)	MS	AverageRF	% RSD	9.9		≤ 15	0.305		.100
Carbon Tetrachloride	MS	AverageRF	% RSD	13.4		≤ 15	0.242		0.100
1,1-Dichloropropene	MS	AverageRF	% RSD	9.3		≤ 15	0.307		0.01
Benzene	MS	AverageRF	% RSD	7.9		≤ 15	0.945		0.500
1,2-Dichloroethane (EDC)	MS	AverageRF	% RSD	5.6		≤ 15	0.220		0.100
Trichloroethene (TCE)	MS	AverageRF	% RSD	8.4		≤ 15	0.228		0.200
1,2-Dichloropropane	MS	AverageRF	% RSD	6.3		≤ 15	0.212		0.100
Dibromomethane	MS	AverageRF	% RSD	7.4		≤ 15	0.0898		0.01
Bromodichloromethane	MS	AverageRF	% RSD	12.4		≤ 15	0.206		0.200
cis-1,3-Dichloropropene	MS	AverageRF	% RSD	14.8		≤ 15	0.267		0.200
4-Methyl-2-pentanone (MIBK)	MS	AverageRF	% RSD	9.1		≤ 15	0.0344		0.01
Toluene	MS	AverageRF	% RSD	7.3		≤ 15	0.589		0.400
trans-1,3-Dichloropropene	MS	AverageRF	% RSD	14.6		≤ 15	0.536		0.100
1,1,2-Trichloroethane	MS	AverageRF	% RSD	5.9		≤ 15	0.318		.100
Tetrachloroethene (PCE)	MS	AverageRF	% RSD	8.6		≤ 15	0.530		0.200
2-Hexanone	MS	AverageRF	% RSD	9.0		≤ 15	0.0306		0.015
1,3-Dichloropropane	MS	AverageRF	% RSD	5.7		≤ 15	0.681		0.01
Dibromochloromethane	MS	Linear(0,0)	R2	0.998		≥ 0.990	0.368		0.100
1,2-Dibromoethane (EDB)	MS	AverageRF	% RSD	7.6		≤ 15	0.332		0.100
Chlorobenzene	MS	AverageRF	% RSD	6.7		≤ 15	1.73		0.500
Ethylbenzene	MS	AverageRF	% RSD	7.4		≤ 15	0.991		0.100
1,1,1,2-Tetrachloroethane	MS	AverageRF	% RSD	14.4		≤ 15	0.447		.01
m,p-Xylenes	MS	AverageRF	% RSD	7.5		≤ 15	1.23		0.100
o-Xylene	MS	AverageRF	% RSD	7.8		≤ 15	1.13		0.300

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† **SPCC Compound** ‡ **CCC Compound**

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305 **Calibration Date:** 01/18/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15671 **Column:** MS
Instrument ID: MS13

Analyte Name	Compound Type	Calibration Evaluation					RRF Evaluation		
		Fit Type	Eval.	Eval. Result	Q	Control Criteria	Average RRF	Q	Minimum RRF
Styrene	MS	AverageRF	% RSD	8.5		≤ 15	0.871		0.300
Bromoform	MS	Quadratic(0,0)	COD	1.000		≥ 0.990	0.165		0.100
Isopropylbenzene	MS	AverageRF	% RSD	8.6		≤ 15	2.90		0.100
1,1,2,2-Tetrachloroethane	MS	AverageRF	% RSD	8.3		≤ 15	0.425		.300
Bromobenzene	MS	AverageRF	% RSD	5.6		≤ 15	0.819		0.01
n-Propylbenzene	MS	AverageRF	% RSD	8.2		≤ 15	4.20		0.01
1,2,3-Trichloropropane	MS	AverageRF	% RSD	6.0		≤ 15	0.132		0.01
2-Chlorotoluene	MS	AverageRF	% RSD	6.6		≤ 15	2.51		0.01
1,3,5-Trimethylbenzene	MS	AverageRF	% RSD	9.6		≤ 15	2.86		0.01
4-Chlorotoluene	MS	AverageRF	% RSD	6.8		≤ 15	2.90		0.01
tert-Butylbenzene	MS	AverageRF	% RSD	7.8		≤ 15	2.50		0.01
1,2,4-Trimethylbenzene	MS	AverageRF	% RSD	11.2		≤ 15	2.69		0.01
sec-Butylbenzene	MS	AverageRF	% RSD	8.6		≤ 15	3.43		0.01
4-Isopropyltoluene	MS	AverageRF	% RSD	11.7		≤ 15	2.72		0.01
1,3-Dichlorobenzene	MS	AverageRF	% RSD	11.0		≤ 15	1.60		0.600
1,4-Dichlorobenzene	MS	AverageRF	% RSD	5.2		≤ 15	1.57		0.500
n-Butylbenzene	MS	Quadratic(0,0)	COD	0.999		≥ 0.990	2.02		0.01
1,2-Dichlorobenzene	MS	AverageRF	% RSD	8.0		≤ 15	1.34		0.400
1,2-Dibromo-3-chloropropane	MS	Quadratic(0,0)	COD	0.999		≥ 0.990	0.0282		0.025
1,2,4-Trichlorobenzene	MS	Quadratic(0,0)	COD	1.000		≥ 0.990	0.186	*	0.200
Hexachlorobutadiene	MS	AverageRF	% RSD	14.9		≤ 15	0.186		0.01
Naphthalene	MS	Quadratic(0,0)	COD	0.999		≥ 0.990	0.233		0.01
1,2,3-Trichlorobenzene	MS	Quadratic(0,0)	COD	0.999		≥ 0.990	0.0757		0.01
Dibromofluoromethane	SURR	AverageRF	% RSD	5.6		≤ 15	0.170		0.01
1,2-Dichloroethane-d4	SURR	AverageRF	% RSD	3.8		≤ 15	0.184		0.01
Toluene-d8	SURR	AverageRF	% RSD	6.1		≤ 15	0.774		0.01
4-Bromofluorobenzene	SURR	AverageRF	% RSD	4.8		≤ 15	0.753		0.01

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† SPCC Compound **‡ CCC Compound**

QA/QC Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Calibration Date: 01/18/2018
Date Analyzed: 01/19/2018

Second Source Calibration Verification
Volatile Organic Compounds

Calibration Type: Internal Standard
Analysis Method: 8260C

Calibration ID: CAL15671
Units: PPB

File ID: J:\MS13\DATA\011818\0118F033.D
J:\MS13\DATA\011918\0119F003.D

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Dichlorodifluoromethane	10	11	0.243	0.261	7	NA	± 20 %	AverageRF
Chloromethane	10	10	0.293	0.301	3	NA	± 20 %	AverageRF
Vinyl Chloride	10	9.6	0.299	0.287	-4	NA	± 20 %	AverageRF
Bromomethane	10	8.8	0.188	0.153	NA	-12	± 20 %	Linear(0,0)
Chloroethane	10	9.7	0.177	0.171	-3	NA	± 20 %	AverageRF
Trichlorofluoromethane	10	9.1	0.353	0.322	-9	NA	± 20 %	AverageRF
1,1-Dichloroethene	10	11	0.186	0.201	8	NA	± 20 %	AverageRF
Acetone	50	47	0.0253	0.0237	-7	NA	± 20 %	AverageRF
Carbon Disulfide	20	20	0.646	0.652	1	NA	± 20 %	AverageRF
Methylene Chloride	10	9.6	0.223	0.213	-4	NA	± 20 %	AverageRF
Methyl tert-Butyl Ether	10	10	0.387	0.399	3	NA	± 20 %	AverageRF
trans-1,2-Dichloroethene	10	10	0.221	0.226	2	NA	± 20 %	AverageRF
1,1-Dichloroethane	10	10	0.377	0.394	4	NA	± 20 %	AverageRF
2,2-Dichloropropane	10	9.9	0.269	0.267	-1	NA	± 20 %	AverageRF
cis-1,2-Dichloroethene	10	10	0.234	0.233	0	NA	± 20 %	AverageRF
2-Butanone (MEK)	50	47	0.0105	0.00996	-5	NA	± 20 %	AverageRF
Bromochloromethane	10	9.7	0.0921	0.0898	-3	NA	± 20 %	AverageRF
Chloroform	10	10	0.349	0.365	4	NA	± 20 %	AverageRF
1,1,1-Trichloroethane (TCA)	10	10	0.305	0.317	4	NA	± 20 %	AverageRF
Carbon Tetrachloride	10	11	0.242	0.256	6	NA	± 20 %	AverageRF
1,1-Dichloropropene	10	10	0.307	0.313	2	NA	± 20 %	AverageRF
Benzene	10	9.7	0.945	0.921	-3	NA	± 20 %	AverageRF
1,2-Dichloroethane (EDC)	10	10	0.220	0.222	1	NA	± 20 %	AverageRF
Trichloroethene (TCE)	10	10	0.228	0.233	2	NA	± 20 %	AverageRF
1,2-Dichloropropane	10	11	0.212	0.223	5	NA	± 20 %	AverageRF
Dibromomethane	10	9.8	0.0898	0.0876	-2	NA	± 20 %	AverageRF
Bromodichloromethane	10	11	0.206	0.222	8	NA	± 20 %	AverageRF
cis-1,3-Dichloropropene	10	11	0.267	0.282	6	NA	± 20 %	AverageRF
4-Methyl-2-pentanone (MIBK)	50	51	0.0344	0.0348	1	NA	± 20 %	AverageRF
Toluene	10	10	0.589	0.588	0	NA	± 20 %	AverageRF
trans-1,3-Dichloropropene	10	11	0.536	0.569	6	NA	± 20 %	AverageRF
1,1,2-Trichloroethane	10	10	0.318	0.330	4	NA	± 20 %	AverageRF
Tetrachloroethene (PCE)	10	10	0.530	0.546	3	NA	± 20 %	AverageRF
2-Hexanone	50	49	0.0306	0.0299	-2	NA	± 20 %	AverageRF
1,3-Dichloropropane	10	9.9	0.681	0.671	-1	NA	± 20 %	AverageRF
Dibromochloromethane	10	8.1	0.368	0.363	NA	-19	± 20 %	Linear(0,0)
1,2-Dibromoethane (EDB)	10	9.9	0.332	0.331	-1	NA	± 20 %	AverageRF
Chlorobenzene	10	10	1.73	1.74	1	NA	± 20 %	AverageRF
Ethylbenzene	10	9.9	0.991	0.978	-1	NA	± 20 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Calibration Date: 01/18/2018
Date Analyzed: 01/19/2018

Second Source Calibration Verification
Volatile Organic Compounds

Calibration Type: Internal Standard
Analysis Method: 8260C

Calibration ID: CAL15671
Units: PPB

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	10	10	0.447	0.449	0	NA	± 20 %	AverageRF
m,p-Xylenes	20	20	1.23	1.21	-1	NA	± 20 %	AverageRF
o-Xylene	10	10	1.13	1.13	0	NA	± 20 %	AverageRF
Styrene	10	10	0.871	0.897	3	NA	± 20 %	AverageRF
Bromoform	10	9.9	0.165	0.164	NA	-1	± 20 %	Quadratic(0,0
Isopropylbenzene	10	10	2.90	2.99	3	NA	± 20 %	AverageRF
1,1,2,2-Tetrachloroethane	10	11	0.425	0.466	10	NA	± 20 %	AverageRF
Bromobenzene	10	10	0.819	0.849	4	NA	± 20 %	AverageRF
n-Propylbenzene	10	11	4.20	4.52	8	NA	± 20 %	AverageRF
1,2,3-Trichloropropane	10	11	0.132	0.140	6	NA	± 20 %	AverageRF
2-Chlorotoluene	10	10	2.51	2.59	3	NA	± 20 %	AverageRF
1,3,5-Trimethylbenzene	10	11	2.86	3.08	8	NA	± 20 %	AverageRF
4-Chlorotoluene	10	10	2.90	3.03	5	NA	± 20 %	AverageRF
tert-Butylbenzene	10	11	2.50	2.64	6	NA	± 20 %	AverageRF
1,2,4-Trimethylbenzene	10	11	2.69	2.95	10	NA	± 20 %	AverageRF
sec-Butylbenzene	10	11	3.43	3.69	8	NA	± 20 %	AverageRF
4-Isopropyltoluene	10	11	2.72	3.02	11	NA	± 20 %	AverageRF
1,3-Dichlorobenzene	10	10	1.60	1.68	5	NA	± 20 %	AverageRF
1,4-Dichlorobenzene	10	11	1.57	1.65	5	NA	± 20 %	AverageRF
n-Butylbenzene	10	12	2.02	2.22	NA	16	± 20 %	Quadratic(0,0
1,2-Dichlorobenzene	10	10	1.34	1.40	5	NA	± 20 %	AverageRF
1,2-Dibromo-3-chloropropane	10	10	0.0282	0.0288	NA	1	± 20 %	Quadratic(0,0
1,2,4-Trichlorobenzene	10	10	0.186	0.197	NA	0	± 20 %	Quadratic(0,0
Hexachlorobutadiene	10	11	0.186	0.207	12	NA	± 20 %	AverageRF
Naphthalene	10	9.8	0.233	0.250	NA	-2	± 20 %	Quadratic(0,0
1,2,3-Trichlorobenzene	10	9.8	0.0757	0.0811	NA	-2	± 20 %	Quadratic(0,0

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† SPCC Compound **‡ CCC Compound**

QA/QC Results

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305 **Calibration Date:** 02/12/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15689 **Column:** MS
Instrument ID: MS27

Level ID	File ID	Level ID	File ID
A	J:\MS27\DATA\021218\0212F011.D	G	J:\MS27\DATA\021218\0212F017.D
B	J:\MS27\DATA\021218\0212F012.D	H	J:\MS27\DATA\021218\0212F018.D
C	J:\MS27\DATA\021218\0212F013.D	I	J:\MS27\DATA\021218\0212F019.D
D	J:\MS27\DATA\021218\0212F014.D	J	J:\MS27\DATA\021218\0212F020.D
E	J:\MS27\DATA\021218\0212F015.D	K	J:\MS27\DATA\021218\0212F021.D
F	J:\MS27\DATA\021218\0212F016.D		

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
Dichlorodifluoromethane							C	0.50	0.354	D	1.0	0.375	E	2.0	0.338
	F	5.0	0.359	G	10	0.353	H	20	0.249	I	40	0.314	J	60	0.328
	K	80	0.335												
Chloromethane	A	0.10	0.480	B	0.20	0.481	C	0.50	0.457	D	1.0	0.521	E	2.0	0.441
	F	5.0	0.464	G	10	0.419	H	20	0.346	I	40	0.395	J	60	0.408
	K	80	0.419												
Vinyl Chloride	A	0.10	0.472	B	0.20	0.433	C	0.50	0.476	D	1.0	0.456	E	2.0	0.431
	F	5.0	0.455	G	10	0.440	H	20	0.326	I	40	0.406	J	60	0.417
	K	80	0.434												
Bromomethane							C	0.50	0.365	D	1.0	0.289	E	2.0	0.255
	F	5.0	0.239	G	10	0.232	H	20	0.198	I	40	0.225			
Chloroethane							C	0.50	0.342	D	1.0	0.328	E	2.0	0.286
	F	5.0	0.263	G	10	0.258	H	20	0.198	I	40	0.232	J	60	0.235
	K	80	0.241												
Trichlorofluoromethane				B	0.20	0.307	C	0.50	0.452	D	1.0	0.470	E	2.0	0.394
	F	5.0	0.434	G	10	0.421	H	20	0.298	I	40	0.379	J	60	0.392
	K	80	0.405												
1,1-Dichloroethene	A	0.10	0.199	B	0.20	0.218	C	0.50	0.244	D	1.0	0.231	E	2.0	0.207
	F	5.0	0.230	G	10	0.222	H	20	0.169	I	40	0.209	J	60	0.215
	K	80	0.222												
Acetone	A	4.0	0.0481	B	8.0	0.0464	C	20	0.0503	D	40	0.0508	E	80	0.0436
	F	100	0.0471	G	200	0.0449	H	400	0.0462	I	800	0.0470	J	1600	0.0467
	K	2000	0.0481												
Carbon Disulfide				B	0.20	0.830	C	0.50	1.01	D	1.0	1.03	E	2.0	0.872
	F	5.0	0.952	G	10	0.929	H	20	0.717	I	40	0.874	J	60	0.902
	K	80	0.931												
Methylene Chloride							C	0.50	0.375	D	1.0	0.358	E	2.0	0.289
	F	5.0	0.303	G	10	0.292	H	20	0.264	I	40	0.278	J	60	0.279
	K	80	0.283												

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Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305 **Calibration Date:** 02/12/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15689 **Column:** MS
Instrument ID: MS27

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
Methyl tert-Butyl Ether	A	0.20	0.415	B	0.40	0.517	C	1.0	0.525	D	2.0	0.543	E	4.0	0.474
	F	10	0.532	G	20	0.537	H	40	0.531	I	80	0.569	J	120	0.584
	K	160	0.592												
trans-1,2-Dichloroethene	A	0.10	0.277	B	0.20	0.221	C	0.50	0.268	D	1.0	0.283	E	2.0	0.240
	F	5.0	0.259	G	10	0.258	H	20	0.214	I	40	0.250	J	60	0.260
	K	80	0.267												
1,1-Dichloroethane	A	0.10	0.478	B	0.20	0.561	C	0.50	0.591	D	1.0	0.578	E	2.0	0.516
	F	5.0	0.566	G	10	0.577	H	20	0.474	I	40	0.535	J	60	0.546
	K	80	0.558												
2,2-Dichloropropane	A	0.10	0.330	B	0.20	0.370	C	0.50	0.388	D	1.0	0.364	E	2.0	0.328
	F	5.0	0.366	G	10	0.368	H	20	0.286	I	40	0.342	J	60	0.353
	K	80	0.365												
cis-1,2-Dichloroethene				B	0.20	0.279	C	0.50	0.312	D	1.0	0.300	E	2.0	0.255
	F	5.0	0.285	G	10	0.285	H	20	0.256	I	40	0.283	J	60	0.287
	K	80	0.290												
2-Butanone (MEK)	A	4.0	0.0149	B	8.0	0.0151	C	20	0.0161	D	40	0.0187	E	80	0.0155
	F	100	0.0175	G	200	0.0169	H	400	0.0181	I	800	0.0187	J	1600	0.0184
	K	2000	0.0189												
Bromochloromethane				B	0.20	0.133	C	0.50	0.142	D	1.0	0.135	E	2.0	0.113
	F	5.0	0.127	G	10	0.123	H	20	0.116	I	40	0.121	J	60	0.121
	K	80	0.120												
Chloroform				B	0.20	0.556	C	0.50	0.557	D	1.0	0.527	E	2.0	0.474
	F	5.0	0.521	G	10	0.510	H	20	0.449	I	40	0.483	J	60	0.492
	K	80	0.499												
1,1,1-Trichloroethane (TCA)	A	0.10	0.367	B	0.20	0.341	C	0.50	0.413	D	1.0	0.417	E	2.0	0.364
	F	5.0	0.400	G	10	0.394	H	20	0.307	I	40	0.368	J	60	0.387
	K	80	0.395												
Carbon Tetrachloride	A	0.10	0.358	B	0.20	0.277	C	0.50	0.348	D	1.0	0.367	E	2.0	0.317
	F	5.0	0.338	G	10	0.338	H	20	0.252	I	40	0.319	J	60	0.333
	K	80	0.339												
1,1-Dichloropropene				B	0.20	0.315	C	0.50	0.360	D	1.0	0.365	E	2.0	0.340
	F	5.0	0.402	G	10	0.403	H	20	0.310	I	40	0.380	J	60	0.398
	K	80	0.414												
Benzene	A	0.10	1.08	B	0.20	1.11	C	0.50	1.19	D	1.0	1.25	E	2.0	1.06
	F	5.0	1.20	G	10	1.20	H	20	1.02	I	40	1.14	J	60	1.17
	K	80	1.19												

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Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305 **Calibration Date:** 02/12/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15689 **Column:** MS
Instrument ID: MS27

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
1,2-Dichloroethane (EDC)	A	0.10	0.322	B	0.20	0.361	C	0.50	0.360	D	1.0	0.387	E	2.0	0.323
	F	5.0	0.360	G	10	0.350	H	20	0.332	I	40	0.341	J	60	0.341
	K	80	0.344												
Trichloroethene (TCE)	A	0.10	0.283	B	0.20	0.203	C	0.50	0.295	D	1.0	0.286	E	2.0	0.258
	F	5.0	0.275	G	10	0.274	H	20	0.221	I	40	0.258	J	60	0.267
	K	80	0.275												
1,2-Dichloropropane				B	0.20	0.357	C	0.50	0.331	D	1.0	0.351	E	2.0	0.305
	F	5.0	0.333	G	10	0.330	H	20	0.299	I	40	0.323	J	60	0.329
	K	80	0.336												
Dibromomethane	A	0.10	0.119	B	0.20	0.146	C	0.50	0.157	D	1.0	0.159	E	2.0	0.132
	F	5.0	0.145	G	10	0.141	H	20	0.136	I	40	0.142	J	60	0.141
	K	80	0.142												
Bromodichloromethane	A	0.10	0.323	B	0.20	0.367	C	0.50	0.371	D	1.0	0.381	E	2.0	0.320
	F	5.0	0.357	G	10	0.339	H	20	0.326	I	40	0.340	J	60	0.347
	K	80	0.352												
cis-1,3-Dichloropropene	A	0.10	0.272	B	0.20	0.343	C	0.50	0.357	D	1.0	0.392	E	2.0	0.346
	F	5.0	0.401	G	10	0.405	H	20	0.396	I	40	0.433	J	60	0.448
	K	80	0.455												
4-Methyl-2-pentanone (MIBK)				B	8.0	0.0453	C	20	0.0507	D	40	0.0559	E	80	0.0509
	F	100	0.0590	G	200	0.0606	H	400	0.0660	I	800	0.0673	J	1600	0.0691
Toluene				B	0.20	0.475	C	0.50	0.568	D	1.0	0.622	E	2.0	0.555
	F	5.0	0.628	G	10	0.633	H	20	0.541	I	40	0.623	J	60	0.643
	K	80	0.662												
trans-1,3-Dichloropropene				B	0.20	0.722	C	0.50	0.749	D	1.0	0.771	E	2.0	0.714
	F	5.0	0.811	G	10	0.815	H	20	0.786	I	40	0.848	J	60	0.876
	K	80	0.868												
1,1,2-Trichloroethane	A	0.10	0.569	B	0.20	0.497	C	0.50	0.456	D	1.0	0.468	E	2.0	0.396
	F	5.0	0.468	G	10	0.452	H	20	0.428	I	40	0.446	J	60	0.450
	K	80	0.444												
Tetrachloroethene (PCE)				B	0.20	0.354	C	0.50	0.473	D	1.0	0.491	E	2.0	0.410
	F	5.0	0.477	G	10	0.453	H	20	0.355	I	40	0.434	J	60	0.451
	K	80	0.450												
2-Hexanone				B	8.0	0.0335	C	20	0.0355	D	40	0.0395	E	80	0.0393
	F	100	0.0433	G	200	0.0458	H	400	0.0507						

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Project: JBLM/6304305 **Calibration Date:** 02/12/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15689 **Column:** MS
Instrument ID: MS27

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
1,3-Dichloropropane	A	0.10	0.748	B	0.20	0.732	C	0.50	0.947	D	1.0	0.908	E	2.0	0.827
	F	5.0	0.925	G	10	0.890	H	20	0.862	I	40	0.880	J	60	0.905
	K	80	0.882												
Dibromochloromethane							C	0.50	0.569	D	1.0	0.569	E	2.0	0.515
	F	5.0	0.591	G	10	0.552	H	20	0.545	I	40	0.569	J	60	0.579
	K	80	0.566												
1,2-Dibromoethane (EDB)				B	0.20	0.350	C	0.50	0.428	D	1.0	0.444	E	2.0	0.388
	F	5.0	0.444	G	10	0.410	H	20	0.410	I	40	0.429	J	60	0.442
	K	80	0.426												
Chlorobenzene	A	0.10	1.57	B	0.20	1.32	C	0.50	1.69	D	1.0	1.65	E	2.0	1.49
	F	5.0	1.71	G	10	1.66	H	20	1.47	I	40	1.63	J	60	1.67
	K	80	1.65												
Ethylbenzene							C	0.50	0.735	D	1.0	0.693	E	2.0	0.685
	F	5.0	0.819	G	10	0.842	H	20	0.716	I	40	0.851	J	60	0.888
	K	80	0.893												
1,1,1,2-Tetrachloroethane	A	0.10	0.613	B	0.20	0.533	C	0.50	0.553	D	1.0	0.591	E	2.0	0.490
	F	5.0	0.578	G	10	0.539	H	20	0.516	I	40	0.554	J	60	0.571
	K	80	0.558												
m,p-Xylenes	A	0.20	0.724	B	0.40	0.683	C	1.0	0.798	D	2.0	0.857	E	4.0	0.797
	F	10	1.03	G	20	1.04	H	40	0.911	I	80	1.05	J	120	1.10
	K	160	1.09												
o-Xylene				B	0.20	0.696	C	0.50	0.737	D	1.0	0.854	E	2.0	0.746
	F	5.0	0.949	G	10	0.963	H	20	0.888	I	40	0.994	J	60	1.05
	K	80	1.05												
Styrene							C	0.50	0.688	D	1.0	0.757	E	2.0	0.688
	F	5.0	0.887	G	10	0.909	H	20	0.884	I	40	0.965	J	60	1.00
	K	80	0.992												
Bromoform				B	0.20	0.252	C	0.50	0.305	D	1.0	0.298	E	2.0	0.264
	F	5.0	0.291	G	10	0.276	H	20	0.275	I	40	0.287	J	60	0.293
	K	80	0.288												
Isopropylbenzene							C	0.50	2.00	D	1.0	2.08	E	2.0	1.96
	F	5.0	2.46	G	10	2.50	H	20	2.14	I	40	2.51	J	60	2.69
	K	80	2.71												
1,1,2,2-Tetrachloroethane				B	0.20	0.704	C	0.50	0.870	D	1.0	0.823	E	2.0	0.704
	F	5.0	0.778	G	10	0.755	H	20	0.731	I	40	0.721	J	60	0.721
	K	80	0.740												

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Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15689 **Column:** MS
Instrument ID: MS27

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
Bromobenzene	A	0.10	0.761	B	0.20	0.817	C	0.50	0.767	D	1.0	0.853	E	2.0	0.717
	F	5.0	0.803	G	10	0.790	H	20	0.740	I	40	0.772	J	60	0.774
	K	80	0.805												
n-Propylbenzene				B	0.20	2.81	C	0.50	3.42	D	1.0	3.77	E	2.0	3.38
	F	5.0	4.23	G	10	4.40	H	20	3.65	I	40	4.23	J	60	4.34
	K	80	4.62												
1,2,3-Trichloropropane							C	0.50	0.211	D	1.0	0.210	E	2.0	0.142
	F	5.0	0.170	G	10	0.177	H	20	0.172	I	40	0.175	J	60	0.171
	K	80	0.175												
2-Chlorotoluene				B	0.20	1.72	C	0.50	2.37	D	1.0	2.49	E	2.0	2.13
	F	5.0	2.65	G	10	2.70	H	20	2.34	I	40	2.53	J	60	2.56
	K	80	2.70												
1,3,5-Trimethylbenzene							C	0.50	2.06	D	1.0	2.26	E	2.0	2.14
	F	5.0	2.71	G	10	2.85	H	20	2.58	I	40	2.84	J	60	2.91
	K	80	3.11												
4-Chlorotoluene	A	0.10	2.30	B	0.20	1.97	C	0.50	2.20	D	1.0	2.52	E	2.0	2.24
	F	5.0	2.76	G	10	2.82	H	20	2.54	I	40	2.68	J	60	2.71
	K	80	2.89												
tert-Butylbenzene							C	0.50	1.69	D	1.0	1.95	E	2.0	1.75
	F	5.0	2.21	G	10	2.30	H	20	1.99	I	40	2.22	J	60	2.27
	K	80	2.42												
1,2,4-Trimethylbenzene	A	0.10	2.31	B	0.20	1.71	C	0.50	1.94	D	1.0	2.25	E	2.0	2.09
	F	5.0	2.71	G	10	2.85	H	20	2.67	I	40	2.87	J	60	2.93
	K	80	3.10												
sec-Butylbenzene							C	0.50	2.59	D	1.0	3.09	E	2.0	2.64
	F	5.0	3.46	G	10	3.54	H	20	3.04	I	40	3.43	J	60	3.51
	K	80	3.75												
4-Isopropyltoluene							C	0.50	1.97	D	1.0	2.11	E	2.0	1.93
	F	5.0	2.63	G	10	2.71	H	20	2.42	I	40	2.74	J	60	2.83
	K	80	3.02												
1,3-Dichlorobenzene				B	0.20	1.60	C	0.50	1.68	D	1.0	1.64	E	2.0	1.34
	F	5.0	1.63	G	10	1.60	H	20	1.49	I	40	1.53	J	60	1.55
	K	80	1.61												
1,4-Dichlorobenzene				B	0.20	1.49	C	0.50	1.54	D	1.0	1.63	E	2.0	1.39
	F	5.0	1.64	G	10	1.57	H	20	1.49	I	40	1.53	J	60	1.54
	K	80	1.60												

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305 **Calibration Date:** 02/12/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15689 **Column:** MS
Instrument ID: MS27

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
n-Butylbenzene				B	0.20	2.05	C	0.50	2.43	D	1.0	2.44	E	2.0	2.13
	F	5.0	2.73	G	10	2.80	H	20	2.43	I	40	2.80	J	60	2.89
	K	80	3.08												
1,2-Dichlorobenzene				B	0.20	1.35	C	0.50	1.44	D	1.0	1.53	E	2.0	1.32
	F	5.0	1.53	G	10	1.49	H	20	1.42	I	40	1.42	J	60	1.42
	K	80	1.46												
1,2-Dibromo-3-chloropropane							C	0.50	0.0659	D	1.0	0.100	E	2.0	0.0686
	F	5.0	0.0715	G	10	0.0784	H	20	0.0733	I	40	0.0761	J	60	0.0759
	K	80	0.0779												
1,2,4-Trichlorobenzene				B	0.20	1.03	C	0.50	0.855	D	1.0	0.958	E	2.0	0.811
	F	5.0	0.919	G	10	0.931	H	20	0.898	I	40	0.932	J	60	0.961
	K	80	0.993												
Hexachlorobutadiene				B	0.20	0.556	C	0.50	0.557	D	1.0	0.516	E	2.0	0.416
	F	5.0	0.462	G	10	0.453	H	20	0.386	I	40	0.412	J	60	0.418
	K	80	0.434												
Naphthalene				B	0.20	1.21	C	0.50	1.31	D	1.0	1.42	E	2.0	1.21
	F	5.0	1.45	G	10	1.59	H	20	1.66	I	40	1.78	J	60	1.87
	K	80	1.92												
1,2,3-Trichlorobenzene				B	0.20	0.796	C	0.50	0.836	D	1.0	0.828	E	2.0	0.680
	F	5.0	0.854	G	10	0.860	H	20	0.840	I	40	0.846	J	60	0.859
	K	80	0.889												
Dibromofluoromethane										D	4.0	0.234	E	6.0	0.210
	F	8.0	0.206	G	10	0.227	H	12	0.211	I	14	0.232	J	16	0.234
	K	20	0.240												
1,2-Dichloroethane-d4										D	4.0	0.267	E	6.0	0.247
	F	8.0	0.243	G	10	0.257	H	12	0.245	I	14	0.255	J	16	0.257
	K	20	0.264												
Toluene-d8										D	4.0	0.790	E	6.0	0.712
	F	8.0	0.716	G	10	0.825	H	12	0.739	I	14	0.866	J	16	0.840
	K	20	0.906												
4-Bromofluorobenzene										D	4.0	0.755	E	6.0	0.719
	F	8.0	0.776	G	10	0.813	H	12	0.779	I	14	0.861	J	16	0.883
	K	20	0.882												

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305 **Calibration Date:** 02/12/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15689 **Column:** MS
Instrument ID: MS27

		Calibration Evaluation					RRF Evaluation		
Analyte Name	**Compound Type**	**Fit Type**	**Eval.**	**Eval. Result**	**Q**	**Control Criteria**	**Average RRF**	**Q**	**Minimum RRF**
Dichlorodifluoromethane	MS	AverageRF	% RSD	11.0		≤ 15	0.334		0.100
Chloromethane	MS	AverageRF	% RSD	11.0		≤ 15	0.439		0.100
Vinyl Chloride	MS	AverageRF	% RSD	9.5		≤ 15	0.432		0.100
Bromomethane	MS	Linear	R2	0.996		≥ 0.990	0.257		0.100
Chloroethane	MS	Linear(0,0)	R2	0.998		≥ 0.990	0.265		0.100
Trichlorofluoromethane	MS	AverageRF	% RSD	14.3		≤ 15	0.395		0.100
1,1-Dichloroethene	MS	AverageRF	% RSD	9.2		≤ 15	0.215		.100
Acetone	MS	AverageRF	% RSD	4.5		≤ 15	0.0472		0.01
Carbon Disulfide	MS	AverageRF	% RSD	9.9		≤ 15	0.905		0.100
Methylene Chloride	MS	AverageRF	% RSD	12.6		≤ 15	0.302		0.100
Methyl tert-Butyl Ether	MS	AverageRF	% RSD	9.5		≤ 15	0.529		0.100
trans-1,2-Dichloroethene	MS	AverageRF	% RSD	8.6		≤ 15	0.254		0.100
1,1-Dichloroethane	MS	AverageRF	% RSD	7.3		≤ 15	0.544		.200
2,2-Dichloropropane	MS	AverageRF	% RSD	8.0		≤ 15	0.351		0.01
cis-1,2-Dichloroethene	MS	AverageRF	% RSD	6.1		≤ 15	0.283		0.100
2-Butanone (MEK)	MS	AverageRF	% RSD	8.9		≤ 15	0.0172		0.01
Bromochloromethane	MS	AverageRF	% RSD	7.3		≤ 15	0.125		0.01
Chloroform	MS	AverageRF	% RSD	6.8		≤ 15	0.507		0.200
1,1,1-Trichloroethane (TCA)	MS	AverageRF	% RSD	8.7		≤ 15	0.378		.100
Carbon Tetrachloride	MS	AverageRF	% RSD	10.5		≤ 15	0.326		0.100
1,1-Dichloropropene	MS	AverageRF	% RSD	10.1		≤ 15	0.369		0.01
Benzene	MS	AverageRF	% RSD	6.1		≤ 15	1.15		0.500
1,2-Dichloroethane (EDC)	MS	AverageRF	% RSD	5.5		≤ 15	0.348		0.100
Trichloroethene (TCE)	MS	AverageRF	% RSD	10.7		≤ 15	0.263		0.200
1,2-Dichloropropane	MS	AverageRF	% RSD	5.4		≤ 15	0.329		0.100
Dibromomethane	MS	AverageRF	% RSD	7.9		≤ 15	0.142		0.01
Bromodichloromethane	MS	AverageRF	% RSD	5.9		≤ 15	0.347		0.200
cis-1,3-Dichloropropene	MS	AverageRF	% RSD	13.9		≤ 15	0.386		0.200
4-Methyl-2-pentanone (MIBK)	MS	AverageRF	% RSD	14.2		≤ 15	0.0583		0.01
Toluene	MS	AverageRF	% RSD	9.8		≤ 15	0.595		0.400
trans-1,3-Dichloropropene	MS	AverageRF	% RSD	7.2		≤ 15	0.796		0.100
1,1,2-Trichloroethane	MS	AverageRF	% RSD	9.5		≤ 15	0.461		.100
Tetrachloroethene (PCE)	MS	AverageRF	% RSD	11.0		≤ 15	0.435		0.200
2-Hexanone	MS	AverageRF	% RSD	14.5		≤ 15	0.0411		0.015
1,3-Dichloropropane	MS	AverageRF	% RSD	8.0		≤ 15	0.864		0.01
Dibromochloromethane	MS	AverageRF	% RSD	3.9		≤ 15	0.562		0.100
1,2-Dibromoethane (EDB)	MS	AverageRF	% RSD	7.1		≤ 15	0.417		0.100
Chlorobenzene	MS	AverageRF	% RSD	7.5		≤ 15	1.59		0.500
Ethylbenzene	MS	AverageRF	% RSD	10.6		≤ 15	0.791		0.100
1,1,1,2-Tetrachloroethane	MS	AverageRF	% RSD	6.2		≤ 15	0.554		.01
m,p-Xylenes	MS	Linear(0,0)	R2	0.999		≥ 0.990	0.916		0.100
o-Xylene	MS	AverageRF	% RSD	14.6		≤ 15	0.892		0.300

Results flagged with an asterisk (*) indicate values outside control criteria.

† **SPCC Compound** ‡ **CCC Compound**

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305 **Calibration Date:** 02/12/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15689 **Column:** MS
Instrument ID: MS27

Analyte Name	Compound Type	Calibration Evaluation					RRF Evaluation		
		Fit Type	Eval.	Eval. Result	Q	Control Criteria	Average RRF	Q	Minimum RRF
Styrene	MS	AverageRF	% RSD	14.3		≤ 15	0.863		0.300
Bromoform	MS	AverageRF	% RSD	5.7		≤ 15	0.283		0.100
Isopropylbenzene	MS	AverageRF	% RSD	12.6		≤ 15	2.34		0.100
1,1,2,2-Tetrachloroethane	MS	AverageRF	% RSD	7.2		≤ 15	0.754		.300
Bromobenzene	MS	AverageRF	% RSD	4.8		≤ 15	0.782		0.01
n-Propylbenzene	MS	AverageRF	% RSD	14.7		≤ 15	3.88		0.01
1,2,3-Trichloropropane	MS	AverageRF	% RSD	11.9		≤ 15	0.178		0.01
2-Chlorotoluene	MS	AverageRF	% RSD	12.5		≤ 15	2.42		0.01
1,3,5-Trimethylbenzene	MS	AverageRF	% RSD	14.2		≤ 15	2.61		0.01
4-Chlorotoluene	MS	AverageRF	% RSD	11.8		≤ 15	2.51		0.01
tert-Butylbenzene	MS	AverageRF	% RSD	12.3		≤ 15	2.09		0.01
1,2,4-Trimethylbenzene	MS	Linear(0,0)	R2	0.998		≥ 0.990	2.49		0.01
sec-Butylbenzene	MS	AverageRF	% RSD	12.8		≤ 15	3.23		0.01
4-Isopropyltoluene	MS	Linear(0,0)	R2	0.997		≥ 0.990	2.48		0.01
1,3-Dichlorobenzene	MS	AverageRF	% RSD	6.2		≤ 15	1.57		0.600
1,4-Dichlorobenzene	MS	AverageRF	% RSD	4.8		≤ 15	1.54		0.500
n-Butylbenzene	MS	AverageRF	% RSD	13.0		≤ 15	2.58		0.01
1,2-Dichlorobenzene	MS	AverageRF	% RSD	4.7		≤ 15	1.44		0.400
1,2-Dibromo-3-chloropropane	MS	AverageRF	% RSD	12.8		≤ 15	0.0764		0.025
1,2,4-Trichlorobenzene	MS	AverageRF	% RSD	6.8		≤ 15	0.929		0.200
Hexachlorobutadiene	MS	AverageRF	% RSD	13.3		≤ 15	0.461		0.01
Naphthalene	MS	Linear(0,0)	R2	0.999		≥ 0.990	1.54		0.01
1,2,3-Trichlorobenzene	MS	AverageRF	% RSD	7.0		≤ 15	0.829		0.01
Dibromofluoromethane	SURR	AverageRF	% RSD	5.9		≤ 15	0.224		0.01
1,2-Dichloroethane-d4	SURR	AverageRF	% RSD	3.4		≤ 15	0.254		0.01
Toluene-d8	SURR	AverageRF	% RSD	9.0		≤ 15	0.799		0.01
4-Bromofluorobenzene	SURR	AverageRF	% RSD	7.6		≤ 15	0.808		0.01

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

QA/QC Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Calibration Date: 02/12/2018
Date Analyzed: 02/13/2018

Second Source Calibration Verification
Volatile Organic Compounds

Calibration Type: Internal Standard
Analysis Method: 8260C

Calibration ID: CAL15689
Units: PPB

File ID: J:\MS27\DATA\021218\0212F025.D
J:\MS27\DATA\021318\0213F004.D

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Dichlorodifluoromethane	10	8.3	0.334	0.276	-17	NA	± 20 %	AverageRF
Chloromethane	10	9.4	0.439	0.413	-6	NA	± 20 %	AverageRF
Vinyl Chloride	10	8.9	0.432	0.385	-11	NA	± 20 %	AverageRF
Bromomethane	10	11	0.257	0.238	NA	7	± 20 %	Linear
Chloroethane	10	10	0.265	0.244	NA	3	± 20 %	Linear(0,0)
Trichlorofluoromethane	10	11	0.395	0.433	9	NA	± 20 %	AverageRF
1,1-Dichloroethene	10	11	0.215	0.228	6	NA	± 20 %	AverageRF
Acetone	50	47	0.0472	0.0446	-5	NA	± 20 %	AverageRF
Carbon Disulfide	20	17	0.905	0.769	-15	NA	± 20 %	AverageRF
Methylene Chloride	10	10	0.302	0.313	3	NA	± 20 %	AverageRF
Methyl tert-Butyl Ether	10	9.6	0.529	0.508	-4	NA	± 20 %	AverageRF
trans-1,2-Dichloroethene	10	10	0.254	0.263	4	NA	± 20 %	AverageRF
1,1-Dichloroethane	10	10	0.544	0.557	2	NA	± 20 %	AverageRF
2,2-Dichloropropane	10	9.7	0.351	0.342	-3	NA	± 20 %	AverageRF
cis-1,2-Dichloroethene	10	10	0.283	0.289	2	NA	± 20 %	AverageRF
2-Butanone (MEK)	50	48	0.0172	0.0165	-4	NA	± 20 %	AverageRF
Bromochloromethane	10	9.1	0.125	0.114	-9	NA	± 20 %	AverageRF
Chloroform	10	11	0.507	0.551	9	NA	± 20 %	AverageRF
1,1,1-Trichloroethane (TCA)	10	10	0.378	0.385	2	NA	± 20 %	AverageRF
Carbon Tetrachloride	10	10	0.326	0.329	1	NA	± 20 %	AverageRF
1,1-Dichloropropene	10	10	0.369	0.376	2	NA	± 20 %	AverageRF
Benzene	10	9.9	1.15	1.14	-1	NA	± 20 %	AverageRF
1,2-Dichloroethane (EDC)	10	9.9	0.348	0.342	-1	NA	± 20 %	AverageRF
Trichloroethene (TCE)	10	10	0.263	0.275	5	NA	± 20 %	AverageRF
1,2-Dichloropropane	10	10	0.329	0.337	2	NA	± 20 %	AverageRF
Dibromomethane	10	9.9	0.142	0.141	-1	NA	± 20 %	AverageRF
Bromodichloromethane	10	10	0.347	0.362	4	NA	± 20 %	AverageRF
cis-1,3-Dichloropropene	10	11	0.386	0.414	7	NA	± 20 %	AverageRF
4-Methyl-2-pentanone (MIBK)	50	48	0.0583	0.0558	-4	NA	± 20 %	AverageRF
Toluene	10	10	0.595	0.600	1	NA	± 20 %	AverageRF
trans-1,3-Dichloropropene	10	11	0.796	0.840	5	NA	± 20 %	AverageRF
1,1,2-Trichloroethane	10	10	0.461	0.468	2	NA	± 20 %	AverageRF
Tetrachloroethene (PCE)	10	11	0.435	0.468	8	NA	± 20 %	AverageRF
2-Hexanone	50	53	0.0411	0.0432	5	NA	± 20 %	AverageRF
1,3-Dichloropropane	10	10	0.864	0.890	3	NA	± 20 %	AverageRF
Dibromochloromethane	10	10	0.562	0.569	1	NA	± 20 %	AverageRF
1,2-Dibromoethane (EDB)	10	9.9	0.417	0.415	-1	NA	± 20 %	AverageRF
Chlorobenzene	10	11	1.59	1.70	6	NA	± 20 %	AverageRF
Ethylbenzene	10	10	0.791	0.827	4	NA	± 20 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Calibration Date: 02/12/2018
Date Analyzed: 02/13/2018

Second Source Calibration Verification
Volatile Organic Compounds

Calibration Type: Internal Standard
Analysis Method: 8260C

Calibration ID: CAL15689
Units: PPB

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	10	9.9	0.554	0.552	-1	NA	± 20 %	AverageRF
m,p-Xylenes	20	19	0.916	1.03	NA	-4	± 20 %	Linear(0,0)
o-Xylene	10	11	0.892	0.953	7	NA	± 20 %	AverageRF
Styrene	10	11	0.863	0.926	7	NA	± 20 %	AverageRF
Bromoform	10	10	0.283	0.295	4	NA	± 20 %	AverageRF
Isopropylbenzene	10	11	2.34	2.54	8	NA	± 20 %	AverageRF
1,1,2,2-Tetrachloroethane	10	9.8	0.754	0.738	-2	NA	± 20 %	AverageRF
Bromobenzene	10	9.8	0.782	0.765	-2	NA	± 20 %	AverageRF
n-Propylbenzene	10	10	3.88	3.99	3	NA	± 20 %	AverageRF
1,2,3-Trichloropropane	10	9.4	0.178	0.167	-6	NA	± 20 %	AverageRF
2-Chlorotoluene	10	10	2.42	2.48	3	NA	± 20 %	AverageRF
1,3,5-Trimethylbenzene	10	10	2.61	2.72	4	NA	± 20 %	AverageRF
4-Chlorotoluene	10	11	2.51	2.64	5	NA	± 20 %	AverageRF
tert-Butylbenzene	10	10	2.09	2.18	4	NA	± 20 %	AverageRF
1,2,4-Trimethylbenzene	10	9.5	2.49	2.84	NA	-5	± 20 %	Linear(0,0)
sec-Butylbenzene	10	11	3.23	3.39	5	NA	± 20 %	AverageRF
4-Isopropyltoluene	10	9.3	2.48	2.69	NA	-7	± 20 %	Linear(0,0)
1,3-Dichlorobenzene	10	10	1.57	1.59	1	NA	± 20 %	AverageRF
1,4-Dichlorobenzene	10	10	1.54	1.59	3	NA	± 20 %	AverageRF
n-Butylbenzene	10	10	2.58	2.68	4	NA	± 20 %	AverageRF
1,2-Dichlorobenzene	10	10	1.44	1.50	4	NA	± 20 %	AverageRF
1,2-Dibromo-3-chloropropane	10	9.3	0.0764	0.0713	-7	NA	± 20 %	AverageRF
1,2,4-Trichlorobenzene	10	9.7	0.929	0.903	-3	NA	± 20 %	AverageRF
Hexachlorobutadiene	10	9.2	0.461	0.423	-8	NA	± 20 %	AverageRF
Naphthalene	10	8.1	1.54	1.52	NA	-19	± 20 %	Linear(0,0)
1,2,3-Trichlorobenzene	10	10	0.829	0.833	1	NA	± 20 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Date Analyzed: 04/06/2018

Continuing Calibration Verification Summary
Volatile Organic Compounds

Calibration Type: Internal Standard
Analysis Method: 8260C

Calibration Date: 02/12/2018
Calibration ID: CAL15689
Analysis Lot: KWG1801832
Units: PPB

File ID: J:\MS27\DATA\040618\0406F004.D

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Dichlorodifluoromethane	10	11	0.100	0.334	0.367	10	NA	± 20	AverageRF
Chloromethane	10	10	0.100	0.439	0.452	3	NA	± 20	AverageRF
Vinyl Chloride	10	11	0.100	0.432	0.456	6	NA	± 20	AverageRF
Bromomethane	10	12	0.100	0.257	0.265	NA	19	± 20	Linear
Chloroethane	10	11	0.100	0.265	0.265	NA	12	± 20	Linear(0,0)
Trichlorofluoromethane	10	11	0.100	0.395	0.425	8	NA	± 20	AverageRF
1,1-Dichloroethene	10	10	.100	0.215	0.215	0	NA	± 20	AverageRF
Acetone	200	170	0.01	0.0472	0.0391	-17	NA	± 20	AverageRF
Carbon Disulfide	10	8.4	0.100	0.905	0.762	-16	NA	± 20	AverageRF
Methylene Chloride	10	9.8	0.100	0.302	0.297	-2	NA	± 20	AverageRF
Methyl tert-Butyl Ether	20	19	0.100	0.529	0.504	-5	NA	± 20	AverageRF
trans-1,2-Dichloroethene	10	10	0.100	0.254	0.259	2	NA	± 20	AverageRF
1,1-Dichloroethane	10	9.9	.200	0.544	0.537	-1	NA	± 20	AverageRF
2,2-Dichloropropane	10	10	0.01	0.351	0.368	5	NA	± 20	AverageRF
cis-1,2-Dichloroethene	10	9.9	0.100	0.283	0.281	-1	NA	± 20	AverageRF
2-Butanone (MEK)	200	160	0.01	0.0172	0.0140	-18	NA	± 20	AverageRF
Bromochloromethane	10	10	0.01	0.125	0.125	0	NA	± 20	AverageRF
Chloroform	10	10	0.200	0.507	0.512	1	NA	± 20	AverageRF
1,1,1-Trichloroethane (TCA)	10	10	.100	0.378	0.384	2	NA	± 20	AverageRF
Carbon Tetrachloride	10	10	0.100	0.326	0.330	1	NA	± 20	AverageRF
1,1-Dichloropropene	10	10	0.01	0.369	0.386	5	NA	± 20	AverageRF
Benzene	10	10	0.500	1.15	1.17	2	NA	± 20	AverageRF
1,2-Dichloroethane (EDC)	10	10	0.100	0.348	0.350	1	NA	± 20	AverageRF
Trichloroethene (TCE)	10	10	0.200	0.263	0.271	3	NA	± 20	AverageRF
1,2-Dichloropropane	10	9.9	0.100	0.329	0.325	-1	NA	± 20	AverageRF
Dibromomethane	10	10	0.01	0.142	0.146	3	NA	± 20	AverageRF
Bromodichloromethane	10	10	0.200	0.347	0.362	4	NA	± 20	AverageRF
cis-1,3-Dichloropropene	10	11	0.200	0.386	0.413	7	NA	± 20	AverageRF
4-Methyl-2-pentanone (MIBK)	200	180	0.01	0.0583	0.0513	-12	NA	± 20	AverageRF
Toluene	10	11	0.400	0.595	0.632	6	NA	± 20	AverageRF
trans-1,3-Dichloropropene	10	9.9	0.100	0.796	0.788	-1	NA	± 20	AverageRF
1,1,2-Trichloroethane	10	10	.100	0.461	0.460	0	NA	± 20	AverageRF
Tetrachloroethene (PCE)	10	10	0.200	0.435	0.450	4	NA	± 20	AverageRF
2-Hexanone	200	190	0.015	0.0411	0.0385	-6	NA	± 20	AverageRF
1,3-Dichloropropane	10	10	0.01	0.864	0.890	3	NA	± 20	AverageRF
Dibromochloromethane	10	10	0.100	0.562	0.578	3	NA	± 20	AverageRF
1,2-Dibromoethane (EDB)	10	10	0.100	0.417	0.420	1	NA	± 20	AverageRF
Chlorobenzene	10	11	0.500	1.59	1.68	6	NA	± 20	AverageRF
Ethylbenzene	10	11	0.100	0.791	0.860	9	NA	± 20	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Date Analyzed: 04/06/2018

Continuing Calibration Verification Summary
Volatile Organic Compounds

Calibration Type: Internal Standard
Analysis Method: 8260C

Calibration Date: 02/12/2018
Calibration ID: CAL15689
Analysis Lot: KWG1801832
Units: PPB

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D	%Drift		Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	10	10	.01	0.554	0.565	2	NA		± 20	AverageRF
m,p-Xylenes	20	19	0.100	0.916	1.04	NA	-4		± 20	Linear(0,0)
o-Xylene	10	11	0.300	0.892	0.987	11	NA		± 20	AverageRF
Styrene	10	11	0.300	0.863	0.962	11	NA		± 20	AverageRF
Bromoform	10	10	0.100	0.283	0.284	0	NA		± 20	AverageRF
Isopropylbenzene	10	11	0.100	2.34	2.57	10	NA		± 20	AverageRF
1,1,2,2-Tetrachloroethane	10	9.2	.300	0.754	0.693	-8	NA		± 20	AverageRF
Bromobenzene	10	10	0.01	0.782	0.794	2	NA		± 20	AverageRF
n-Propylbenzene	10	11	0.01	3.88	4.20	8	NA		± 20	AverageRF
1,2,3-Trichloropropane	10	8.9	0.01	0.178	0.159	-11	NA		± 20	AverageRF
2-Chlorotoluene	10	11	0.01	2.42	2.54	5	NA		± 20	AverageRF
1,3,5-Trimethylbenzene	10	10	0.01	2.61	2.73	5	NA		± 20	AverageRF
4-Chlorotoluene	10	11	0.01	2.51	2.66	6	NA		± 20	AverageRF
tert-Butylbenzene	10	10	0.01	2.09	2.18	4	NA		± 20	AverageRF
1,2,4-Trimethylbenzene	10	9.3	0.01	2.49	2.78	NA	-7		± 20	Linear(0,0)
sec-Butylbenzene	10	11	0.01	3.23	3.47	7	NA		± 20	AverageRF
4-Isopropyltoluene	10	9.3	0.01	2.48	2.68	NA	-8		± 20	Linear(0,0)
1,3-Dichlorobenzene	10	10	0.600	1.57	1.61	3	NA		± 20	AverageRF
1,4-Dichlorobenzene	10	10	0.500	1.54	1.59	3	NA		± 20	AverageRF
n-Butylbenzene	10	11	0.01	2.58	2.84	10	NA		± 20	AverageRF
1,2-Dichlorobenzene	10	10	0.400	1.44	1.44	0	NA		± 20	AverageRF
1,2-Dibromo-3-chloropropane	10	9.8	0.025	0.0764	0.0745	-2	NA		± 20	AverageRF
1,2,4-Trichlorobenzene	10	9.7	0.200	0.929	0.899	-3	NA		± 20	AverageRF
Hexachlorobutadiene	10	9.8	0.01	0.461	0.452	-2	NA		± 20	AverageRF
Naphthalene	10	7.6	0.01	1.54	1.42	NA	-25	*	± 20	Linear(0,0)
1,2,3-Trichlorobenzene	10	9.5	0.01	0.829	0.783	-6	NA		± 20	AverageRF
Dibromofluoromethane	10	12	0.01	0.224	0.262	17	NA		± 20	AverageRF
1,2-Dichloroethane-d4	10	11	0.01	0.254	0.276	8	NA		± 20	AverageRF
Toluene-d8	10	12	0.01	0.799	0.967	21	NA	*	± 20	AverageRF
4-Bromofluorobenzene	10	11	0.01	0.808	0.865	7	NA		± 20	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Date Analyzed: 04/06/2018

Continuing Calibration Verification Summary
Volatile Organic Compounds

Calibration Type: Internal Standard
Analysis Method: 8260C

Calibration Date: 02/12/2018
Calibration ID: CAL15689
Analysis Lot: KWG1801832
Units: PPB

File ID: J:\MS27\DATA\040618\0406F028.D

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Dichlorodifluoromethane	10	8.5	0.100	0.334	0.283	-15	NA	± 50 %	AverageRF
Chloromethane	10	9.2	0.100	0.439	0.406	-8	NA	± 50 %	AverageRF
Vinyl Chloride	10	8.7	0.100	0.432	0.374	-13	NA	± 50 %	AverageRF
Bromomethane	10	13	0.100	0.257	0.279	NA	26	± 50 %	Linear
Chloroethane	10	11	0.100	0.265	0.257	NA	8	± 50 %	Linear(0,0)
Trichlorofluoromethane	10	8.6	0.100	0.395	0.341	-14	NA	± 50 %	AverageRF
1,1-Dichloroethene	10	8.7	.100	0.215	0.187	-13	NA	± 50 %	AverageRF
Acetone	200	190	0.01	0.0472	0.0447	-5	NA	± 50 %	AverageRF
Carbon Disulfide	10	7.2	0.100	0.905	0.649	-28	NA	± 50 %	AverageRF
Methylene Chloride	10	10	0.100	0.302	0.305	1	NA	± 50 %	AverageRF
Methyl tert-Butyl Ether	20	19	0.100	0.529	0.513	-3	NA	± 50 %	AverageRF
trans-1,2-Dichloroethene	10	8.9	0.100	0.254	0.227	-11	NA	± 50 %	AverageRF
1,1-Dichloroethane	10	9.3	.200	0.544	0.506	-7	NA	± 50 %	AverageRF
2,2-Dichloropropane	10	7.9	0.01	0.351	0.279	-21	NA	± 50 %	AverageRF
cis-1,2-Dichloroethene	10	9.5	0.100	0.283	0.269	-5	NA	± 50 %	AverageRF
2-Butanone (MEK)	200	190	0.01	0.0172	0.0167	-3	NA	± 50 %	AverageRF
Bromochloromethane	10	10	0.01	0.125	0.128	3	NA	± 50 %	AverageRF
Chloroform	10	9.7	0.200	0.507	0.494	-3	NA	± 50 %	AverageRF
1,1,1-Trichloroethane (TCA)	10	8.6	.100	0.378	0.324	-14	NA	± 50 %	AverageRF
Carbon Tetrachloride	10	8.2	0.100	0.326	0.268	-18	NA	± 50 %	AverageRF
1,1-Dichloropropene	10	8.4	0.01	0.369	0.311	-16	NA	± 50 %	AverageRF
Benzene	10	9.4	0.500	1.15	1.08	-6	NA	± 50 %	AverageRF
1,2-Dichloroethane (EDC)	10	10	0.100	0.348	0.356	2	NA	± 50 %	AverageRF
Trichloroethene (TCE)	10	9.2	0.200	0.263	0.242	-8	NA	± 50 %	AverageRF
1,2-Dichloropropane	10	9.9	0.100	0.329	0.325	-1	NA	± 50 %	AverageRF
Dibromomethane	10	11	0.01	0.142	0.150	6	NA	± 50 %	AverageRF
Bromodichloromethane	10	11	0.200	0.347	0.365	5	NA	± 50 %	AverageRF
cis-1,3-Dichloropropene	10	10	0.200	0.386	0.400	4	NA	± 50 %	AverageRF
4-Methyl-2-pentanone (MIBK)	200	200	0.01	0.0583	0.0592	1	NA	± 50 %	AverageRF
Toluene	10	9.8	0.400	0.595	0.583	-2	NA	± 50 %	AverageRF
trans-1,3-Dichloropropene	10	9.9	0.100	0.796	0.790	-1	NA	± 50 %	AverageRF
1,1,2-Trichloroethane	10	10	.100	0.461	0.468	1	NA	± 50 %	AverageRF
Tetrachloroethene (PCE)	10	8.6	0.200	0.435	0.374	-14	NA	± 50 %	AverageRF
2-Hexanone	200	210	0.015	0.0411	0.0433	5	NA	± 50 %	AverageRF
1,3-Dichloropropane	10	10	0.01	0.864	0.887	3	NA	± 50 %	AverageRF
Dibromochloromethane	10	10	0.100	0.562	0.586	4	NA	± 50 %	AverageRF
1,2-Dibromoethane (EDB)	10	11	0.100	0.417	0.438	5	NA	± 50 %	AverageRF
Chlorobenzene	10	10	0.500	1.59	1.60	0	NA	± 50 %	AverageRF
Ethylbenzene	10	9.5	0.100	0.791	0.749	-5	NA	± 50 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Date Analyzed: 04/06/2018

Continuing Calibration Verification Summary
Volatile Organic Compounds

Calibration Type: Internal Standard
Analysis Method: 8260C

Calibration Date: 02/12/2018
Calibration ID: CAL15689
Analysis Lot: KWG1801832
Units: PPB

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	10	10	.01	0.554	0.581	5	NA	± 50 %	AverageRF
m,p-Xylenes	20	17	0.100	0.916	0.923	NA	-15	± 50 %	Linear(0,0)
o-Xylene	10	10	0.300	0.892	0.901	1	NA	± 50 %	AverageRF
Styrene	10	11	0.300	0.863	0.913	6	NA	± 50 %	AverageRF
Bromoform	10	11	0.100	0.283	0.303	7	NA	± 50 %	AverageRF
Isopropylbenzene	10	9.4	0.100	2.34	2.20	-6	NA	± 50 %	AverageRF
1,1,2,2-Tetrachloroethane	10	9.0	.300	0.754	0.679	-10	NA	± 50 %	AverageRF
Bromobenzene	10	9.5	0.01	0.782	0.740	-5	NA	± 50 %	AverageRF
n-Propylbenzene	10	9.2	0.01	3.88	3.58	-8	NA	± 50 %	AverageRF
1,2,3-Trichloropropane	10	9.8	0.01	0.178	0.174	-2	NA	± 50 %	AverageRF
2-Chlorotoluene	10	9.5	0.01	2.42	2.30	-5	NA	± 50 %	AverageRF
1,3,5-Trimethylbenzene	10	9.2	0.01	2.61	2.41	-8	NA	± 50 %	AverageRF
4-Chlorotoluene	10	9.9	0.01	2.51	2.48	-1	NA	± 50 %	AverageRF
tert-Butylbenzene	10	8.8	0.01	2.09	1.83	-12	NA	± 50 %	AverageRF
1,2,4-Trimethylbenzene	10	8.2	0.01	2.49	2.46	NA	-18	± 50 %	Linear(0,0)
sec-Butylbenzene	10	8.9	0.01	3.23	2.86	-11	NA	± 50 %	AverageRF
4-Isopropyltoluene	10	7.8	0.01	2.48	2.26	NA	-22	± 50 %	Linear(0,0)
1,3-Dichlorobenzene	10	9.5	0.600	1.57	1.48	-5	NA	± 50 %	AverageRF
1,4-Dichlorobenzene	10	9.7	0.500	1.54	1.49	-3	NA	± 50 %	AverageRF
n-Butylbenzene	10	8.8	0.01	2.58	2.28	-12	NA	± 50 %	AverageRF
1,2-Dichlorobenzene	10	10	0.400	1.44	1.47	2	NA	± 50 %	AverageRF
1,2-Dibromo-3-chloropropane	10	11	0.025	0.0764	0.0822	8	NA	± 50 %	AverageRF
1,2,4-Trichlorobenzene	10	9.4	0.200	0.929	0.876	-6	NA	± 50 %	AverageRF
Hexachlorobutadiene	10	8.3	0.01	0.461	0.380	-18	NA	± 50 %	AverageRF
Naphthalene	10	7.3	0.01	1.54	1.37	NA	-27	± 50 %	Linear(0,0)
1,2,3-Trichlorobenzene	10	9.2	0.01	0.829	0.766	-8	NA	± 50 %	AverageRF
Dibromofluoromethane	10	12	0.01	0.224	0.267	19	NA	± 50 %	AverageRF
1,2-Dichloroethane-d4	10	11	0.01	0.254	0.279	10	NA	± 50 %	AverageRF
Toluene-d8	10	12	0.01	0.799	0.982	23	NA	± 50 %	AverageRF
4-Bromofluorobenzene	10	11	0.01	0.808	0.869	7	NA	± 50 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Date Analyzed: 04/09/2018

Continuing Calibration Verification Summary
Volatile Organic Compounds

Calibration Type: Internal Standard
Analysis Method: 8260C

Calibration Date: 02/12/2018
Calibration ID: CAL15689
Analysis Lot: KWG1801866
Units: PPB

File ID: J:\MS27\DATA\040918\0409F004.D

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D		%Drift	Criteria	Curve Fit
Dichlorodifluoromethane	10	7.6	0.100	0.334	0.252	-24	*	NA	± 20	AverageRF
Chloromethane	10	8.8	0.100	0.439	0.388	-12		NA	± 20	AverageRF
Vinyl Chloride	10	8.1	0.100	0.432	0.351	-19		NA	± 20	AverageRF
Bromomethane	10	12	0.100	0.257	0.256	NA		15	± 20	Linear
Chloroethane	10	10	0.100	0.265	0.243	NA		2	± 20	Linear(0,0)
Trichlorofluoromethane	10	8.4	0.100	0.395	0.334	-16		NA	± 20	AverageRF
1,1-Dichloroethene	10	8.0	.100	0.215	0.171	-20		NA	± 20	AverageRF
Acetone	200	190	0.01	0.0472	0.0460	-3		NA	± 20	AverageRF
Carbon Disulfide	10	6.9	0.100	0.905	0.625	-31	*	NA	± 20	AverageRF
Methylene Chloride	10	9.4	0.100	0.302	0.283	-6		NA	± 20	AverageRF
Methyl tert-Butyl Ether	20	18	0.100	0.529	0.486	-8		NA	± 20	AverageRF
trans-1,2-Dichloroethene	10	9.0	0.100	0.254	0.228	-10		NA	± 20	AverageRF
1,1-Dichloroethane	10	9.0	.200	0.544	0.490	-10		NA	± 20	AverageRF
2,2-Dichloropropane	10	8.8	0.01	0.351	0.309	-12		NA	± 20	AverageRF
cis-1,2-Dichloroethene	10	9.3	0.100	0.283	0.263	-7		NA	± 20	AverageRF
2-Butanone (MEK)	200	200	0.01	0.0172	0.0170	-1		NA	± 20	AverageRF
Bromochloromethane	10	9.6	0.01	0.125	0.120	-4		NA	± 20	AverageRF
Chloroform	10	9.3	0.200	0.507	0.473	-7		NA	± 20	AverageRF
1,1,1-Trichloroethane (TCA)	10	8.4	.100	0.378	0.316	-16		NA	± 20	AverageRF
Carbon Tetrachloride	10	8.2	0.100	0.326	0.268	-18		NA	± 20	AverageRF
1,1-Dichloropropene	10	8.4	0.01	0.369	0.311	-16		NA	± 20	AverageRF
Benzene	10	9.2	0.500	1.15	1.06	-8		NA	± 20	AverageRF
1,2-Dichloroethane (EDC)	10	9.8	0.100	0.348	0.339	-2		NA	± 20	AverageRF
Trichloroethene (TCE)	10	8.7	0.200	0.263	0.229	-13		NA	± 20	AverageRF
1,2-Dichloropropane	10	9.4	0.100	0.329	0.310	-6		NA	± 20	AverageRF
Dibromomethane	10	10	0.01	0.142	0.144	2		NA	± 20	AverageRF
Bromodichloromethane	10	10	0.200	0.347	0.347	0		NA	± 20	AverageRF
cis-1,3-Dichloropropene	10	10	0.200	0.386	0.396	3		NA	± 20	AverageRF
4-Methyl-2-pentanone (MIBK)	200	210	0.01	0.0583	0.0608	4		NA	± 20	AverageRF
Toluene	10	9.7	0.400	0.595	0.577	-3		NA	± 20	AverageRF
trans-1,3-Dichloropropene	10	9.7	0.100	0.796	0.775	-3		NA	± 20	AverageRF
1,1,2-Trichloroethane	10	9.8	.100	0.461	0.449	-3		NA	± 20	AverageRF
Tetrachloroethene (PCE)	10	9.0	0.200	0.435	0.392	-10		NA	± 20	AverageRF
2-Hexanone	200	220	0.015	0.0411	0.0449	9		NA	± 20	AverageRF
1,3-Dichloropropane	10	10	0.01	0.864	0.865	0		NA	± 20	AverageRF
Dibromochloromethane	10	10	0.100	0.562	0.584	4		NA	± 20	AverageRF
1,2-Dibromoethane (EDB)	10	10	0.100	0.417	0.436	4		NA	± 20	AverageRF
Chlorobenzene	10	10	0.500	1.59	1.61	1		NA	± 20	AverageRF
Ethylbenzene	10	9.6	0.100	0.791	0.756	-4		NA	± 20	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Date Analyzed: 04/09/2018

Continuing Calibration Verification Summary
Volatile Organic Compounds

Calibration Type: Internal Standard
Analysis Method: 8260C

Calibration Date: 02/12/2018
Calibration ID: CAL15689
Analysis Lot: KWG1801866
Units: PPB

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D		%Drift		Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	10	10	.01	0.554	0.557	1		NA		± 20	AverageRF
m,p-Xylenes	20	18	0.100	0.916	0.954	NA		-12		± 20	Linear(0,0)
o-Xylene	10	10	0.300	0.892	0.919	3		NA		± 20	AverageRF
Styrene	10	11	0.300	0.863	0.938	9		NA		± 20	AverageRF
Bromoform	10	10	0.100	0.283	0.293	4		NA		± 20	AverageRF
Isopropylbenzene	10	9.6	0.100	2.34	2.25	-4		NA		± 20	AverageRF
1,1,2,2-Tetrachloroethane	10	9.5	.300	0.754	0.715	-5		NA		± 20	AverageRF
Bromobenzene	10	10	0.01	0.782	0.798	2		NA		± 20	AverageRF
n-Propylbenzene	10	9.8	0.01	3.88	3.79	-2		NA		± 20	AverageRF
1,2,3-Trichloropropane	10	9.7	0.01	0.178	0.172	-3		NA		± 20	AverageRF
2-Chlorotoluene	10	10	0.01	2.42	2.41	0		NA		± 20	AverageRF
1,3,5-Trimethylbenzene	10	9.7	0.01	2.61	2.53	-3		NA		± 20	AverageRF
4-Chlorotoluene	10	10	0.01	2.51	2.58	3		NA		± 20	AverageRF
tert-Butylbenzene	10	9.3	0.01	2.09	1.95	-7		NA		± 20	AverageRF
1,2,4-Trimethylbenzene	10	8.8	0.01	2.49	2.63	NA		-12		± 20	Linear(0,0)
sec-Butylbenzene	10	9.5	0.01	3.23	3.07	-5		NA		± 20	AverageRF
4-Isopropyltoluene	10	8.1	0.01	2.48	2.36	NA		-19		± 20	Linear(0,0)
1,3-Dichlorobenzene	10	10	0.600	1.57	1.57	0		NA		± 20	AverageRF
1,4-Dichlorobenzene	10	10	0.500	1.54	1.58	2		NA		± 20	AverageRF
n-Butylbenzene	10	9.7	0.01	2.58	2.50	-3		NA		± 20	AverageRF
1,2-Dichlorobenzene	10	10	0.400	1.44	1.49	4		NA		± 20	AverageRF
1,2-Dibromo-3-chloropropane	10	11	0.025	0.0764	0.0821	7		NA		± 20	AverageRF
1,2,4-Trichlorobenzene	10	10	0.200	0.929	0.940	1		NA		± 20	AverageRF
Hexachlorobutadiene	10	9.7	0.01	0.461	0.449	-3		NA		± 20	AverageRF
Naphthalene	10	7.8	0.01	1.54	1.46	NA		-22	*	± 20	Linear(0,0)
1,2,3-Trichlorobenzene	10	10	0.01	0.829	0.827	0		NA		± 20	AverageRF
Dibromofluoromethane	10	12	0.01	0.224	0.266	19		NA		± 20	AverageRF
1,2-Dichloroethane-d4	10	10	0.01	0.254	0.266	4		NA		± 20	AverageRF
Toluene-d8	10	12	0.01	0.799	0.976	22	*	NA		± 20	AverageRF
4-Bromofluorobenzene	10	11	0.01	0.808	0.857	6		NA		± 20	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Date Analyzed: 04/09/2018

Continuing Calibration Verification Summary
Volatile Organic Compounds

Calibration Type: Internal Standard
Analysis Method: 8260C

Calibration Date: 02/12/2018
Calibration ID: CAL15689
Analysis Lot: KWG1801866
Units: PPB

File ID: J:\MS27\DATA\040918\0409F027.D

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Dichlorodifluoromethane	10	10	0.100	0.334	0.333	0	NA	± 50 %	AverageRF
Chloromethane	10	10	0.100	0.439	0.444	1	NA	± 50 %	AverageRF
Vinyl Chloride	10	11	0.100	0.432	0.461	7	NA	± 50 %	AverageRF
Bromomethane	10	13	0.100	0.257	0.293	NA	32	± 50 %	Linear
Chloroethane	10	12	0.100	0.265	0.285	NA	20	± 50 %	Linear(0,0)
Trichlorofluoromethane	10	11	0.100	0.395	0.428	8	NA	± 50 %	AverageRF
1,1-Dichloroethene	10	10	.100	0.215	0.223	4	NA	± 50 %	AverageRF
Acetone	200	210	0.01	0.0472	0.0490	4	NA	± 50 %	AverageRF
Carbon Disulfide	10	8.6	0.100	0.905	0.777	-14	NA	± 50 %	AverageRF
Methylene Chloride	10	10	0.100	0.302	0.308	2	NA	± 50 %	AverageRF
Methyl tert-Butyl Ether	20	20	0.100	0.529	0.542	2	NA	± 50 %	AverageRF
trans-1,2-Dichloroethene	10	11	0.100	0.254	0.274	8	NA	± 50 %	AverageRF
1,1-Dichloroethane	10	11	.200	0.544	0.575	6	NA	± 50 %	AverageRF
2,2-Dichloropropane	10	10	0.01	0.351	0.349	0	NA	± 50 %	AverageRF
cis-1,2-Dichloroethene	10	11	0.100	0.283	0.308	9	NA	± 50 %	AverageRF
2-Butanone (MEK)	200	220	0.01	0.0172	0.0191	11	NA	± 50 %	AverageRF
Bromochloromethane	10	10	0.01	0.125	0.130	4	NA	± 50 %	AverageRF
Chloroform	10	10	0.200	0.507	0.528	4	NA	± 50 %	AverageRF
1,1,1-Trichloroethane (TCA)	10	10	.100	0.378	0.394	4	NA	± 50 %	AverageRF
Carbon Tetrachloride	10	11	0.100	0.326	0.344	6	NA	± 50 %	AverageRF
1,1-Dichloropropene	10	11	0.01	0.369	0.401	9	NA	± 50 %	AverageRF
Benzene	10	11	0.500	1.15	1.24	8	NA	± 50 %	AverageRF
1,2-Dichloroethane (EDC)	10	10	0.100	0.348	0.356	3	NA	± 50 %	AverageRF
Trichloroethene (TCE)	10	11	0.200	0.263	0.284	8	NA	± 50 %	AverageRF
1,2-Dichloropropane	10	11	0.100	0.329	0.349	6	NA	± 50 %	AverageRF
Dibromomethane	10	11	0.01	0.142	0.151	6	NA	± 50 %	AverageRF
Bromodichloromethane	10	11	0.200	0.347	0.369	6	NA	± 50 %	AverageRF
cis-1,3-Dichloropropene	10	11	0.200	0.386	0.424	10	NA	± 50 %	AverageRF
4-Methyl-2-pentanone (MIBK)	200	240	0.01	0.0583	0.0692	19	NA	± 50 %	AverageRF
Toluene	10	11	0.400	0.595	0.681	14	NA	± 50 %	AverageRF
trans-1,3-Dichloropropene	10	10	0.100	0.796	0.813	2	NA	± 50 %	AverageRF
1,1,2-Trichloroethane	10	9.9	.100	0.461	0.458	-1	NA	± 50 %	AverageRF
Tetrachloroethene (PCE)	10	10	0.200	0.435	0.449	3	NA	± 50 %	AverageRF
2-Hexanone	200	230	0.015	0.0411	0.0478	16	NA	± 50 %	AverageRF
1,3-Dichloropropane	10	11	0.01	0.864	0.915	6	NA	± 50 %	AverageRF
Dibromochloromethane	10	10	0.100	0.562	0.562	0	NA	± 50 %	AverageRF
1,2-Dibromoethane (EDB)	10	11	0.100	0.417	0.444	6	NA	± 50 %	AverageRF
Chlorobenzene	10	11	0.500	1.59	1.76	11	NA	± 50 %	AverageRF
Ethylbenzene	10	11	0.100	0.791	0.907	15	NA	± 50 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Date Analyzed: 04/09/2018

Continuing Calibration Verification Summary
Volatile Organic Compounds

Calibration Type: Internal Standard
Analysis Method: 8260C

Calibration Date: 02/12/2018
Calibration ID: CAL15689
Analysis Lot: KWG1801866
Units: PPB

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	10	10	.01	0.554	0.571	3	NA	± 50 %	AverageRF
m,p-Xylenes	20	20	0.100	0.916	1.10	NA	1	± 50 %	Linear(0,0)
o-Xylene	10	12	0.300	0.892	1.04	16	NA	± 50 %	AverageRF
Styrene	10	12	0.300	0.863	1.02	18	NA	± 50 %	AverageRF
Bromoform	10	10	0.100	0.283	0.294	4	NA	± 50 %	AverageRF
Isopropylbenzene	10	12	0.100	2.34	2.69	15	NA	± 50 %	AverageRF
1,1,2,2-Tetrachloroethane	10	9.4	.300	0.754	0.712	-6	NA	± 50 %	AverageRF
Bromobenzene	10	9.9	0.01	0.782	0.775	-1	NA	± 50 %	AverageRF
n-Propylbenzene	10	11	0.01	3.88	4.31	11	NA	± 50 %	AverageRF
1,2,3-Trichloropropane	10	9.9	0.01	0.178	0.177	-1	NA	± 50 %	AverageRF
2-Chlorotoluene	10	11	0.01	2.42	2.59	7	NA	± 50 %	AverageRF
1,3,5-Trimethylbenzene	10	11	0.01	2.61	2.78	7	NA	± 50 %	AverageRF
4-Chlorotoluene	10	11	0.01	2.51	2.72	8	NA	± 50 %	AverageRF
tert-Butylbenzene	10	11	0.01	2.09	2.25	8	NA	± 50 %	AverageRF
1,2,4-Trimethylbenzene	10	9.6	0.01	2.49	2.88	NA	-4	± 50 %	Linear(0,0)
sec-Butylbenzene	10	11	0.01	3.23	3.52	9	NA	± 50 %	AverageRF
4-Isopropyltoluene	10	9.2	0.01	2.48	2.68	NA	-8	± 50 %	Linear(0,0)
1,3-Dichlorobenzene	10	9.9	0.600	1.57	1.55	-1	NA	± 50 %	AverageRF
1,4-Dichlorobenzene	10	11	0.500	1.54	1.62	5	NA	± 50 %	AverageRF
n-Butylbenzene	10	11	0.01	2.58	2.82	9	NA	± 50 %	AverageRF
1,2-Dichlorobenzene	10	10	0.400	1.44	1.48	3	NA	± 50 %	AverageRF
1,2-Dibromo-3-chloropropane	10	11	0.025	0.0764	0.0803	5	NA	± 50 %	AverageRF
1,2,4-Trichlorobenzene	10	9.9	0.200	0.929	0.920	-1	NA	± 50 %	AverageRF
Hexachlorobutadiene	10	9.3	0.01	0.461	0.428	-7	NA	± 50 %	AverageRF
Naphthalene	10	8.9	0.01	1.54	1.66	NA	-11	± 50 %	Linear(0,0)
1,2,3-Trichlorobenzene	10	10	0.01	0.829	0.825	0	NA	± 50 %	AverageRF
Dibromofluoromethane	10	11	0.01	0.224	0.257	15	NA	± 50 %	AverageRF
1,2-Dichloroethane-d4	10	11	0.01	0.254	0.274	8	NA	± 50 %	AverageRF
Toluene-d8	10	12	0.01	0.799	0.984	23	NA	± 50 %	AverageRF
4-Bromofluorobenzene	10	10	0.01	0.808	0.836	3	NA	± 50 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Date Analyzed: 04/11/2018

Continuing Calibration Verification Summary
Volatile Organic Compounds

Calibration Type: Internal Standard
Analysis Method: 8260C

Calibration Date: 01/18/2018
Calibration ID: CAL15671
Analysis Lot: KWG1801912
Units: PPB

File ID: J:\MS13\DATA\041118\0411F003.D

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF		%D		%Drift	Criteria	Curve Fit
Dichlorodifluoromethane	10	12	0.100	0.243	0.289		19		NA	± 20	AverageRF
Chloromethane	10	9.0	0.100	0.293	0.265		-10		NA	± 20	AverageRF
Vinyl Chloride	10	10	0.100	0.299	0.308		3		NA	± 20	AverageRF
Bromomethane	10	10	0.100	0.188	0.180		NA		4	± 20	Linear(0,0)
Chloroethane	10	9.6	0.100	0.177	0.170		-4		NA	± 20	AverageRF
Trichlorofluoromethane	10	9.9	0.100	0.353	0.351		-1		NA	± 20	AverageRF
1,1-Dichloroethene	10	9.9	.100	0.186	0.184		-1		NA	± 20	AverageRF
Acetone	200	170	0.01	0.0253	0.0210		-17		NA	± 20	AverageRF
Carbon Disulfide	10	7.8	0.100	0.646	0.503		-22	*	NA	± 20	AverageRF
Methylene Chloride	10	9.2	0.100	0.223	0.204		-8		NA	± 20	AverageRF
Methyl tert-Butyl Ether	20	16	0.100	0.387	0.301		-22	*	NA	± 20	AverageRF
trans-1,2-Dichloroethene	10	9.7	0.100	0.221	0.214		-3		NA	± 20	AverageRF
1,1-Dichloroethane	10	9.4	.200	0.377	0.352		-6		NA	± 20	AverageRF
2,2-Dichloropropane	10	6.9	0.01	0.269	0.185		-31	*	NA	± 20	AverageRF
cis-1,2-Dichloroethene	10	9.6	0.100	0.234	0.224		-4		NA	± 20	AverageRF
2-Butanone (MEK)	200	170	0.01	0.0105	0.00898	*	-15		NA	± 20	AverageRF
Bromochloromethane	10	9.8	0.01	0.0921	0.0902		-2		NA	± 20	AverageRF
Chloroform	10	9.8	0.200	0.349	0.342		-2		NA	± 20	AverageRF
1,1,1-Trichloroethane (TCA)	10	9.0	.100	0.305	0.275		-10		NA	± 20	AverageRF
Carbon Tetrachloride	10	9.7	0.100	0.242	0.235		-3		NA	± 20	AverageRF
1,1-Dichloropropene	10	10	0.01	0.307	0.306		0		NA	± 20	AverageRF
Benzene	10	9.6	0.500	0.945	0.902		-5		NA	± 20	AverageRF
1,2-Dichloroethane (EDC)	10	9.7	0.100	0.220	0.212		-4		NA	± 20	AverageRF
Trichloroethene (TCE)	10	9.7	0.200	0.228	0.221		-3		NA	± 20	AverageRF
1,2-Dichloropropane	10	9.2	0.100	0.212	0.195		-8		NA	± 20	AverageRF
Dibromomethane	10	9.5	0.01	0.0898	0.0849		-5		NA	± 20	AverageRF
Bromodichloromethane	10	10	0.200	0.206	0.214		4		NA	± 20	AverageRF
cis-1,3-Dichloropropene	10	9.1	0.200	0.267	0.241		-9		NA	± 20	AverageRF
4-Methyl-2-pentanone (MIBK)	200	170	0.01	0.0344	0.0297		-14		NA	± 20	AverageRF
Toluene	10	10	0.400	0.589	0.586		-1		NA	± 20	AverageRF
trans-1,3-Dichloropropene	10	8.3	0.100	0.536	0.444		-17		NA	± 20	AverageRF
1,1,2-Trichloroethane	10	9.7	.100	0.318	0.308		-3		NA	± 20	AverageRF
Tetrachloroethene (PCE)	10	9.8	0.200	0.530	0.518		-2		NA	± 20	AverageRF
2-Hexanone	200	160	0.015	0.0306	0.0249		-19		NA	± 20	AverageRF
1,3-Dichloropropane	10	9.3	0.01	0.681	0.635		-7		NA	± 20	AverageRF
Dibromochloromethane	10	8.4	0.100	0.368	0.376		NA		-16	± 20	Linear(0,0)
1,2-Dibromoethane (EDB)	10	9.3	0.100	0.332	0.309		-7		NA	± 20	AverageRF
Chlorobenzene	10	9.8	0.500	1.73	1.68		-2		NA	± 20	AverageRF
Ethylbenzene	10	9.8	0.100	0.991	0.975		-2		NA	± 20	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Date Analyzed: 04/11/2018

Continuing Calibration Verification Summary
Volatile Organic Compounds

Calibration Type: Internal Standard
Analysis Method: 8260C

Calibration Date: 01/18/2018
Calibration ID: CAL15671
Analysis Lot: KWG1801912
Units: PPB

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF		%D		%Drift		Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	10	10	.01	0.447	0.448		0		NA		± 20	AverageRF
m,p-Xylenes	20	20	0.100	1.23	1.20		-2		NA		± 20	AverageRF
o-Xylene	10	9.8	0.300	1.13	1.10		-2		NA		± 20	AverageRF
Styrene	10	9.9	0.300	0.871	0.858		-2		NA		± 20	AverageRF
Bromoform	10	10	0.100	0.165	0.168		NA		1		± 20	Quadratic(0,0)
Isopropylbenzene	10	10	0.100	2.90	2.94		1		NA		± 20	AverageRF
1,1,2,2-Tetrachloroethane	10	9.7	.300	0.425	0.414		-3		NA		± 20	AverageRF
Bromobenzene	10	9.6	0.01	0.819	0.789		-4		NA		± 20	AverageRF
n-Propylbenzene	10	10	0.01	4.20	4.32		3		NA		± 20	AverageRF
1,2,3-Trichloropropane	10	9.6	0.01	0.132	0.127		-4		NA		± 20	AverageRF
2-Chlorotoluene	10	9.8	0.01	2.51	2.47		-2		NA		± 20	AverageRF
1,3,5-Trimethylbenzene	10	10	0.01	2.86	2.91		2		NA		± 20	AverageRF
4-Chlorotoluene	10	9.9	0.01	2.90	2.87		-1		NA		± 20	AverageRF
tert-Butylbenzene	10	10	0.01	2.50	2.50		0		NA		± 20	AverageRF
1,2,4-Trimethylbenzene	10	10	0.01	2.69	2.74		2		NA		± 20	AverageRF
sec-Butylbenzene	10	10	0.01	3.43	3.50		2		NA		± 20	AverageRF
4-Isopropyltoluene	10	10	0.01	2.72	2.76		1		NA		± 20	AverageRF
1,3-Dichlorobenzene	10	9.5	0.600	1.60	1.51		-5		NA		± 20	AverageRF
1,4-Dichlorobenzene	10	9.6	0.500	1.57	1.51		-4		NA		± 20	AverageRF
n-Butylbenzene	10	11	0.01	2.02	2.13		NA		12		± 20	Quadratic(0,0)
1,2-Dichlorobenzene	10	9.5	0.400	1.34	1.27		-5		NA		± 20	AverageRF
1,2-Dibromo-3-chloropropane	10	8.5	0.025	0.0282	0.0241	*	NA		-15		± 20	Quadratic(0,0)
1,2,4-Trichlorobenzene	10	8.0	0.200	0.186	0.156	*	NA		-20		± 20	Quadratic(0,0)
Hexachlorobutadiene	10	10	0.01	0.186	0.188		1		NA		± 20	AverageRF
Naphthalene	10	6.3	0.01	0.233	0.158		NA		-37	*	± 20	Quadratic(0,0)
1,2,3-Trichlorobenzene	10	6.9	0.01	0.0757	0.0565		NA		-31	*	± 20	Quadratic(0,0)
Dibromofluoromethane	10	11	0.01	0.170	0.195		15		NA		± 20	AverageRF
1,2-Dichloroethane-d4	10	9.9	0.01	0.184	0.183		-1		NA		± 20	AverageRF
Toluene-d8	10	13	0.01	0.774	0.976		26	*	NA		± 20	AverageRF
4-Bromofluorobenzene	10	11	0.01	0.753	0.790		5		NA		± 20	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

QA/QC Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Date Analyzed: 04/11/2018

Continuing Calibration Verification Summary
Volatile Organic Compounds

Calibration Type: Internal Standard
Analysis Method: 8260C

Calibration Date: 01/18/2018
Calibration ID: CAL15671
Analysis Lot: KWG1801912
Units: PPB

File ID: J:\MS13\DATA\041118\0411F028.D

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Dichlorodifluoromethane	10	11	0.100	0.243	0.269	11	NA	± 50 %	AverageRF
Chloromethane	10	9.0	0.100	0.293	0.264	-10	NA	± 50 %	AverageRF
Vinyl Chloride	10	9.9	0.100	0.299	0.296	-1	NA	± 50 %	AverageRF
Bromomethane	10	11	0.100	0.188	0.184	NA	6	± 50 %	Linear(0,0)
Chloroethane	10	9.5	0.100	0.177	0.168	-5	NA	± 50 %	AverageRF
Trichlorofluoromethane	10	9.3	0.100	0.353	0.329	-7	NA	± 50 %	AverageRF
1,1-Dichloroethene	10	9.3	.100	0.186	0.174	-7	NA	± 50 %	AverageRF
Acetone	200	190	0.01	0.0253	0.0238	-6	NA	± 50 %	AverageRF
Carbon Disulfide	10	7.2	0.100	0.646	0.465	-28	NA	± 50 %	AverageRF
Methylene Chloride	10	9.3	0.100	0.223	0.206	-8	NA	± 50 %	AverageRF
Methyl tert-Butyl Ether	20	15	0.100	0.387	0.296	-24	NA	± 50 %	AverageRF
trans-1,2-Dichloroethene	10	9.4	0.100	0.221	0.207	-6	NA	± 50 %	AverageRF
1,1-Dichloroethane	10	9.2	.200	0.377	0.347	-8	NA	± 50 %	AverageRF
2,2-Dichloropropane	10	5.5	0.01	0.269	0.148	-45	NA	± 50 %	AverageRF
cis-1,2-Dichloroethene	10	9.5	0.100	0.234	0.221	-5	NA	± 50 %	AverageRF
2-Butanone (MEK)	200	200	0.01	0.0105	0.0103	-2	NA	± 50 %	AverageRF
Bromochloromethane	10	9.8	0.01	0.0921	0.0906	-2	NA	± 50 %	AverageRF
Chloroform	10	9.8	0.200	0.349	0.342	-2	NA	± 50 %	AverageRF
1,1,1-Trichloroethane (TCA)	10	8.4	.100	0.305	0.256	-16	NA	± 50 %	AverageRF
Carbon Tetrachloride	10	8.9	0.100	0.242	0.216	-11	NA	± 50 %	AverageRF
1,1-Dichloropropene	10	9.3	0.01	0.307	0.286	-7	NA	± 50 %	AverageRF
Benzene	10	9.3	0.500	0.945	0.882	-7	NA	± 50 %	AverageRF
1,2-Dichloroethane (EDC)	10	9.8	0.100	0.220	0.216	-2	NA	± 50 %	AverageRF
Trichloroethene (TCE)	10	9.3	0.200	0.228	0.211	-8	NA	± 50 %	AverageRF
1,2-Dichloropropane	10	9.1	0.100	0.212	0.194	-9	NA	± 50 %	AverageRF
Dibromomethane	10	9.4	0.01	0.0898	0.0840	-6	NA	± 50 %	AverageRF
Bromodichloromethane	10	10	0.200	0.206	0.207	1	NA	± 50 %	AverageRF
cis-1,3-Dichloropropene	10	8.6	0.200	0.267	0.229	-14	NA	± 50 %	AverageRF
4-Methyl-2-pentanone (MIBK)	200	190	0.01	0.0344	0.0334	-3	NA	± 50 %	AverageRF
Toluene	10	9.7	0.400	0.589	0.574	-3	NA	± 50 %	AverageRF
trans-1,3-Dichloropropene	10	7.9	0.100	0.536	0.422	-21	NA	± 50 %	AverageRF
1,1,2-Trichloroethane	10	9.9	.100	0.318	0.315	-1	NA	± 50 %	AverageRF
Tetrachloroethene (PCE)	10	9.3	0.200	0.530	0.495	-7	NA	± 50 %	AverageRF
2-Hexanone	200	190	0.015	0.0306	0.0289	-6	NA	± 50 %	AverageRF
1,3-Dichloropropane	10	9.6	0.01	0.681	0.654	-4	NA	± 50 %	AverageRF
Dibromochloromethane	10	8.5	0.100	0.368	0.381	NA	-15	± 50 %	Linear(0,0)
1,2-Dibromoethane (EDB)	10	9.5	0.100	0.332	0.316	-5	NA	± 50 %	AverageRF
Chlorobenzene	10	9.7	0.500	1.73	1.67	-3	NA	± 50 %	AverageRF
Ethylbenzene	10	9.7	0.100	0.991	0.964	-3	NA	± 50 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1802993
Date Analyzed: 04/11/2018

Continuing Calibration Verification Summary
Volatile Organic Compounds

Calibration Type: Internal Standard
Analysis Method: 8260C

Calibration Date: 01/18/2018
Calibration ID: CAL15671
Analysis Lot: KWG1801912
Units: PPB

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF		%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	10	9.8	.01	0.447	0.438		-2	NA	± 50 %	AverageRF
m,p-Xylenes	20	19	0.100	1.23	1.18		-4	NA	± 50 %	AverageRF
o-Xylene	10	9.8	0.300	1.13	1.10		-2	NA	± 50 %	AverageRF
Styrene	10	10	0.300	0.871	0.897		3	NA	± 50 %	AverageRF
Bromoform	10	10	0.100	0.165	0.168		NA	1	± 50 %	Quadratic(0,0)
Isopropylbenzene	10	9.8	0.100	2.90	2.85		-2	NA	± 50 %	AverageRF
1,1,2,2-Tetrachloroethane	10	10	.300	0.425	0.424		0	NA	± 50 %	AverageRF
Bromobenzene	10	9.6	0.01	0.819	0.790		-4	NA	± 50 %	AverageRF
n-Propylbenzene	10	9.9	0.01	4.20	4.17		-1	NA	± 50 %	AverageRF
1,2,3-Trichloropropane	10	10	0.01	0.132	0.136		3	NA	± 50 %	AverageRF
2-Chlorotoluene	10	9.7	0.01	2.51	2.44		-3	NA	± 50 %	AverageRF
1,3,5-Trimethylbenzene	10	10	0.01	2.86	2.88		1	NA	± 50 %	AverageRF
4-Chlorotoluene	10	9.9	0.01	2.90	2.86		-1	NA	± 50 %	AverageRF
tert-Butylbenzene	10	9.6	0.01	2.50	2.41		-4	NA	± 50 %	AverageRF
1,2,4-Trimethylbenzene	10	10	0.01	2.69	2.68		0	NA	± 50 %	AverageRF
sec-Butylbenzene	10	9.7	0.01	3.43	3.33		-3	NA	± 50 %	AverageRF
4-Isopropyltoluene	10	9.6	0.01	2.72	2.62		-4	NA	± 50 %	AverageRF
1,3-Dichlorobenzene	10	9.5	0.600	1.60	1.52		-5	NA	± 50 %	AverageRF
1,4-Dichlorobenzene	10	9.6	0.500	1.57	1.51		-4	NA	± 50 %	AverageRF
n-Butylbenzene	10	11	0.01	2.02	2.01		NA	6	± 50 %	Quadratic(0,0)
1,2-Dichlorobenzene	10	9.6	0.400	1.34	1.28		-4	NA	± 50 %	AverageRF
1,2-Dibromo-3-chloropropane	10	9.0	0.025	0.0282	0.0255		NA	-10	± 50 %	Quadratic(0,0)
1,2,4-Trichlorobenzene	10	8.4	0.200	0.186	0.164	*	NA	-17	± 50 %	Quadratic(0,0)
Hexachlorobutadiene	10	9.3	0.01	0.186	0.173		-7	NA	± 50 %	AverageRF
Naphthalene	10	6.6	0.01	0.233	0.167		NA	-34	± 50 %	Quadratic(0,0)
1,2,3-Trichlorobenzene	10	7.1	0.01	0.0757	0.0587		NA	-29	± 50 %	Quadratic(0,0)
Dibromofluoromethane	10	12	0.01	0.170	0.196		15	NA	± 50 %	AverageRF
1,2-Dichloroethane-d4	10	10	0.01	0.184	0.184		0	NA	± 50 %	AverageRF
Toluene-d8	10	13	0.01	0.774	0.983		27	NA	± 50 %	AverageRF
4-Bromofluorobenzene	10	10	0.01	0.753	0.789		5	NA	± 50 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305

Analysis Run Log
Volatile Organic Compounds

Analysis Method: 8260C **Analysis Lot:** KWG1801912
Instrument ID: MS13

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0411F002.D	GC/MS Tuning - Bromofluorobenzene	KWG1801912-1	4/11/2018	09:21		4/11/2018	09:37
0411F003.D	Continuing Calibration Verification	KWG1801912-2	4/11/2018	09:57		4/11/2018	10:13
0411F004.D	Lab Control Sample	KWG1801914-3	4/11/2018	10:30		4/11/2018	10:46
0411F005.D	ZZZZZZ	ZZZZZZ	4/11/2018	10:56		4/11/2018	11:12
0411F006.D	ZZZZZZ	ZZZZZZ	4/11/2018	11:21		4/11/2018	11:37
0411F009.D	Method Blank	KWG1801914-4	4/11/2018	12:39		4/11/2018	12:55
0411F010.D	ZZZZZZ	ZZZZZZ	4/11/2018	13:05		4/11/2018	13:21
0411F011.D	ZZZZZZ	ZZZZZZ	4/11/2018	13:31		4/11/2018	13:47
0411F012.D	ZZZZZZ	ZZZZZZ	4/11/2018	13:57		4/11/2018	14:13
0411F013.D	ZZZZZZ	ZZZZZZ	4/11/2018	14:23		4/11/2018	14:39
0411F014.D	ZZZZZZ	ZZZZZZ	4/11/2018	14:49		4/11/2018	15:05
0411F015.D	ZZZZZZ	ZZZZZZ	4/11/2018	15:14		4/11/2018	15:30
0411F016.D	ZZZZZZ	ZZZZZZ	4/11/2018	15:40		4/11/2018	15:56
0411F017.D	ZZZZZZ	ZZZZZZ	4/11/2018	16:06		4/11/2018	16:22
0411F018.D	ZZZZZZ	ZZZZZZ	4/11/2018	16:44		4/11/2018	17:00
0411F019.D	ZZZZZZ	ZZZZZZ	4/11/2018	17:10		4/11/2018	17:26
0411F020.D	YTC-TB-001-20180329	K1802993-016	4/11/2018	17:36		4/11/2018	17:52
0411F021.D	TVR-815-2-20180329	K1802993-010	4/11/2018	18:02		4/11/2018	18:18
0411F022.D	TVR-MTS-2-20180329	K1802993-012	4/11/2018	18:28		4/11/2018	18:44
0411F023.D	TVR-5-20180329	K1802993-013	4/11/2018	18:54		4/11/2018	19:10
0411F024.D	TVR-MMP-120180329	K1802993-014	4/11/2018	19:19		4/11/2018	19:35
0411F025.D	TVR-1-20180329	K1802993-015	4/11/2018	19:45		4/11/2018	20:01
0411F026.D	TVR-2-20180329	K1802993-011	4/11/2018	20:11		4/11/2018	20:27
0411F027.D	ZZZZZZ	ZZZZZZ	4/11/2018	20:37		4/11/2018	20:53
0411F028.D	Continuing Calibration Verification	KWG1801912-3	4/11/2018	21:03		4/11/2018	21:19

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305

Analysis Run Log
Volatile Organic Compounds

Analysis Method: 8260C **Analysis Lot:** KWG1801832
Instrument ID: MS27

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0406F003.D	GC/MS Tuning - Bromofluorobenzene	KWG1801832-1	4/6/2018	09:38		4/6/2018	09:55
0406F004.D	Continuing Calibration Verification	KWG1801832-2	4/6/2018	10:12		4/6/2018	10:29
0406F005.D	Lab Control Sample	KWG1801833-3	4/6/2018	10:44		4/6/2018	11:01
0406F006.D	TVR-6-20180329MS	KWG1801833-1	4/6/2018	11:11		4/6/2018	11:28
0406F007.D	TVR-6-20180329DMS	KWG1801833-2	4/6/2018	11:38		4/6/2018	11:55
0406F010.D	Method Blank	KWG1801833-4	4/6/2018	13:01		4/6/2018	13:18
0406F011.D	ZZZZZZ	ZZZZZZ	4/6/2018	13:28		4/6/2018	13:45
0406F012.D	TVR-6-20180329	K1802993-003	4/6/2018	13:56		4/6/2018	14:13
0406F013.D	ZZZZZZ	ZZZZZZ	4/6/2018	14:23		4/6/2018	14:40
0406F014.D	ZZZZZZ	ZZZZZZ	4/6/2018	14:51		4/6/2018	15:08
0406F015.D	ZZZZZZ	ZZZZZZ	4/6/2018	15:18		4/6/2018	15:35
0406F016.D	ZZZZZZ	ZZZZZZ	4/6/2018	15:46		4/6/2018	16:03
0406F017.D	ZZZZZZ	ZZZZZZ	4/6/2018	16:13		4/6/2018	16:30
0406F018.D	ZZZZZZ	ZZZZZZ	4/6/2018	16:41		4/6/2018	16:58
0406F019.D	ZZZZZZ	ZZZZZZ	4/6/2018	17:08		4/6/2018	17:25
0406F020.D	ZZZZZZ	ZZZZZZ	4/6/2018	17:36		4/6/2018	17:53
0406F021.D	ZZZZZZ	ZZZZZZ	4/6/2018	18:03		4/6/2018	18:20
0406F022.D	ZZZZZZ	ZZZZZZ	4/6/2018	18:31		4/6/2018	18:48
0406F023.D	ZZZZZZ	ZZZZZZ	4/6/2018	18:58		4/6/2018	19:15
0406F024.D	ZZZZZZ	ZZZZZZ	4/6/2018	19:26		4/6/2018	19:43
0406F025.D	ZZZZZZ	ZZZZZZ	4/6/2018	19:53		4/6/2018	20:10
0406F026.D	ZZZZZZ	ZZZZZZ	4/6/2018	20:21		4/6/2018	20:38
0406F027.D	ZZZZZZ	ZZZZZZ	4/6/2018	20:48		4/6/2018	21:05
0406F028.D	Continuing Calibration Verification	KWG1801832-3	4/6/2018	21:16		4/6/2018	21:33

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

QA/QC Results

Client: EA Engineering, Science, and Technology **Service Request:** K1802993
Project: JBLM/6304305

Analysis Run Log
Volatile Organic Compounds

Analysis Method: 8260C **Analysis Lot:** KWG1801866
Instrument ID: MS27

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0409F003.D	GC/MS Tuning - Bromofluorobenzene	KWG1801866-1	4/9/2018	10:33		4/9/2018	10:50
0409F004.D	Continuing Calibration Verification	KWG1801866-2	4/9/2018	11:02		4/9/2018	11:19
0409F005.D	Lab Control Sample	KWG1801867-3	4/9/2018	11:35		4/9/2018	11:52
0409F006.D	FTP-1-20180328MS	KWG1801867-1	4/9/2018	12:03		4/9/2018	12:20
0409F007.D	FTP-1-20180328DMS	KWG1801867-2	4/9/2018	12:30		4/9/2018	12:47
0409F010.D	Method Blank	KWG1801867-4	4/9/2018	13:53		4/9/2018	14:10
0409F011.D	ZZZZZZ	ZZZZZZ	4/9/2018	14:20		4/9/2018	14:37
0409F012.D	ZZZZZZ	ZZZZZZ	4/9/2018	14:47		4/9/2018	15:04
0409F013.D	ZZZZZZ	ZZZZZZ	4/9/2018	15:15		4/9/2018	15:32
0409F014.D	ZZZZZZ	ZZZZZZ	4/9/2018	15:42		4/9/2018	15:59
0409F015.D	ZZZZZZ	ZZZZZZ	4/9/2018	16:10		4/9/2018	16:27
0409F016.D	ZZZZZZ	ZZZZZZ	4/9/2018	16:37		4/9/2018	16:54
0409F017.D	ZZZZZZ	ZZZZZZ	4/9/2018	17:05		4/9/2018	17:22
0409F018.D	TVR-PAIC-20180329	K1802993-001	4/9/2018	17:32		4/9/2018	17:49
0409F019.D	TVR-POMONA-20180329	K1802993-002	4/9/2018	18:00		4/9/2018	18:17
0409F020.D	TVR-MTS-1-20180329	K1802993-004	4/9/2018	18:27		4/9/2018	18:44
0409F021.D	TVR-3A-20180329	K1802993-005	4/9/2018	18:55		4/9/2018	19:12
0409F022.D	TVR-3-20180329	K1802993-006	4/9/2018	19:22		4/9/2018	19:39
0409F023.D	TVR-MTS-4-20180329	K1802993-007	4/9/2018	19:50		4/9/2018	20:07
0409F024.D	TVR-7-20180329	K1802993-008	4/9/2018	20:17		4/9/2018	20:34
0409F025.D	FTP-1-20180328	K1802993-009	4/9/2018	20:45		4/9/2018	21:02
0409F026.D	FTP-1-20180328	K1802993-009	4/9/2018	21:12		4/9/2018	21:29
0409F027.D	Continuing Calibration Verification	KWG1801866-3	4/9/2018	21:40		4/9/2018	21:57

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

QA/QC Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Extracted: 04/06/2018

Extraction Prep Log
Volatile Organic Compounds

Extraction Method: EPA 5030B
Analysis Method: 8260C

Extraction Lot: KWG1801833
Level: Low

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Volume	% Solids	Note
TVR-6-20180329	K1802993-003	03/29/18	04/02/18	10ml	10ml	NA	
Method Blank	KWG1801833-4	NA	NA	10ml	10ml	NA	
TVR-6-20180329MS	KWG1801833-1	03/29/18	04/02/18	10ml	10ml	NA	
TVR-6-20180329DMS	KWG1801833-2	03/29/18	04/02/18	10ml	10ml	NA	
Lab Control Sample	KWG1801833-3	NA	NA	10ml	10ml	NA	

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

QA/QC Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Extracted: 04/09/2018

Extraction Prep Log
Volatile Organic Compounds

Extraction Method: EPA 5030B
Analysis Method: 8260C

Extraction Lot: KWG1801867
Level: Low

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Volume	% Solids	Note
TVR-PAIC-20180329	K1802993-001	03/29/18	04/02/18	10ml	10ml	NA	
TVR-POMONA-20180329	K1802993-002	03/29/18	04/02/18	10ml	10ml	NA	
TVR-MTS-1-20180329	K1802993-004	03/29/18	04/02/18	10ml	10ml	NA	
TVR-3A-20180329	K1802993-005	03/29/18	04/02/18	10ml	10ml	NA	
TVR-3-20180329	K1802993-006	03/29/18	04/02/18	10ml	10ml	NA	
TVR-MTS-4-20180329	K1802993-007	03/29/18	04/02/18	10ml	10ml	NA	
TVR-7-20180329	K1802993-008	03/29/18	04/02/18	10ml	10ml	NA	
FTP-1-20180328	K1802993-009	03/28/18	04/02/18	10ml	10ml	NA	
FTP-1-20180328DL	K1802993-009	03/28/18	04/02/18	10ml	10ml	NA	
Method Blank	KWG1801867-4	NA	NA	10ml	10ml	NA	
FTP-1-20180328MS	KWG1801867-1	03/28/18	04/02/18	10ml	10ml	NA	
FTP-1-20180328DMS	KWG1801867-2	03/28/18	04/02/18	10ml	10ml	NA	
Lab Control Sample	KWG1801867-3	NA	NA	10ml	10ml	NA	

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

QA/QC Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1802993
Date Extracted: 04/11/2018

Extraction Prep Log
Volatile Organic Compounds

Extraction Method: EPA 5030B
Analysis Method: 8260C

Extraction Lot: KWG1801914
Level: Low

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Volume	% Solids	Note
TVR-815-2-20180329	K1802993-010	03/29/18	04/02/18	10ml	10ml	NA	
TVR-2-20180329	K1802993-011	03/29/18	04/02/18	10ml	10ml	NA	
TVR-MTS-2-20180329	K1802993-012	03/29/18	04/02/18	10ml	10ml	NA	
TVR-5-20180329	K1802993-013	03/29/18	04/02/18	10ml	10ml	NA	
TVR-MMP-120180329	K1802993-014	03/29/18	04/02/18	10ml	10ml	NA	
TVR-1-20180329	K1802993-015	03/29/18	04/02/18	10ml	10ml	NA	
YTC-TB-001-20180329	K1802993-016	03/29/18	04/02/18	10ml	10ml	NA	
Method Blank	KWG1801914-4	NA	NA	10ml	10ml	NA	
Lab Control Sample	KWG1801914-3	NA	NA	10ml	10ml	NA	

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

Semi-Volatile Organic Compounds by GC/MS

ALS Environmental—Kelso Laboratory
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Analytical Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/28/18 16:25
Sample Matrix:	Ground Water	**Date Received:**	04/02/18 15:50
Sample Name:	FTP-1-20180328	**Units:**	ug/L
Lab Code:	K1802993-009	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3520C

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,2,4-Trichlorobenzene	ND	U	11	0.53	0.38	1	04/13/18 16:14	4/4/18	
1,2-Dichlorobenzene	**0.63**	**J**	11	0.53	0.46	1	04/13/18 16:14	4/4/18	
1,2-Diphenylhydrazine	ND	U	11	0.54	0.54	1	04/13/18 16:14	4/4/18	
1,3-Dichlorobenzene	ND	U	11	0.53	0.37	1	04/13/18 16:14	4/4/18	
1,4-Dichlorobenzene	ND	U	11	0.53	0.34	1	04/13/18 16:14	4/4/18	
2,4,5-Trichlorophenol	ND	U	11	0.53	0.40	1	04/13/18 16:14	4/4/18	
2,4,6-Trichlorophenol	ND	U	11	1.1	0.22	1	04/13/18 16:14	4/4/18	
2,4-Dichlorophenol	ND	U	11	0.53	0.32	1	04/13/18 16:14	4/4/18	
2,4-Dimethylphenol	ND	U	11	2.1	0.28	1	04/13/18 16:14	4/4/18	
2,4-Dinitrophenol	ND	U	26	26	2.4	1	04/13/18 16:14	4/4/18	
2,4-Dinitrotoluene	ND	U	11	1.1	0.29	1	04/13/18 16:14	4/4/18	
2,6-Dinitrotoluene	ND	U	11	0.53	0.37	1	04/13/18 16:14	4/4/18	
2-Chloronaphthalene	ND	U	11	0.53	0.31	1	04/13/18 16:14	4/4/18	
2-Chlorophenol	ND	U	11	0.53	0.33	1	04/13/18 16:14	4/4/18	
2-Methyl-4,6-dinitrophenol	ND	U	26	11	2.3	1	04/13/18 16:14	4/4/18	
2-Methylnaphthalene	**2.3**	**J**	11	0.53	0.26	1	04/13/18 16:14	4/4/18	
2-Methylphenol	ND	U	11	0.53	0.35	1	04/13/18 16:14	4/4/18	
2-Nitroaniline	ND	U	26	0.53	0.36	1	04/13/18 16:14	4/4/18	
2-Nitrophenol	ND	U	11	0.53	0.39	1	04/13/18 16:14	4/4/18	*
3,3'-Dichlorobenzidine	ND	U	26	2.1	0.29	1	04/13/18 16:14	4/4/18	
3-Nitroaniline	ND	U	26	3.5	3.5	1	04/13/18 16:14	4/4/18	
4-Bromophenyl Phenyl Ether	ND	U	11	0.53	0.29	1	04/13/18 16:14	4/4/18	*
4-Chloro-3-methylphenol	ND	U	11	0.53	0.52	1	04/13/18 16:14	4/4/18	
4-Chloroaniline	ND	U	11	2.1	0.40	1	04/13/18 16:14	4/4/18	
4-Chlorophenyl Phenyl Ether	ND	U	11	0.53	0.30	1	04/13/18 16:14	4/4/18	
4-Methylphenol	ND	U	11	0.53	0.51	1	04/13/18 16:14	4/4/18	*
4-Nitroaniline	ND	U	26	4.3	4.3	1	04/13/18 16:14	4/4/18	
4-Nitrophenol	ND	U	26	11	2.0	1	04/13/18 16:14	4/4/18	
Acenaphthene	**2.1**	**J**	11	0.53	0.30	1	04/13/18 16:14	4/4/18	
Acenaphthylene	**0.29**	**J**	11	0.53	0.26	1	04/13/18 16:14	4/4/18	
Anthracene	ND	U	11	0.65	0.65	1	04/13/18 16:14	4/4/18	
Benz(a)anthracene	ND	U	11	0.63	0.63	1	04/13/18 16:14	4/4/18	
Benzo(a)pyrene	ND	U	11	1.1	0.69	1	04/13/18 16:14	4/4/18	*
Benzo(b)fluoranthene	ND	U	11	0.62	0.62	1	04/13/18 16:14	4/4/18	
Benzo(g,h,i)perylene	ND	U	11	0.86	0.86	1	04/13/18 16:14	4/4/18	
Benzo(k)fluoranthene	ND	U	11	0.88	0.88	1	04/13/18 16:14	4/4/18	
Benzoic Acid	ND	U	26	26	6.2	1	04/13/18 16:14	4/4/18	
Benzyl Alcohol	ND	U	11	0.53	0.40	1	04/13/18 16:14	4/4/18	
Bis(2-chloroethoxy)methane	ND	U	11	0.53	0.30	1	04/13/18 16:14	4/4/18	
Bis(2-chloroethyl) Ether	ND	U	11	0.53	0.35	1	04/13/18 16:14	4/4/18	
Bis(2-ethylhexyl) Phthalate	ND	U	11	2.0	2.0	1	04/13/18 16:14	4/4/18	*
Butyl Benzyl Phthalate	ND	U	11	0.53	0.50	1	04/13/18 16:14	4/4/18	
Carbazole	**0.85**	**J**	11	0.53	0.38	1	04/13/18 16:14	4/4/18	

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Analytical Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/28/18 16:25
Sample Matrix:	Ground Water	**Date Received:**	04/02/18 15:50
Sample Name:	FTP-1-20180328	**Units:**	ug/L
Lab Code:	K1802993-009	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3520C

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Date Extracted	Q
Chrysene	ND	U	11	0.84	0.84	1	04/13/18 16:14	4/4/18	
Dibenz(a,h)anthracene	ND	U	11	0.79	0.79	1	04/13/18 16:14	4/4/18	
Dibenzofuran	**3.2**	**J**	11	0.53	0.35	1	04/13/18 16:14	4/4/18	
Diethyl Phthalate	**0.41**	**J**	11	0.53	0.31	1	04/13/18 16:14	4/4/18	
Dimethyl Phthalate	ND	U	11	2.1	0.27	1	04/13/18 16:14	4/4/18	
Di-n-butyl Phthalate	ND	U	11	0.69	0.69	1	04/13/18 16:14	4/4/18	
Di-n-octyl Phthalate	ND	U	11	0.67	0.67	1	04/13/18 16:14	4/4/18	*
Fluoranthene	ND	U	11	0.69	0.69	1	04/13/18 16:14	4/4/18	
Fluorene	**3.8**	**J**	11	0.53	0.34	1	04/13/18 16:14	4/4/18	
Hexachlorobenzene	ND	U	11	0.67	0.67	1	04/13/18 16:14	4/4/18	
Hexachlorobutadiene	ND	U	11	0.53	0.31	1	04/13/18 16:14	4/4/18	
Hexachloroethane	ND	U	11	2.1	0.31	1	04/13/18 16:14	4/4/18	
Indeno(1,2,3-cd)pyrene	ND	U	11	0.72	0.72	1	04/13/18 16:14	4/4/18	
Isophorone	ND	U	11	1.1	0.27	1	04/13/18 16:14	4/4/18	
Naphthalene	**14**		11	0.53	0.39	1	04/13/18 16:14	4/4/18	
Nitrobenzene	ND	U	11	0.60	0.60	1	04/13/18 16:14	4/4/18	
N-Nitrosodimethylamine	ND	U	26	5.3	0.51	1	04/13/18 16:14	4/4/18	*
N-Nitrosodi-n-propylamine	ND	U	11	2.1	0.53	1	04/13/18 16:14	4/4/18	
N-Nitrosodiphenylamine	ND	U	11	0.53	0.51	1	04/13/18 16:14	4/4/18	
Pentachlorophenol	ND	U	26	5.3	2.6	1	04/13/18 16:14	4/4/18	
Phenanthrene	ND	U	11	0.53	0.51	1	04/13/18 16:14	4/4/18	
Phenol	**0.48**	**J**	11	0.53	0.34	1	04/13/18 16:14	4/4/18	
Pyrene	ND	U	11	0.77	0.77	1	04/13/18 16:14	4/4/18	
2,2'-Oxybis(1-chloropropane)	ND	U	11	0.53	0.33	1	04/13/18 16:14	4/4/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	92	43 - 140	04/13/18 16:14	
2-Fluorobiphenyl	90	44 - 119	04/13/18 16:14	
2-Fluorophenol	84	19 - 119	04/13/18 16:14	
Nitrobenzene-d5	82	44 - 120	04/13/18 16:14	
Phenol-d6	79	38 - 107	04/13/18 16:14	
Terphenyl-d14	62	50 - 134	04/13/18 16:14	

Analytical Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ1804225-04	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3520C

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,2,4-Trichlorobenzene	ND U	10	0.50	0.36	1	04/13/18 14:50	4/4/18	
1,2-Dichlorobenzene	ND U	10	0.50	0.43	1	04/13/18 14:50	4/4/18	
1,2-Diphenylhydrazine	ND U	10	0.51	0.51	1	04/13/18 14:50	4/4/18	
1,3-Dichlorobenzene	ND U	10	0.50	0.35	1	04/13/18 14:50	4/4/18	
1,4-Dichlorobenzene	ND U	10	0.50	0.32	1	04/13/18 14:50	4/4/18	
2,4,5-Trichlorophenol	ND U	10	0.50	0.38	1	04/13/18 14:50	4/4/18	
2,4,6-Trichlorophenol	ND U	10	1.0	0.20	1	04/13/18 14:50	4/4/18	
2,4-Dichlorophenol	ND U	10	0.50	0.30	1	04/13/18 14:50	4/4/18	
2,4-Dimethylphenol	ND U	10	2.0	0.26	1	04/13/18 14:50	4/4/18	
2,4-Dinitrophenol	ND U	25	25	2.2	1	04/13/18 14:50	4/4/18	
2,4-Dinitrotoluene	ND U	10	1.0	0.27	1	04/13/18 14:50	4/4/18	
2,6-Dinitrotoluene	ND U	10	0.50	0.35	1	04/13/18 14:50	4/4/18	
2-Chloronaphthalene	ND U	10	0.50	0.29	1	04/13/18 14:50	4/4/18	
2-Chlorophenol	ND U	10	0.50	0.31	1	04/13/18 14:50	4/4/18	
2-Methyl-4,6-dinitrophenol	ND U	25	10	2.1	1	04/13/18 14:50	4/4/18	
2-Methylnaphthalene	ND U	10	0.50	0.24	1	04/13/18 14:50	4/4/18	
2-Methylphenol	ND U	10	0.50	0.33	1	04/13/18 14:50	4/4/18	
2-Nitroaniline	ND U	25	0.50	0.34	1	04/13/18 14:50	4/4/18	
2-Nitrophenol	ND U	10	0.50	0.37	1	04/13/18 14:50	4/4/18	
3,3'-Dichlorobenzidine	ND U	25	2.0	0.27	1	04/13/18 14:50	4/4/18	
3-Nitroaniline	ND U	25	3.3	3.3	1	04/13/18 14:50	4/4/18	
4-Bromophenyl Phenyl Ether	ND U	10	0.50	0.27	1	04/13/18 14:50	4/4/18	
4-Chloro-3-methylphenol	ND U	10	0.50	0.49	1	04/13/18 14:50	4/4/18	
4-Chloroaniline	ND U	10	2.0	0.38	1	04/13/18 14:50	4/4/18	
4-Chlorophenyl Phenyl Ether	ND U	10	0.50	0.28	1	04/13/18 14:50	4/4/18	
4-Methylphenol	ND U	10	0.50	0.48	1	04/13/18 14:50	4/4/18	
4-Nitroaniline	ND U	25	4.0	4.0	1	04/13/18 14:50	4/4/18	
4-Nitrophenol	ND U	25	10	1.9	1	04/13/18 14:50	4/4/18	
Acenaphthene	ND U	10	0.50	0.28	1	04/13/18 14:50	4/4/18	
Acenaphthylene	ND U	10	0.50	0.24	1	04/13/18 14:50	4/4/18	
Anthracene	ND U	10	0.61	0.61	1	04/13/18 14:50	4/4/18	
Benz(a)anthracene	ND U	10	0.59	0.59	1	04/13/18 14:50	4/4/18	
Benzo(a)pyrene	ND U	10	1.0	0.65	1	04/13/18 14:50	4/4/18	
Benzo(b)fluoranthene	ND U	10	0.58	0.58	1	04/13/18 14:50	4/4/18	
Benzo(g,h,i)perylene	ND U	10	0.81	0.81	1	04/13/18 14:50	4/4/18	
Benzo(k)fluoranthene	ND U	10	0.83	0.83	1	04/13/18 14:50	4/4/18	
Benzoic Acid	ND U	25	25	5.8	1	04/13/18 14:50	4/4/18	
Benzyl Alcohol	ND U	10	0.50	0.38	1	04/13/18 14:50	4/4/18	
Bis(2-chloroethoxy)methane	ND U	10	0.50	0.28	1	04/13/18 14:50	4/4/18	
Bis(2-chloroethyl) Ether	ND U	10	0.50	0.33	1	04/13/18 14:50	4/4/18	
Bis(2-ethylhexyl) Phthalate	ND U	10	1.9	1.9	1	04/13/18 14:50	4/4/18	
Butyl Benzyl Phthalate	ND U	10	0.50	0.47	1	04/13/18 14:50	4/4/18	
Carbazole	ND U	10	0.50	0.36	1	04/13/18 14:50	4/4/18	

Analytical Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ1804225-04	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3520C

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Date Extracted	Q
Chrysene	ND U	10	0.79	0.79	1	04/13/18 14:50	4/4/18	
Dibenz(a,h)anthracene	ND U	10	0.75	0.75	1	04/13/18 14:50	4/4/18	
Dibenzofuran	ND U	10	0.50	0.33	1	04/13/18 14:50	4/4/18	
Diethyl Phthalate	ND U	10	0.50	0.29	1	04/13/18 14:50	4/4/18	
Dimethyl Phthalate	ND U	10	2.0	0.25	1	04/13/18 14:50	4/4/18	
Di-n-butyl Phthalate	ND U	10	0.65	0.65	1	04/13/18 14:50	4/4/18	
Di-n-octyl Phthalate	ND U	10	0.63	0.63	1	04/13/18 14:50	4/4/18	
Fluoranthene	ND U	10	0.65	0.65	1	04/13/18 14:50	4/4/18	
Fluorene	ND U	10	0.50	0.32	1	04/13/18 14:50	4/4/18	
Hexachlorobenzene	ND U	10	0.63	0.63	1	04/13/18 14:50	4/4/18	
Hexachlorobutadiene	ND U	10	0.50	0.29	1	04/13/18 14:50	4/4/18	
Hexachloroethane	ND U	10	2.0	0.29	1	04/13/18 14:50	4/4/18	
Indeno(1,2,3-cd)pyrene	ND U	10	0.68	0.68	1	04/13/18 14:50	4/4/18	
Isophorone	ND U	10	1.0	0.25	1	04/13/18 14:50	4/4/18	
Naphthalene	ND U	10	0.50	0.37	1	04/13/18 14:50	4/4/18	
Nitrobenzene	ND U	10	0.57	0.57	1	04/13/18 14:50	4/4/18	
N-Nitrosodimethylamine	ND U	25	5.0	0.48	1	04/13/18 14:50	4/4/18	
N-Nitrosodi-n-propylamine	ND U	10	2.0	0.50	1	04/13/18 14:50	4/4/18	
N-Nitrosodiphenylamine	ND U	10	0.50	0.48	1	04/13/18 14:50	4/4/18	
Pentachlorophenol	ND U	25	5.0	2.4	1	04/13/18 14:50	4/4/18	
Phenanthrene	ND U	10	0.50	0.48	1	04/13/18 14:50	4/4/18	
Phenol	ND U	10	0.50	0.32	1	04/13/18 14:50	4/4/18	
Pyrene	ND U	10	0.73	0.73	1	04/13/18 14:50	4/4/18	
2,2'-Oxybis(1-chloropropane)	ND U	10	0.50	0.31	1	04/13/18 14:50	4/4/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	68	43 - 140	04/13/18 14:50	
2-Fluorobiphenyl	85	44 - 119	04/13/18 14:50	
2-Fluorophenol	85	19 - 119	04/13/18 14:50	
Nitrobenzene-d5	91	44 - 120	04/13/18 14:50	
Phenol-d6	86	38 - 107	04/13/18 14:50	
Terphenyl-d14	88	50 - 134	04/13/18 14:50	

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1802993
Project: JBLM/6304305
Sample Matrix: Ground Water

SURROGATE RECOVERY SUMMARY
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Extraction Method: EPA 3520C

Sample Name	Lab Code	2,4,6-Tribromophenol 43 - 140	2-Fluorobiphenyl 44 - 119	2-Fluorophenol 19 - 119
FTP-1-20180328	K1802993-009	92	90	84
FTP-1-20180328 MS	KQ1804225-01	96	98	86
FTP-1-20180328 DMS	KQ1804225-02	92	90	83
Lab Control Sample	KQ1804225-03	95	88	85
Method Blank	KQ1804225-04	68	85	85

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1802993
Project: JBLM/6304305
Sample Matrix: Ground Water

SURROGATE RECOVERY SUMMARY
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Extraction Method: EPA 3520C

Sample Name	Lab Code	Nitrobenzene-d5 44 - 120	Phenol-d6 38 - 107	Terphenyl-d14 50 - 134
FTP-1-20180328	K1802993-009	82	79	62
FTP-1-20180328	KQ1804225-01	83	82	75
FTP-1-20180328	KQ1804225-02	83	80	61
Lab Control Sample	KQ1804225-03	88	82	85
Method Blank	KQ1804225-04	91	86	88

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QA/QC Report

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:**K1802993
Project: JBLM/6304305 **Date Analyzed:**04/13/18 13:57

Internal Standard Area and RT SUMMARY
Semivolatile Organic Compounds by GC/MS

File ID: J:\MS07\DATA\041318\0413F002.D\ **Lab Code:**KQ1804639-02
Instrument ID: K-MS-07 **Analysis Lot:**586850
Analysis Method: 8270D **Signal ID:**

		1,4-Dichlorobenzene-d4		Acenaphthene-d10		Chrysene-d12	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Result ==>	39,888	9.31	73,809	14.28	79,873	21.12
	Upper Limit ==>	79,776	9.48	147,618	14.45	159,746	21.29
	Lower Limit ==>	19,944	9.14	36,905	14.11	39,937	20.95
Associated Analyses							
Method Blank	KQ1804225-04	56113	9.30	96863	14.27	89799	21.10
Lab Control Sample	KQ1804225-03	56805	9.31	91008	14.28	88442	21.11
FTP-1-20180328	K1802993-009	51090	9.30	73717	14.27	88660	21.11
FTP-1-20180328	KQ1804225-01	53347	9.31	69333	14.27	90706	21.12
FTP-1-20180328	KQ1804225-02	52583	9.30	74013	14.27	89824	21.12

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QA/QC Report

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:**K1802993
Project: JBLM/6304305 **Date Analyzed:**04/13/18 13:57

Internal Standard Area and RT SUMMARY
Semivolatile Organic Compounds by GC/MS

File ID: J:\MS07\DATA\041318\0413F002.D\ **Lab Code:**KQ1804639-02
Instrument ID: K-MS-07 **Analysis Lot:**586850
Analysis Method: 8270D **Signal ID:**

		Naphthalene-d8		Perylene-d12		Phenanthrene-d10	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Result ==>	152,093	11.41	90,618	24.30	111,191	16.69
	Upper Limit ==>	304,186	11.58	181,236	24.47	222,382	16.86
	Lower Limit ==>	76,047	11.24	45,309	24.13	55,596	16.52
Associated Analyses							
Method Blank	KQ1804225-04	205506	11.40	91468	24.28	152320	16.68
Lab Control Sample	KQ1804225-03	200005	11.41	97848	24.29	118080	16.68
FTP-1-20180328	K1802993-009	170258	11.40	101032	24.30	100681	16.68
FTP-1-20180328	KQ1804225-01	186552	11.41	102521	24.31	95336	16.68
FTP-1-20180328	KQ1804225-02	175223	11.41	104355	24.31	100333	16.69

ALS Group USA, Corp.
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QA/QC Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/28/18
Sample Matrix:	Ground Water	**Date Received:**	04/02/18
		Date Analyzed:	04/13/18
		Date Extracted:	04/4/18

Duplicate Matrix Spike Summary
Semivolatile Organic Compounds by GC/MS

Sample Name:	FTP-1-20180328	**Units:**	ug/L
Lab Code:	K1802993-009	**Basis:**	NA
Analysis Method:	8270D		
Prep Method:	EPA 3520C		

		Matrix Spike KQ1804225-01			Duplicate Matrix Spike KQ1804225-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,4-Trichlorobenzene	ND U	96.3	105	91	93.1	105	88	29-116	3	20
1,2-Dichlorobenzene	0.63 J	94.6	105	89	90.5	105	85	32-111	4	20
1,2-Diphenylhydrazine	ND U	80.7	105	77	76.9	105	73	49-122	5	20
1,3-Dichlorobenzene	ND U	91.6	105	87	90.0	105	85	28-110	2	20
1,4-Dichlorobenzene	ND U	96.3	105	91	89.5	105	85	29-112	7	20
2,4,5-Trichlorophenol	ND U	95.5	105	91	89.3	105	85	53-123	7	20
2,4,6-Trichlorophenol	ND U	104	105	99	96.7	105	92	50-125	8	20
2,4-Dichlorophenol	ND U	96.3	105	92	97.3	105	92	47-121	<1	20
2,4-Dimethylphenol	ND U	99.9	105	95	101	105	96	31-124	<1	20
2,4-Dinitrophenol	ND U	121	105	115	115	105	109	23-143	5	20
2,4-Dinitrotoluene	ND U	102	105	97	95.8	105	91	57-128	6	20
2,6-Dinitrotoluene	ND U	98.7	105	94	97.4	105	93	57-124	1	20
2-Chloronaphthalene	ND U	104	105	99	94.6	105	90	40-116	10	20
2-Chlorophenol	ND U	102	105	97	96.3	105	92	38-117	6	20
2-Methyl-4,6-dinitrophenol	ND U	111	105	105	101	105	96	44-137	9	20
2-Methylnaphthalene	2.3 J	91.2	105	85	91.7	105	85	40-121	<1	20
2-Methylphenol	ND U	89.0	105	85	91.1	105	87	30-117	2	20
2-Nitroaniline	ND U	95.0	105	90	89.9	105	85	55-127	6	20
2-Nitrophenol	ND U	112	105	106	106	105	101	47-123	5	20
3,3'-Dichlorobenzidine	ND U	ND U	105	0 *	ND U	105	0 *	27-129	NC	20
3-Nitroaniline	ND U	41.6	105	40 *	40.9	105	39 *	41-128	2	20
4-Bromophenyl Phenyl Ether	ND U	103	105	98	94.0	105	89	55-124	9	20
4-Chloro-3-methylphenol	ND U	75.0	105	71	81.9	105	78	52-119	9	20
4-Chloroaniline	ND U	38.2	105	36	42.9	105	41	33-117	12	20
4-Chlorophenyl Phenyl Ether	ND U	87.3	105	83	82.4	105	78	53-121	6	20
4-Methylphenol	ND U	90.3	105	86	89.6	105	85	25-120	<1	20
4-Nitroaniline	ND U	50.5	105	48	48.5	105	46 *	48-133	4	20
4-Nitrophenol	ND U	115	105	109	101	105	96	52-132	13	20
Acenaphthene	2.1 J	102	105	95	94.0	105	87	47-122	8	20
Acenaphthylene	0.29 J	96.9	105	92	88.4	105	84	41-130	9	20
Anthracene	ND U	98.2	105	93	91.4	105	87	57-123	7	20
Benz(a)anthracene	ND U	98.4	105	93	87.0	105	83	58-125	12	20
Benzo(a)pyrene	ND U	101	105	96	86.5	105	82	54-128	15	20
Benzo(b)fluoranthene	ND U	113	105	108	95.3	105	91	53-131	17	20
Benzo(g,h,i)perylene	ND U	91.8	105	87	81.5	105	77	50-134	12	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Collected:**	03/28/18
Sample Matrix:	Ground Water	**Date Received:**	04/02/18
		Date Analyzed:	04/13/18
		Date Extracted:	04/4/18

Duplicate Matrix Spike Summary
Semivolatile Organic Compounds by GC/MS

Sample Name:	FTP-1-20180328	**Units:**	ug/L
Lab Code:	K1802993-009	**Basis:**	NA
Analysis Method:	8270D		
Prep Method:	EPA 3520C		

		Matrix Spike			Duplicate Matrix Spike					
		KQ1804225-01			KQ1804225-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Benzo(k)fluoranthene	ND U	107	105	102	90.9	105	86	57-129	17	20
Benzoic Acid	ND U	102	105	97	107	105	101	28-128	4	20
Benzyl Alcohol	ND U	97.5	105	93	95.6	105	91	31-112	2	20
Bis(2-chloroethoxy)methane	ND U	104	105	99	101	105	96	48-120	3	20
Bis(2-chloroethyl) Ether	ND U	105	105	99	98.9	105	94	43-118	6	20
Bis(2-ethylhexyl) Phthalate	ND U	98.6	105	94	86.4	105	82	55-135	13	20
Butyl Benzyl Phthalate	ND U	91.1	105	87	85.9	105	82	53-134	6	20
Carbazole	0.85 J	120	105	113	111	105	104	60-122	8	20
Chrysene	ND U	100	105	95	87.5	105	83	59-123	14	20
Dibenz(a,h)anthracene	ND U	93.3	105	89	82.0	105	78	51-134	13	20
Dibenzofuran	3.2 J	98.8	105	91	90.5	105	83	53-118	9	20
Diethyl Phthalate	0.41 J	88.7	105	84	83.1	105	79	56-125	6	20
Dimethyl Phthalate	ND U	91.4	105	87	88.9	105	84	45-127	3	20
Di-n-butyl Phthalate	ND U	126	105	120	109	105	103	59-127	15	20
Di-n-octyl Phthalate	ND U	113	105	107	95.6	105	91	51-140	17	20
Fluoranthene	ND U	119	105	113	108	105	103	57-128	9	20
Fluorene	3.8 J	91.2	105	83	87.3	105	79	52-124	4	20
Hexachlorobenzene	ND U	102	105	97	92.3	105	88	53-125	10	20
Hexachlorobutadiene	ND U	95.9	105	91	89.3	105	85	22-124	7	20
Hexachloroethane	ND U	97.3	105	92	94.1	105	89	21-115	3	20
Indeno(1,2,3-cd)pyrene	ND U	93.0	105	88	82.4	105	78	52-134	12	20
Isophorone	ND U	90.8	105	86	94.7	105	90	42-124	4	20
Naphthalene	14	106	105	87	110	105	91	40-121	4	20
Nitrobenzene	ND U	98.9	105	94	94.8	105	90	45-121	4	20
N-Nitrosodimethylamine	ND U	105	105	100	91.3	105	87	59-110	14	20
N-Nitrosodi-n-propylamine	ND U	98.8	105	94	92.5	105	88	49-119	6	20
N-Nitrosodiphenylamine	ND U	70.4	105	67	65.3	105	62	51-123	8	20
Pentachlorophenol	ND U	125	105	118	113	105	107	35-138	10	20
Phenanthrene	ND U	99.7	105	95	96.6	105	92	59-120	3	20
Phenol	0.48 J	100	105	95	97.5	105	92	54-105	3	20
Pyrene	ND U	87.3	105	83	83.0	105	79	57-126	5	20
2,2'-Oxybis(1-chloropropane)	ND U	102	105	97	95.9	105	91	37-130	6	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Analyzed:**	04/13/18
Sample Matrix:	Ground Water	**Date Extracted:**	04/04/18

Lab Control Sample Summary
Semivolatile Organic Compounds by GC/MS

Analysis Method:	8270D	**Units:**	ug/L
Prep Method:	EPA 3520C	**Basis:**	NA
		Analysis Lot:	586850

Lab Control Sample
KQ1804225-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,2,4-Trichlorobenzene	84.0	100	84	29-116
1,2-Dichlorobenzene	84.5	100	85	32-111
1,2-Diphenylhydrazine	83.5	100	84	49-122
1,3-Dichlorobenzene	81.2	100	81	28-110
1,4-Dichlorobenzene	80.3	100	80	29-112
2,2'-Oxybis(1-chloropropane)	93.4	100	93	37-130
2,4,5-Trichlorophenol	95.5	100	95	53-123
2,4,6-Trichlorophenol	95.6	100	96	50-125
2,4-Dichlorophenol	96.6	100	97	47-121
2,4-Dimethylphenol	68.3	100	68	31-124
2,4-Dinitrophenol	79.2	100	79	23-143
2,4-Dinitrotoluene	89.4	100	89	57-128
2,6-Dinitrotoluene	98.1	100	98	57-124
2-Chloronaphthalene	86.9	100	87	40-116
2-Chlorophenol	96.8	100	97	38-117
2-Methyl-4,6-dinitrophenol	83.4	100	83	44-137
2-Methylnaphthalene	86.6	100	87	40-121
2-Methylphenol	90.7	100	91	30-117
2-Nitroaniline	102	100	102	55-127
2-Nitrophenol	106	100	106	47-123
3,3'-Dichlorobenzidine	84.0	100	84	27-129
3-Nitroaniline	90.8	100	91	41-128
4-Bromophenyl Phenyl Ether	104	100	104	55-124
4-Chloro-3-methylphenol	93.6	100	94	52-119
4-Chloroaniline	97.7	100	98	33-117
4-Chlorophenyl Phenyl Ether	82.4	100	82	53-121
4-Methylphenol	89.6	100	90	25-120
4-Nitroaniline	85.8	100	86	48-133
4-Nitrophenol	84.9	100	85	52-132
Acenaphthene	88.5	100	89	47-122
Acenaphthylene	91.2	100	91	41-130
Anthracene	94.9	100	95	57-123
Benz(a)anthracene	95.5	100	95	58-125
Benzo(a)pyrene	98.8	100	99	54-128
Benzo(b)fluoranthene	100	100	100	53-131
Benzo(g,h,i)perylene	101	100	101	50-134
Benzo(k)fluoranthene	101	100	101	57-129
Benzoic Acid	81.1	100	81	28-128
Benzyl Alcohol	100	100	100	31-112
Bis(2-chloroethoxy)methane	99.0	100	99	48-120
Bis(2-chloroethyl) Ether	95.4	100	95	43-118

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Analyzed:**	04/13/18
Sample Matrix:	Ground Water	**Date Extracted:**	04/04/18

Lab Control Sample Summary
Semivolatile Organic Compounds by GC/MS

Analysis Method:	8270D	**Units:**	ug/L
Prep Method:	EPA 3520C	**Basis:**	NA
		Analysis Lot:	586850

Lab Control Sample
KQ1804225-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Bis(2-ethylhexyl) Phthalate	108	100	108	55-135
Butyl Benzyl Phthalate	107	100	107	53-134
Carbazole	97.6	100	98	60-122
Chrysene	96.2	100	96	59-123
Dibenz(a,h)anthracene	99.6	100	100	51-134
Dibenzofuran	91.0	100	91	53-118
Diethyl Phthalate	82.5	100	83	56-125
Dimethyl Phthalate	92.8	100	93	45-127
Di-n-butyl Phthalate	104	100	104	59-127
Di-n-octyl Phthalate	112	100	112	51-140
Fluoranthene	96.9	100	97	57-128
Fluorene	83.7	100	84	52-124
Hexachlorobenzene	95.2	100	95	53-125
Hexachlorobutadiene	79.8	100	80	22-124
Hexachloroethane	78.6	100	79	21-115
Indeno(1,2,3-cd)pyrene	100	100	100	52-134
Isophorone	96.0	100	96	42-124
Naphthalene	90.0	100	90	40-121
Nitrobenzene	96.0	100	96	45-121
N-Nitrosodimethylamine	94.8	100	95	59-110
N-Nitrosodi-n-propylamine	95.3	100	95	49-119
N-Nitrosodiphenylamine	75.6	100	76	51-123
Pentachlorophenol	86.0	100	86	35-138
Phenanthrene	91.8	100	92	59-120
Phenol	93.0	100	93	54-105
Pyrene	89.2	100	89	57-126

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Analyzed:**	04/13/18 14:50
Sample Matrix:	Ground Water	**Date Extracted:**	04/04/18

Method Blank Summary
Semivolatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	K-MS-07
Lab Code:	KQ1804225-04	**File ID:**	J:\MS07\DATA\041318\0413F003.D\
Analysis Method:	8270D	**Analysis Lot:**	586850
Prep Method:	EPA 3520C	**Extraction Lot:**	311203

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1804225-03	J:\MS07\DATA\041318\0413F004.D\	04/13/18 15:32
FTP-1-20180328	K1802993-009	J:\MS07\DATA\041318\0413F005.D\	04/13/18 16:14
FTP-1-20180328MS	KQ1804225-01	J:\MS07\DATA\041318\0413F006.D\	04/13/18 16:55
FTP-1-20180328DMS	KQ1804225-02	J:\MS07\DATA\041318\0413F007.D\	04/13/18 17:37

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Analyzed:**	04/13/18 15:32
Sample Matrix:	Ground Water	**Date Extracted:**	04/04/18

Lab Control Sample Summary
Semivolatile Organic Compounds by GC/MS

Sample Name:	Lab Control Sample	**Instrument ID:**	K-MS-07
Lab Code:	KQ1804225-03	**File ID:**	J:\MS07\DATA\041318\0413F004.D\
Analysis Method:	8270D	**Analysis Lot:**	586850
Prep Method:	EPA 3520C	**Extraction Lot:**	311203

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1804225-04	J:\MS07\DATA\041318\0413F003.D\	04/13/18 14:50
FTP-1-20180328	K1802993-009	J:\MS07\DATA\041318\0413F005.D\	04/13/18 16:14
FTP-1-20180328MS	KQ1804225-01	J:\MS07\DATA\041318\0413F006.D\	04/13/18 16:55
FTP-1-20180328DMS	KQ1804225-02	J:\MS07\DATA\041318\0413F007.D\	04/13/18 17:37

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:**K1802993
Project: JBLM/6304305 **Date Analyzed:**04/13/18 13:15

Tune Summary
Semivolatile Organic Compounds by GC/MS

File ID: J:\MS07\DATA\041318\0413F001.D\ **Analytical Method:** 8270D
Instrument ID: K-MS-07 **Analysis Lot:** 586850

Target Mass	Relative to Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	30	80	54.91	7894	Pass
68	69	0	2	0.00	0	Pass
69	198	0	100	67.71	9734	Pass
70	69	0	2	0.00	0	Pass
127	198	25	75	52.28	7515	Pass
197	198	0	1	0.00	0	Pass
198	198	100	100	100.00	14375	Pass
199	198	5	9	6.98	1003	Pass
275	198	10	30	20.47	2942	Pass
365	198	0.75	100	2.39	343	Pass
441	443	0.01	100	76.32	1289	Pass
442	198	40	110	62.06	8921	Pass
443	442	15	24	18.93	1689	Pass

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1804639-02	J:\MS07\DATA\041318\0413F002.D\	04/13/18 13:57	
Method Blank	KQ1804225-04	J:\MS07\DATA\041318\0413F003.D\	04/13/18 14:50	
Lab Control Sample	KQ1804225-03	J:\MS07\DATA\041318\0413F004.D\	04/13/18 15:32	
FTP-1-20180328	K1802993-009	J:\MS07\DATA\041318\0413F005.D\	04/13/18 16:14	
FTP-1-20180328	KQ1804225-01	J:\MS07\DATA\041318\0413F006.D\	04/13/18 16:55	
FTP-1-20180328	KQ1804225-02	J:\MS07\DATA\041318\0413F007.D\	04/13/18 17:37	
Continuing Cal. Verification	KQ1804639-03	J:\MS07\DATA\041318\0413F008.D\	04/13/18 18:18	

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1802993
Project: JBLM **Calibration Date:** 3/19/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800115 **Signal ID:** 1
Instrument ID: K-MS-07

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800115-01	8270 ICAL @ 1ppm | SVM57-75A	J:\MS07\DATA\031918\0319F003.D	03/19/2018 11:39
02	KC1800115-02	8270 ICAL @ 5ppm | SVM58-33C	J:\MS07\DATA\031918\0319F004.D	03/19/2018 12:21
03	KC1800115-03	8270 ICAL @ 10ppm | SVM58-33D	J:\MS07\DATA\031918\0319F005.D	03/19/2018 13:02
04	KC1800115-04	8270 ICAL @ 20ppm | SVM58-33E	J:\MS07\DATA\031918\0319F006.D	03/19/2018 13:43
05	KC1800115-05	8270 ICAL @ 50ppm | SVM58-33F	J:\MS07\DATA\031918\0319F007.D	03/19/2018 14:24
06	KC1800115-06	8270 ICAL @ 80ppm | SVM58-33G	J:\MS07\DATA\031918\0319F008.D	03/19/2018 15:05
07	KC1800115-07	8270 ICAL @ 100ppm | SVM58-33H	J:\MS07\DATA\031918\0319F009.D	03/19/2018 15:46
08	KC1800115-08	8270 ICAL @ 120ppm | SVM58-33I	J:\MS07\DATA\031918\0319F010.D	03/19/2018 16:28
09	KC1800115-09	8270 ICAL @ 160ppm | SVM58-33J	J:\MS07\DATA\031918\0319F011.D	03/19/2018 17:09
10	KC1800115-10	8270 ICAL @ 200ppm | SVM58-33K	J:\MS07\DATA\031918\0319F012.D	03/19/2018 17:50
12	KC1800115-12	8270/P ICV @ 80ug/mL | SVM58-36C	J:\MS07\DATA\031918\0319F014.D	03/19/2018 19:12

Analyte

1,2,4-Trichlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.3293	02	5.000	0.3117	03	10.000	0.3189
04	20.000	0.3124	05	50.000	0.3128	06	80.000	0.3071	07	100.000	0.3053
08	120.000	0.3036	09	160.000	0.2963	10	200.000	0.3005			

1,2-Dichlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.374	02	5.000	1.253	03	10.000	1.372
04	20.000	1.431	05	50.000	1.322	06	80.000	1.327	07	100.000	1.311
08	120.000	1.319	09	160.000	1.293	10	200.000	1.237			

1,2-Diphenylhydrazine

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		02	5.000	1.46	03	10.000	1.516	04	20.000	1.583
05	50.000	1.458	06	80.000	1.532	07	100.000	1.34	08	120.000	1.382
09	160.000	1.201	10	200.000	1.296						

1,3-Dichlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.469	02	5.000	1.317	03	10.000	1.433
04	20.000	1.421	05	50.000	1.374	06	80.000	1.432	07	100.000	1.35
08	120.000	1.325	09	160.000	1.321	10	200.000	1.278			

1,4-Dichlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.565	02	5.000	1.371	03	10.000	1.443
04	20.000	1.474	05	50.000	1.386	06	80.000	1.434	07	100.000	1.334
08	120.000	1.386	09	160.000	1.343	10	200.000	1.319			

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1802993
Project: JBLM **Calibration Date:** 3/19/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800115 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

2,2'-Oxybis(1-chloropropane)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	2.079	02	5.000	1.942	03	10.000	2.069
04	20.000	1.952	05	50.000	2.01	06	80.000	1.983	07	100.000	1.846
08	120.000	1.939	09	160.000	1.865	10	200.000	1.844			

2,4,5-Trichlorophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		03	10.000	0.379	04	20.000	0.4139	05	50.000	0.4581
06	80.000	0.4708	07	100.000	0.4775	08	120.000	0.469	09	160.000	0.459
10	200.000	0.4744									

2,4,6-Tribromophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		03	10.000	0.1121	04	20.000	0.1307	05	50.000	0.1491
06	80.000	0.1579	07	100.000	0.1469	08	120.000	0.1578	09	160.000	0.164
10	200.000	0.1493									

2,4,6-Trichlorophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		03	10.000	0.3493	04	20.000	0.3717	05	50.000	0.4173
06	80.000	0.4194	07	100.000	0.4277	08	120.000	0.4289	09	160.000	0.4193
10	200.000	0.4379									

2,4-Dichlorophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		02	5.000	0.253	03	10.000	0.2844	04	20.000	0.2814
05	50.000	0.2853	06	80.000	0.2898	07	100.000	0.2756	08	120.000	0.2787
09	160.000	0.2848	10	200.000	0.2884						

2,4-Dimethylphenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.2142	02	5.000	0.2523	03	10.000	0.2744
04	20.000	0.2672	05	50.000	0.2652	06	80.000	0.2624	07	100.000	0.2514
08	120.000	0.2563	09	160.000	0.2499	10	200.000	0.2608			

2,4-Dinitrophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		04	20.000	0.04289	05	50.000	0.09556	06	80.000	0.1335
07	100.000	0.1556	08	120.000	0.162	09	160.000	0.1823	10	200.000	0.2024

2,4-Dinitrotoluene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		02	5.000	0.3303	03	10.000	0.3826	04	20.000	0.3916
05	50.000	0.404	06	80.000	0.3791	07	100.000	0.406	08	120.000	0.3558
09	160.000	0.3572	10	200.000	0.3725						

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1802993
Project: JBLM **Calibration Date:** 3/19/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800115 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

2,6-Dinitrotoluene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.2412	02	5.000	0.2581	03	10.000	0.3265
04	20.000	0.325	05	50.000	0.3403	06	80.000	0.3363	07	100.000	0.3357
08	120.000	0.3215	09	160.000	0.3125	10	200.000	0.3174			

2-Chloronaphthalene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.207	02	5.000	1.087	03	10.000	1.183
04	20.000	1.21	05	50.000	1.179	06	80.000	1.249	07	100.000	1.203
08	120.000	1.215	09	160.000	1.189	10	200.000	1.179			

2-Chlorophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.097	02	5.000	1.142	03	10.000	1.255
04	20.000	1.307	05	50.000	1.259	06	80.000	1.305	07	100.000	1.206
08	120.000	1.234	09	160.000	1.229	10	200.000	1.259			

2-Fluorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		02	5.000	1.282	03	10.000	1.359	04	20.000	1.306
05	50.000	1.379	06	80.000	1.356	07	100.000	1.377	08	120.000	1.422
09	160.000	1.359	10	200.000	1.288						

2-Fluorophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.138	02	5.000	0.9686	03	10.000	1.056
04	20.000	1.067	05	50.000	1.098	06	80.000	1.097	07	100.000	1.081
08	120.000	1.149	09	160.000	1.101	10	200.000	1.066			

2-Methyl-4,6-dinitrophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		03	10.000	0.06514	04	20.000	0.1205	05	50.000	0.1917
06	80.000	0.208	07	100.000	0.2357	08	120.000	0.225	09	160.000	0.2292
10	200.000	0.2561									

2-Methylnaphthalene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.5283	02	5.000	0.6123	03	10.000	0.6704
04	20.000	0.6177	05	50.000	0.5904	06	80.000	0.5775	07	100.000	0.5369
08	120.000	0.5309	09	160.000	0.5234	10	200.000	0.5108			

2-Methylphenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.7838	02	5.000	0.8295	03	10.000	0.8966
04	20.000	0.9236	05	50.000	0.8978	06	80.000	0.9418	07	100.000	0.8802
08	120.000	0.9356	09	160.000	0.9098	10	200.000	0.9535			

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1802993
Project: JBLM **Calibration Date:** 3/19/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800115 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

2-Nitroaniline

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		02	5.000	0.3051	03	10.000	0.3806	04	20.000	0.3716
05	50.000	0.4007	06	80.000	0.3926	07	100.000	0.4105	08	120.000	0.375
09	160.000	0.37	10	200.000	0.3975						

2-Nitrophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		02	5.000	0.1313	03	10.000	0.1679	04	20.000	0.1715
05	50.000	0.1917	06	80.000	0.1907	07	100.000	0.1919	08	120.000	0.1942
09	160.000	0.1902	10	200.000	0.2011						

3,3'-Dichlorobenzidine

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		02	5.000	0.3487	03	10.000	0.3863	04	20.000	0.4333
05	50.000	0.4315	06	80.000	0.4531	07	100.000	0.4656	08	120.000	0.5049
09	160.000	0.5143	10	200.000	0.556						

3-Nitroaniline

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		02	5.000	0.3169	03	10.000	0.3526	04	20.000	0.3603
05	50.000	0.352	06	80.000	0.3349	07	100.000	0.3522	08	120.000	0.3176
09	160.000	0.3229	10	200.000	0.3348						

4-Bromophenyl Phenyl Ether

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.1771	02	5.000	0.1928	03	10.000	0.2055
04	20.000	0.2168	05	50.000	0.216	06	80.000	0.2298	07	100.000	0.2098
08	120.000	0.2167	09	160.000	0.2214	10	200.000	0.2298			

4-Chloro-3-methylphenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		02	5.000	0.2242	03	10.000	0.2852	04	20.000	0.2735
05	50.000	0.2908	06	80.000	0.2796	07	100.000	0.2518	08	120.000	0.2479
09	160.000	0.254	10	200.000	0.2502						

4-Chloroaniline

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.3405	02	5.000	0.3708	03	10.000	0.3988
04	20.000	0.3963	05	50.000	0.4002	06	80.000	0.3702	07	100.000	0.3539
08	120.000	0.3543	09	160.000	0.3428	10	200.000	0.3398			

4-Chlorophenyl Phenyl Ether

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.6747	02	5.000	0.6315	03	10.000	0.6873
04	20.000	0.6571	05	50.000	0.6474	06	80.000	0.6185	07	100.000	0.6222
08	120.000	0.5922	09	160.000	0.5882	10	200.000	0.5988			

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1802993
Project: JBLM **Calibration Date:** 3/19/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800115 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

4-Methylphenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.025	02	5.000	1.18	03	10.000	1.338
04	20.000	1.379	05	50.000	1.326	06	80.000	1.246	07	100.000	1.185
08	120.000	1.292	09	160.000	1.227	10	200.000	1.303			

4-Nitroaniline

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		02	5.000	0.2906	03	10.000	0.3138	04	20.000	0.3096
05	50.000	0.3143	06	80.000	0.3156	07	100.000	0.3415	08	120.000	0.2995
09	160.000	0.3073	10	200.000	0.336						

4-Nitrophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		03	10.000	0.1154	04	20.000	0.1381	05	50.000	0.1652
06	80.000	0.1684	07	100.000	0.1813	08	120.000	0.167	09	160.000	0.173
10	200.000	0.1854									

Acenaphthene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.13	02	5.000	1.05	03	10.000	1.117
04	20.000	1.114	05	50.000	1.048	06	80.000	1.015	07	100.000	1.04
08	120.000	0.9944	09	160.000	0.9985	10	200.000	0.9994			

Acenaphthylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.696	02	5.000	1.659	03	10.000	1.856
04	20.000	1.842	05	50.000	1.903	06	80.000	1.815	07	100.000	1.796
08	120.000	1.777	09	160.000	1.67	10	200.000	1.721			

Anthracene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.9537	02	5.000	0.931	03	10.000	0.9754
04	20.000	1.025	05	50.000	0.9779	06	80.000	0.9567	07	100.000	0.9343
08	120.000	0.9128	09	160.000	0.9275	10	200.000	0.9326			

Benz(a)anthracene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.159	02	5.000	1.04	03	10.000	1.073
04	20.000	1.138	05	50.000	1.114	06	80.000	1.133	07	100.000	1.155
08	120.000	1.149	09	160.000	1.139	10	200.000	1.192			

Benzo(a)pyrene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		02	5.000	0.6986	03	10.000	0.767	04	20.000	0.8713
05	50.000	0.9241	06	80.000	0.9311	07	100.000	0.9239	08	120.000	0.9432
09	160.000	0.9544	10	200.000	0.9679						

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1802993
Project: JBLM **Calibration Date:** 3/19/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800115 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

Benzo(b)fluoranthene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.7479	02	5.000	0.7621	03	10.000	0.8527
04	20.000	0.9727	05	50.000	0.9354	06	80.000	0.9823	07	100.000	1.019
08	120.000	1.042	09	160.000	1.021	10	200.000	1.112			

Benzo(g,h,i)perylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.8023	02	5.000	0.8735	03	10.000	0.9556
04	20.000	1.097	05	50.000	1.128	06	80.000	1.058	07	100.000	1.078
08	120.000	1.025	09	160.000	1.025	10	200.000	0.9914			

Benzo(k)fluoranthene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.8039	02	5.000	0.8073	03	10.000	0.914
04	20.000	0.959	05	50.000	0.9782	06	80.000	0.9941	07	100.000	0.9963
08	120.000	0.9971	09	160.000	1.002	10	200.000	0.9832			

Benzoic Acid

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		03	10.000	0.05443	04	20.000	0.09239	05	50.000	0.1404
06	80.000	0.1633	07	100.000	0.1468	08	120.000	0.1734	09	160.000	0.1848
10	200.000	0.1909									

Benzyl Alcohol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.6687	02	5.000	0.6561	03	10.000	0.7842
04	20.000	0.7533	05	50.000	0.7701	06	80.000	0.7961	07	100.000	0.7458
08	120.000	0.7804	09	160.000	0.7732	10	200.000	0.8261			

Bis(2-chloroethoxy)methane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.3085	02	5.000	0.3731	03	10.000	0.3862
04	20.000	0.3757	05	50.000	0.3862	06	80.000	0.3597	07	100.000	0.3427
08	120.000	0.3627	09	160.000	0.3501	10	200.000	0.3521			

Bis(2-chloroethyl) Ether

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.054	02	5.000	1.149	03	10.000	1.179
04	20.000	1.209	05	50.000	1.179	06	80.000	1.175	07	100.000	1.139
08	120.000	1.145	09	160.000	1.149	10	200.000	1.143			

Bis(2-ethylhexyl) Phthalate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		02	5.000	0.656	03	10.000	0.802	04	20.000	0.882
05	50.000	0.9419	06	80.000	0.9866	07	100.000	1.005	08	120.000	0.948
09	160.000	0.9361	10	200.000	0.9492						

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1802993
Project: JBLM **Calibration Date:** 3/19/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800115 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

Butyl Benzyl Phthalate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		02	5.000	0.5403	03	10.000	0.6273	04	20.000	0.673
05	50.000	0.7057	06	80.000	0.7616	07	100.000	0.7608	08	120.000	0.7207
09	160.000	0.7253	10	200.000	0.7382						

Carbazole

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.8275	02	5.000	0.8142	03	10.000	0.837
04	20.000	0.8686	05	50.000	0.8483	06	80.000	0.8797	07	100.000	0.8459
08	120.000	0.8726	09	160.000	0.9115	10	200.000	0.9392			

Chrysene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.07	02	5.000	1.027	03	10.000	1.06
04	20.000	1.102	05	50.000	1.074	06	80.000	1.111	07	100.000	1.098
08	120.000	1.124	09	160.000	1.082	10	200.000	1.173			

Di-n-butyl Phthalate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.8219	02	5.000	0.8755	03	10.000	0.937
04	20.000	1.006	05	50.000	1.039	06	80.000	1.069	07	100.000	1.02
08	120.000	1.182	09	160.000	1.148	10	200.000	1.244			

Di-n-octyl Phthalate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		02	5.000	0.9569	03	10.000	1.121	04	20.000	1.361
05	50.000	1.341	06	80.000	1.281	07	100.000	1.309	08	120.000	1.242
09	160.000	1.29	10	200.000	1.292						

Dibenz(a,h)anthracene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		02	5.000	0.7811	03	10.000	0.8939	04	20.000	1.013
05	50.000	1.018	06	80.000	0.9882	07	100.000	0.9878	08	120.000	0.971
09	160.000	1.001	10	200.000	0.9663						

Dibenzofuran

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.678	02	5.000	1.572	03	10.000	1.704
04	20.000	1.662	05	50.000	1.689	06	80.000	1.639	07	100.000	1.567
08	120.000	1.503	09	160.000	1.489	10	200.000	1.527			

Diethyl Phthalate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.614	02	5.000	1.387	03	10.000	1.454
04	20.000	1.437	05	50.000	1.389	06	80.000	1.247	07	100.000	1.295
08	120.000	1.13	09	160.000	1.113	10	200.000	1.139			

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1802993
Project: JBLM **Calibration Date:** 3/19/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800115 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

Dimethyl Phthalate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.362	02	5.000	1.332	03	10.000	1.475
04	20.000	1.422	05	50.000	1.394	06	80.000	1.302	07	100.000	1.287
08	120.000	1.25	09	160.000	1.278	10	200.000	1.267			

Fluoranthene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.7246	02	5.000	0.772	03	10.000	0.7602
04	20.000	0.8137	05	50.000	0.8124	06	80.000	0.8554	07	100.000	0.8764
08	120.000	0.9873	09	160.000	1.021	10	200.000	1.063			

Fluorene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.35	02	5.000	1.249	03	10.000	1.356
04	20.000	1.313	05	50.000	1.31	06	80.000	1.19	07	100.000	1.213
08	120.000	1.136	09	160.000	1.07	10	200.000	1.101			

Hexachlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.2393	02	5.000	0.2336	03	10.000	0.2417
04	20.000	0.2536	05	50.000	0.2553	06	80.000	0.2645	07	100.000	0.2484
08	120.000	0.2571	09	160.000	0.2651	10	200.000	0.26			

Hexachlorobutadiene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.1808	02	5.000	0.1657	03	10.000	0.1717
04	20.000	0.1732	05	50.000	0.1716	06	80.000	0.1772	07	100.000	0.1742
08	120.000	0.1748	09	160.000	0.1763	10	200.000	0.1784			

Hexachloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		02	5.000	0.5851	03	10.000	0.5771	04	20.000	0.5968
05	50.000	0.562	06	80.000	0.5469	07	100.000	0.5362	08	120.000	0.545
09	160.000	0.5181	10	200.000	0.5358						

Indeno(1,2,3-cd)pyrene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		02	5.000	0.7682	03	10.000	0.8866	04	20.000	1.013
05	50.000	1.053	06	80.000	1.046	07	100.000	1.035	08	120.000	1.013
09	160.000	1.047	10	200.000	1.039						

Isophorone

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.5701	02	5.000	0.6047	03	10.000	0.6511
04	20.000	0.636	05	50.000	0.6406	06	80.000	0.598	07	100.000	0.5863
08	120.000	0.5962	09	160.000	0.5917	10	200.000	0.6084			

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1802993
Project: JBLM **Calibration Date:** 3/19/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800115 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

N-Nitrosodi-n-propylamine

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.7323	02	5.000	0.8308	03	10.000	0.8853
04	20.000	0.8802	05	50.000	0.8855	06	80.000	0.8696	07	100.000	0.8178
08	120.000	0.8685	09	160.000	0.8463	10	200.000	0.9169			

N-Nitrosodimethylamine

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		03	10.000	0.7989	04	20.000	0.8248	05	50.000	0.818
06	80.000	0.8542	07	100.000	0.8619	08	120.000	0.8386	09	160.000	0.8573
10	200.000	0.8648									

N-Nitrosodiphenylamine

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.9845	02	5.000	0.922	03	10.000	0.9836
04	20.000	0.9112	05	50.000	0.9172	06	80.000	0.8209	07	100.000	0.8829
08	120.000	0.804	09	160.000	0.7822	10	200.000	0.7495			

Naphthalene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	0.9188	02	5.000	0.8952	03	10.000	0.9363
04	20.000	0.9169	05	50.000	0.9012	06	80.000	0.8429	07	100.000	0.8389
08	120.000	0.8043	09	160.000	0.7876	10	200.000	0.7704			

Nitrobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.101	02	5.000	1.125	03	10.000	1.251
04	20.000	1.22	05	50.000	1.204	06	80.000	1.281	07	100.000	1.217
08	120.000	1.275	09	160.000	1.258	10	200.000	1.235			

Nitrobenzene-d5

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.538	02	5.000	1.15	03	10.000	1.266
04	20.000	1.262	05	50.000	1.268	06	80.000	1.296	07	100.000	1.245
08	120.000	1.374	09	160.000	1.304	10	200.000	1.235			

Pentachlorophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		03	10.000	0.04852	04	20.000	0.08143	05	50.000	0.1102
06	80.000	0.133	07	100.000	0.1332	08	120.000	0.1398	09	160.000	0.1478
10	200.000	0.1544									

Phenanthrene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.015	02	5.000	0.9696	03	10.000	0.9947
04	20.000	0.9873	05	50.000	0.9672	06	80.000	0.945	07	100.000	0.8949
08	120.000	0.8911	09	160.000	0.9236	10	200.000	0.9229			

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1802993
Project: JBLM **Calibration Date:** 3/19/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800115 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

Phenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.287	02	5.000	1.349	03	10.000	1.52
04	20.000	1.501	05	50.000	1.504	06	80.000	1.457	07	100.000	1.391
08	120.000	1.459	09	160.000	1.409	10	200.000	1.403			

Phenol-d6

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.612	02	5.000	1.289	03	10.000	1.393
04	20.000	1.398	05	50.000	1.405	06	80.000	1.361	07	100.000	1.334
08	120.000	1.472	09	160.000	1.387	10	200.000	1.353			

Pyrene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.294	02	5.000	1.298	03	10.000	1.298
04	20.000	1.407	05	50.000	1.318	06	80.000	1.343	07	100.000	1.349
08	120.000	1.469	09	160.000	1.371	10	200.000	1.43			

Terphenyl-d14

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
12	0.000		01	1.000	1.032	02	5.000	0.7299	03	10.000	0.7635
04	20.000	0.7998	05	50.000	0.8228	06	80.000	0.847	07	100.000	0.877
08	120.000	0.9721	09	160.000	0.9087	10	200.000	0.885			

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1802993
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Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800115 **Signal ID:** 1
Instrument ID: K-MS-07

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
1,2,4-Trichlorobenzene	TRG	Average RF	% RSD	3.1	≤15	0.3098	0.010
1,2-Dichlorobenzene	TRG	Average RF	% RSD	4.4	≤15	1.324	0.010
1,2-Diphenylhydrazine	TRG	Average RF	% RSD	8.7	≤15	1.419	0.010
1,3-Dichlorobenzene	TRG	Average RF	% RSD	4.6	≤15	1.372	0.010
1,4-Dichlorobenzene	TRG	Average RF	% RSD	5.3	≤15	1.405	0.010
2,2'-Oxybis(1-chloropropane)	TRG	Average RF	% RSD	4.4	≤15	1.953	0.010
2,4,5-Trichlorophenol	TRG	Average RF	% RSD	7.8	≤15	0.4502	0.200
2,4,6-Tribromophenol	SURR	Average RF	% RSD	11.6	≤15	0.146	0.010
2,4,6-Trichlorophenol	TRG	Average RF	% RSD	7.6	≤15	0.4089	0.200
2,4-Dichlorophenol	TRG	Average RF	% RSD	4.0	≤15	0.2802	0.200
2,4-Dimethylphenol	TRG	Average RF	% RSD	6.4	≤15	0.2554	0.200
2,4-Dinitrophenol	TRG	Quadratic	COD	0.9992	≥0.990	0.1392	0.010
2,4-Dinitrotoluene	TRG	Average RF	% RSD	6.6	≤15	0.3754	0.200
2,6-Dinitrotoluene	TRG	Average RF	% RSD	10.9	≤15	0.3114	0.200
2-Chloronaphthalene	TRG	Average RF	% RSD	3.5	≤15	1.19	0.800
2-Chlorophenol	TRG	Average RF	% RSD	5.4	≤15	1.229	0.800
2-Fluorobiphenyl	SURR	Average RF	% RSD	3.4	≤15	1.348	0.010
2-Fluorophenol	SURR	Average RF	% RSD	4.6	≤15	1.082	0.010
2-Methyl-4,6-dinitrophenol	TRG	Quadratic	COD	0.9963	≥0.990	0.1914	0.010
2-Methylnaphthalene	TRG	Average RF	% RSD	9.2	≤15	0.5699	0.400
2-Methylphenol	TRG	Average RF	% RSD	5.9	≤15	0.8952	0.700
2-Nitroaniline	TRG	Average RF	% RSD	8.1	≤15	0.3782	0.010
2-Nitrophenol	TRG	Average RF	% RSD	11.9	≤15	0.1812	0.100
3,3'-Dichlorobenzidine	TRG	Average RF	% RSD	14.2	≤15	0.4549	0.010
3-Nitroaniline	TRG	Average RF	% RSD	4.9	≤15	0.3382	0.010
4-Bromophenyl Phenyl Ether	TRG	Average RF	% RSD	7.8	≤15	0.2116	0.100
4-Chloro-3-methylphenol	TRG	Average RF	% RSD	8.3	≤15	0.2619	0.010
4-Chloroaniline	TRG	Average RF	% RSD	6.6	≤15	0.3668	0.010
4-Chlorophenyl Phenyl Ether	TRG	Average RF	% RSD	5.4	≤15	0.6318	0.400
4-Methylphenol	TRG	Average RF	% RSD	8.2	≤15	1.25	0.600
4-Nitroaniline	TRG	Average RF	% RSD	5.1	≤15	0.3142	0.010
4-Nitrophenol	TRG	Average RF	% RSD	14.5	≤15	0.1617	0.010
Acenaphthene	TRG	Average RF	% RSD	5.0	≤15	1.051	0.900
Acenaphthylene	TRG	Average RF	% RSD	4.7	≤15	1.773	0.900

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1802993
Project: JBLM **Calibration Date:** 3/19/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800115 **Signal ID:** 1
Instrument ID: K-MS-07

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Anthracene	TRG	Average RF	% RSD	3.5	≤15	0.9527	0.700
Benz(a)anthracene	TRG	Average RF	% RSD	3.9	≤15	1.129	0.800
Benzo(a)pyrene	TRG	Average RF	% RSD	10.5	≤15	0.8868	0.700
Benzo(b)fluoranthene	TRG	Average RF	% RSD	12.8	≤15	0.9447	0.700
Benzo(g,h,i)perylene	TRG	Average RF	% RSD	10.2	≤15	1.003	0.500
Benzo(k)fluoranthene	TRG	Average RF	% RSD	8.2	≤15	0.9435	0.700
Benzoic Acid	TRG	Quadratic	COD	0.9966	≥0.990	0.1433	0.010
Benzyl Alcohol	TRG	Average RF	% RSD	7.1	≤15	0.7554	0.010
Bis(2-chloroethoxy)methane	TRG	Average RF	% RSD	6.5	≤15	0.3597	0.300
Bis(2-chloroethyl) Ether	TRG	Average RF	% RSD	3.6	≤15	1.152	0.700
Bis(2-ethylhexyl) Phthalate	TRG	Average RF	% RSD	12.1	≤15	0.9008	0.010
Butyl Benzyl Phthalate	TRG	Average RF	% RSD	10.3	≤15	0.6948	0.010
Carbazole	TRG	Average RF	% RSD	4.5	≤15	0.8644	0.010
Chrysene	TRG	Average RF	% RSD	3.7	≤15	1.092	0.700
Di-n-butyl Phthalate	TRG	Average RF	% RSD	12.9	≤15	1.034	0.010
Di-n-octyl Phthalate	TRG	Average RF	% RSD	10.3	≤15	1.244	0.010
Dibenz(a,h)anthracene	TRG	Average RF	% RSD	7.9	≤15	0.9578	0.400
Dibenzofuran	TRG	Average RF	% RSD	5.1	≤15	1.603	0.800
Diethyl Phthalate	TRG	Average RF	% RSD	12.5	≤15	1.321	0.010
Dimethyl Phthalate	TRG	Average RF	% RSD	5.6	≤15	1.337	0.010
Fluoranthene	TRG	Average RF	% RSD	13.5	≤15	0.8686	0.600
Fluorene	TRG	Average RF	% RSD	8.4	≤15	1.229	0.900
Hexachlorobenzene	TRG	Average RF	% RSD	4.3	≤15	0.2519	0.100
Hexachlorobutadiene	TRG	Average RF	% RSD	2.4	≤15	0.1744	0.010
Hexachloroethane	TRG	Average RF	% RSD	4.7	≤15	0.5559	0.300
Indeno(1,2,3-cd)pyrene	TRG	Average RF	% RSD	9.8	≤15	0.9891	0.500
Isophorone	TRG	Average RF	% RSD	4.3	≤15	0.6083	0.400
N-Nitrosodi-n-propylamine	TRG	Average RF	% RSD	6.0	≤15	0.8533	0.500
N-Nitrosodimethylamine	TRG	Average RF	% RSD	2.8	≤15	0.8398	0.010
N-Nitrosodiphenylamine	TRG	Average RF	% RSD	9.4	≤15	0.8758	0.010
Naphthalene	TRG	Average RF	% RSD	7.0	≤15	0.8612	0.700
Nitrobenzene	TRG	Average RF	% RSD	5.0	≤15	1.217	0.200
Nitrobenzene-d5	SURR	Average RF	% RSD	8.0	≤15	1.294	0.010
Pentachlorophenol	TRG	Quadratic	COD	0.9996	≥0.990	0.1185	0.050
Phenanthrene	TRG	Average RF	% RSD	4.5	≤15	0.9511	0.700

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1802993
Project: JBLM **Calibration Date:** 3/19/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800115 **Signal ID:** 1
Instrument ID: K-MS-07

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Phenol	TRG	Average RF	% RSD	5.2	≤15	1.428	0.800
Phenol-d6	SURR	Average RF	% RSD	6.3	≤15	1.401	0.010
Pyrene	TRG	Average RF	% RSD	4.5	≤15	1.358	0.600
Terphenyl-d14	SURR	Average RF	% RSD	10.7	≤15	0.8638	0.010

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1802993
Project: JBLM **Calibration Date:** 3/19/2018

Initial Calibration Verification Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800115 **Signal ID:** 1
Instrument ID: K-MS-07

#	Lab Code	Sample Name	File Location	Acquisition Date
11	KC1800115-11	8270/P ICV @ 80ug/mL | SVM58-36C	J:\MS07\DATA\031918\0319F014.D	03/19/2018 19:12

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
1,2,4-Trichlorobenzene	80.0	85.4	3.098E-1	3.305E-1	6.69	±20	Average RF
1,2-Dichlorobenzene	80.0	85.3	1.324E0	1.411E0	6.57	±20	Average RF
1,2-Diphenylhydrazine	80.0	88.5	1.419E0	1.57E0	10.65	±20	Average RF
1,3-Dichlorobenzene	80.0	86.8	1.372E0	1.489E0	8.55	±20	Average RF
1,4-Dichlorobenzene	80.0	85.4	1.405E0	1.5E0	6.70	±20	Average RF
2,4,5-Trichlorophenol	80.0	93.8	4.502E-1	5.28E-1	17.27	±20	Average RF
2,4,6-Trichlorophenol	80.0	92.8	4.089E-1	4.743E-1	15.97	±20	Average RF
2,4-Dichlorophenol	80.0	92.4	2.802E-1	3.235E-1	15.47	±20	Average RF
2,4-Dimethylphenol	80.0	93.0	2.554E-1	2.969E-1	16.26	±20	Average RF
2,4-Dinitrophenol	80.0	81.9	1.392E-1	1.409E-1	2.42	±20	Quadratic
2,4-Dinitrotoluene	80.0	79.0	3.754E-1	3.708E-1	-1.239	±20	Average RF
2,6-Dinitrotoluene	80.0	90.4	3.114E-1	3.52E-1	13.01	±20	Average RF
2-Chloronaphthalene	80.0	90.0	1.19E0	1.339E0	12.52	±20	Average RF
2-Chlorophenol	80.0	93.0	1.229E0	1.429E0	16.23	±20	Average RF
2-Methyl-4,6-dinitrophenol	80.0	75.5	1.914E-1	1.966E-1	-5.589	±20	Quadratic
2-Methylnaphthalene	80.0	89.4	5.699E-1	6.368E-1	11.75	±20	Average RF
2-Methylphenol	80.0	92.9	8.952E-1	1.04E0	16.14	±20	Average RF
2-Nitroaniline	80.0	94.4	3.782E-1	4.461E-1	17.95	±20	Average RF
2-Nitrophenol	80.0	97.1	1.812E-1	2.199E-1	21.38*	±20	Average RF
3,3'-Dichlorobenzidine	80.0	90.4	4.549E-1	5.14E-1	13.01	±20	Average RF
3-Nitroaniline	80.0	81.7	3.382E-1	3.455E-1	2.14	±20	Average RF
4-Bromophenyl Phenyl Ether	80.0	104	2.116E-1	2.744E-1	29.71*	±20	Average RF
4-Chloro-3-methylphenol	80.0	94.8	2.619E-1	3.104E-1	18.51	±20	Average RF
4-Chloroaniline	80.0	86.2	3.668E-1	3.95E-1	7.70	±20	Average RF
4-Chlorophenyl Phenyl Ether	80.0	87.9	6.318E-1	6.938E-1	9.82	±20	Average RF
4-Methylphenol	80.0	96.9	1.25E0	1.515E0	21.18*	±20	Average RF
4-Nitroaniline	80.0	71.0	3.142E-1	2.789E-1	-11.234	±20	Average RF
4-Nitrophenol	80.0	79.8	1.617E-1	1.613E-1	-0.240	±20	Average RF
Acenaphthene	80.0	88.0	1.051E0	1.156E0	10.01	±20	Average RF
Acenaphthylene	80.0	90.8	1.773E0	2.012E0	13.45	±20	Average RF
Anthracene	80.0	89.0	9.527E-1	1.059E0	11.19	±20	Average RF
Benz(a)anthracene	80.0	91.8	1.129E0	1.295E0	14.72	±20	Average RF
Benzo(a)pyrene	80.0	98.8	8.868E-1	1.096E0	23.55*	±20	Average RF
Benzo(b)fluoranthene	80.0	93.6	9.447E-1	1.105E0	16.94	±20	Average RF

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1802993
Project: JBLM **Calibration Date:** 3/19/2018

Initial Calibration Verification Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800115 **Signal ID:** 1
Instrument ID: K-MS-07

#	Lab Code	Sample Name	File Location	Acquisition Date
11	KC1800115-11	8270/P ICV @ 80ug/mL | SVM58-36C	J:\MS07\DATA\031918\0319F014.D	03/19/2018 19:12

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Benzo(g,h,i)perylene	80.0	88.2	1.003E0	1.106E0	10.23	±20	Average RF
Benzo(k)fluoranthene	80.0	94.0	9.435E-1	1.108E0	17.47	±20	Average RF
Benzoic Acid	80.0	83.5	1.433E-1	1.631E-1	4.42	±20	Quadratic
Benzyl Alcohol	80.0	92.7	7.554E-1	8.749E-1	15.82	±20	Average RF
Bis(2-chloroethoxy)methane	80.0	89.8	3.597E-1	4.037E-1	12.23	±20	Average RF
Bis(2-chloroethyl) Ether	80.0	90.3	1.152E0	1.301E0	12.93	±20	Average RF
Bis(2-ethylhexyl) Phthalate	80.0	101	9.008E-1	1.132E0	25.67*	±20	Average RF
Butyl Benzyl Phthalate	80.0	94.7	6.948E-1	8.228E-1	18.43	±20	Average RF
Carbazole	80.0	79.2	8.644E-1	8.556E-1	-1.022	±20	Average RF
Chrysene	80.0	93.4	1.092E0	1.274E0	16.70	±20	Average RF
Dibenz(a,h)anthracene	80.0	87.2	9.578E-1	1.044E0	8.97	±20	Average RF
Dibenzofuran	80.0	89.0	1.603E0	1.783E0	11.25	±20	Average RF
Diethyl Phthalate	80.0	76.6	1.321E0	1.264E0	-4.301	±20	Average RF
Dimethyl Phthalate	80.0	84.3	1.337E0	1.408E0	5.35	±20	Average RF
Di-n-butyl Phthalate	80.0	79.3	1.034E0	1.026E0	-0.845	±20	Average RF
Di-n-octyl Phthalate	80.0	102	1.244E0	1.578E0	26.88*	±20	Average RF
Fluoranthene	80.0	80.5	8.686E-1	8.739E-1	0.613	±20	Average RF
Fluorene	80.0	85.0	1.229E0	1.305E0	6.21	±20	Average RF
Hexachlorobenzene	80.0	93.6	2.519E-1	2.946E-1	16.99	±20	Average RF
Hexachlorobutadiene	80.0	86.6	1.744E-1	1.889E-1	8.31	±20	Average RF
Hexachloroethane	80.0	87.0	5.559E-1	6.048E-1	8.80	±20	Average RF
Indeno(1,2,3-cd)pyrene	80.0	88.4	9.891E-1	1.093E0	10.51	±20	Average RF
Isophorone	80.0	91.9	6.083E-1	6.991E-1	14.93	±20	Average RF
Naphthalene	80.0	86.1	8.612E-1	9.274E-1	7.68	±20	Average RF
Nitrobenzene	80.0	93.5	1.217E0	1.422E0	16.86	±20	Average RF
N-Nitrosodimethylamine	80.0	103	8.398E-1	1.081E0	28.72*	±20	Average RF
N-Nitrosodi-n-propylamine	80.0	89.6	8.533E-1	9.554E-1	11.97	±20	Average RF
N-Nitrosodiphenylamine	80.0	75.9	8.758E-1	8.308E-1	-5.134	±20	Average RF
Pentachlorophenol	80.0	91.6	1.185E-1	1.517E-1	14.52	±20	Quadratic
Phenanthrene	80.0	87.9	9.511E-1	1.045E0	9.86	±20	Average RF
Phenol	80.0	89.4	1.428E0	1.595E0	11.71	±20	Average RF
Pyrene	80.0	72.3	1.358E0	1.226E0	-9.676	±20	Average RF
2,2'-Oxybis(1-chloropropane)	80.0	72.0	1.953E0	1.758E0	-9.970	±20	Average RF
2,4,6-Tribromophenol	80.0	100	1.46E-1	1.834E-1	25.63*	±20	Average RF

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1802993
Project: JBLM **Calibration Date:** 3/19/2018

Initial Calibration Verification Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800115 **Signal ID:** 1
Instrument ID: K-MS-07

#	Lab Code	Sample Name	File Location	Acquisition Date
11	KC1800115-11	8270/P ICV @ 80ug/mL | SVM58-36C	J:\MS07\DATA\031918\0319F014.D	03/19/2018 19:12

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
2-Fluorobiphenyl	80.0	91.4	1.348E0	1.539E0	14.22	±20	Average RF
2-Fluorophenol	80.0	91.5	1.082E0	1.237E0	14.35	±20	Average RF
Nitrobenzene-d5	80.0	89.5	1.294E0	1.448E0	11.89	±20	Average RF
Phenol-d6	80.0	86.7	1.401E0	1.518E0	8.42	±20	Average RF
Terphenyl-d14	80.0	79.0	8.638E-1	8.532E-1	-1.217	±20	Average RF

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QA/QC Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1802993
Project:	JBLM/6304305	**Date Analyzed:**	04/13/18 13:57

Continuing Calibration Verification (CCV) Summary
Semivolatile Organic Compounds by GC/MS

Analysis Method:	8270D	**Calibration Date:**	3/19/2018
File ID:	J:\MS07\DATA\041318\0413F002.D\	**Calibration ID:**	KC1800115
Signal ID:	1	**Analysis Lot:**	586850
		Units:	ug/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,2,4-Trichlorobenzene	80.0	83.2	0.3098	0.3223	4.0	NA	±20	Average RF
1,2-Dichlorobenzene	80.0	80.1	1.324	1.3249	0.1	NA	±20	Average RF
1,2-Diphenylhydrazine	80.0	78.3	1.4188	1.3889	-2.1	NA	±20	Average RF
1,3-Dichlorobenzene	80.0	80.2	1.3721	1.3748	0.2	NA	±20	Average RF
1,4-Dichlorobenzene	80.0	80.3	1.4054	1.4114	0.4	NA	±20	Average RF
2,4,5-Trichlorophenol	80.0	89.9	0.4502	0.5058	12.3	NA	±20	Average RF
2,4,6-Trichlorophenol	80.0	91.3	0.4089	0.4667	14.1	NA	±20	Average RF
2,4-Dichlorophenol	80.0	91.0	0.2802	0.3187	13.8	NA	±20	Average RF
2,4-Dimethylphenol	80.0	88.4	0.2554	0.2823	10.5	NA	±20	Average RF
2,4-Dinitrophenol	80.0	75.2	0.1392	0.1243	NA	-6.0	±20	Quadratic
2,4-Dinitrotoluene	80.0	79.2	0.3754	0.3718	-1.0	NA	±20	Average RF
2,6-Dinitrotoluene	80.0	85.1	0.3114	0.3312	6.3	NA	±20	Average RF
2-Chloronaphthalene	80.0	88.9	1.1902	1.3225	11.1	NA	±20	Average RF
2-Chlorophenol	80.0	84.9	1.2293	1.3042	6.1	NA	±20	Average RF
2-Methyl-4,6-dinitrophenol	80.0	83.3	0.1914	0.2208	NA	4.1	±20	Quadratic
2-Methylnaphthalene	80.0	84.8	0.5699	0.604	6.0	NA	±20	Average RF
2-Methylphenol	80.0	90.4	0.8952	1.0112	13.0	NA	±20	Average RF
2-Nitroaniline	80.0	89.4	0.3782	0.4228	11.8	NA	±20	Average RF
2-Nitrophenol	80.0	96.5	0.1812	0.2185	20.6*	NA	±20	Average RF
3,3'-Dichlorobenzidine	80.0	83.3	0.4549	0.4733	4.1	NA	±20	Average RF
3-Nitroaniline	80.0	78.8	0.3382	0.3334	-1.4	NA	±20	Average RF
4-Bromophenyl Phenyl Ether	80.0	89.0	0.2116	0.2353	11.2	NA	±20	Average RF
4-Chloro-3-methylphenol	80.0	85.8	0.2619	0.2808	7.2	NA	±20	Average RF
4-Chloroaniline	80.0	80.0	0.3668	0.3667	0.0	NA	±20	Average RF
4-Chlorophenyl Phenyl Ether	80.0	76.7	0.6318	0.6054	-4.2	NA	±20	Average RF
4-Methylphenol	80.0	81.1	1.2501	1.2667	1.3	NA	±20	Average RF
4-Nitroaniline	80.0	83.9	0.3142	0.3294	4.8	NA	±20	Average RF
4-Nitrophenol	80.0	80.0	0.1617	0.1616	0.0	NA	±20	Average RF
Acenaphthene	80.0	86.4	1.0506	1.1345	8.0	NA	±20	Average RF
Acenaphthylene	80.0	86.0	1.7734	1.9055	7.4	NA	±20	Average RF
Anthracene	80.0	88.3	0.9527	1.051	10.3	NA	±20	Average RF
Benz(a)anthracene	80.0	86.9	1.1292	1.2265	8.6	NA	±20	Average RF
Benzo(a)pyrene	80.0	94.3	0.8868	1.0457	17.9	NA	±20	Average RF
Benzo(b)fluoranthene	80.0	93.7	0.9447	1.1065	17.1	NA	±20	Average RF
Benzo(g,h,i)perylene	80.0	86.0	1.0034	1.0789	7.5	NA	±20	Average RF
Benzo(k)fluoranthene	80.0	91.3	0.9435	1.0768	14.1	NA	±20	Average RF
Benzoic Acid	80.0	69.1	0.1433	0.1294	NA	-13.7	±20	Quadratic
Benzyl Alcohol	80.0	84.0	0.7554	0.7928	5.0	NA	±20	Average RF
Bis(2-chloroethoxy)methane	80.0	88.3	0.3597	0.3969	10.3	NA	±20	Average RF
Bis(2-chloroethyl) Ether	80.0	83.9	1.1519	1.2086	4.9	NA	±20	Average RF
Bis(2-ethylhexyl) Phthalate	80.0	98.6	0.9008	1.1103	23.3*	NA	±20	Average RF
Butyl Benzyl Phthalate	80.0	93.8	0.6948	0.8149	17.3	NA	±20	Average RF

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1802993
Project: JBLM/6304305 **Date Analyzed:** 04/13/18 13:57

Continuing Calibration Verification (CCV) Summary
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D **Calibration Date:** 3/19/2018
File ID: J:\MS07\DATA\041318\0413F002.D\ **Calibration ID:** KC1800115
Signal ID: 1 **Analysis Lot:** 586850
Units: ug/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Carbazole	80.0	92.3	0.8644	0.9975	15.4	NA	±20	Average RF
Chrysene	80.0	85.3	1.092	1.1646	6.6	NA	±20	Average RF
Dibenz(a,h)anthracene	80.0	88.6	0.9578	1.0607	10.7	NA	±20	Average RF
Dibenzofuran	80.0	86.9	1.6031	1.7414	8.6	NA	±20	Average RF
Diethyl Phthalate	80.0	70.8	1.3206	1.1689	-11.5	NA	±20	Average RF
Dimethyl Phthalate	80.0	78.9	1.3369	1.3183	-1.4	NA	±20	Average RF
Di-n-butyl Phthalate	80.0	95.3	1.0344	1.2317	19.1	NA	±20	Average RF
Di-n-octyl Phthalate	80.0	96.2	1.2437	1.4954	20.2	NA	±20	Average RF
Fluoranthene	80.0	91.0	0.8686	0.9876	13.7	NA	±20	Average RF
Fluorene	80.0	78.0	1.2286	1.1979	-2.5	NA	±20	Average RF
Hexachlorobenzene	80.0	82.0	0.2519	0.2581	2.5	NA	±20	Average RF
Hexachlorobutadiene	80.0	82.4	0.1744	0.1796	3.0	NA	±20	Average RF
Hexachloroethane	80.0	79.9	0.5559	0.5551	-0.1	NA	±20	Average RF
Indeno(1,2,3-cd)pyrene	80.0	88.5	0.9891	1.0942	10.6	NA	±20	Average RF
Isophorone	80.0	82.1	0.6083	0.6244	2.6	NA	±20	Average RF
Naphthalene	80.0	85.0	0.8612	0.9153	6.3	NA	±20	Average RF
Nitrobenzene	80.0	81.9	1.2166	1.2458	2.4	NA	±20	Average RF
N-Nitrosodimethylamine	80.0	94.9	0.8398	0.996	18.6	NA	±20	Average RF
N-Nitrosodi-n-propylamine	80.0	76.9	0.8533	0.8206	-3.8	NA	±20	Average RF
N-Nitrosodiphenylamine	80.0	73.2	0.8758	0.8011	-8.5	NA	±20	Average RF
Pentachlorophenol	80.0	90.4	0.1185	0.1494	NA	13.1	±20	Quadratic
Phenanthrene	80.0	84.4	0.9511	1.0038	5.5	NA	±20	Average RF
Phenol	80.0	85.4	1.428	1.5234	6.7	NA	±20	Average RF
Pyrene	80.0	76.1	1.3576	1.2915	-4.9	NA	±20	Average RF
2,4,6-Tribromophenol	80.0	92.8	0.146	0.1692	15.9	NA	±20	Average RF
2-Fluorobiphenyl	80.0	95.3	1.3475	1.6046	19.1	NA	±20	Average RF
2-Fluorophenol	80.0	91.7	1.082	1.2403	14.6	NA	±20	Average RF
Nitrobenzene-d5	80.0	84.6	1.2939	1.3685	5.8	NA	±20	Average RF
Phenol-d6	80.0	86.4	1.4006	1.5119	7.9	NA	±20	Average RF
Terphenyl-d14	80.0	81.2	0.8638	0.8763	1.5	NA	±20	Average RF
2,2'-Oxybis(1-chloropropane)	80.0	72.3	1.9529	1.7643	-9.7	NA	±20	Average RF

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1802993
Project: JBLM/6304305 **Date Analyzed:** 04/13/18 18:18

Continuing Calibration Verification (CCV) Summary
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D **Calibration Date:** 3/19/2018
File ID: J:\MS07\DATA\041318\0413F008.D\ **Calibration ID:** KC1800115
Signal ID: 1 **Analysis Lot:** 586850
Units: ug/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,2,4-Trichlorobenzene	80.0	80.7	0.3098	0.3124	0.8	NA	±50	Average RF
1,2-Dichlorobenzene	80.0	81.8	1.324	1.3543	2.3	NA	±50	Average RF
1,2-Diphenylhydrazine	80.0	81.4	1.4188	1.4435	1.7	NA	±50	Average RF
1,3-Dichlorobenzene	80.0	81.2	1.3721	1.3926	1.5	NA	±50	Average RF
1,4-Dichlorobenzene	80.0	81.2	1.4054	1.4269	1.5	NA	±50	Average RF
2,4,5-Trichlorophenol	80.0	88.4	0.4502	0.4976	10.5	NA	±50	Average RF
2,4,6-Trichlorophenol	80.0	92.5	0.4089	0.4726	15.6	NA	±50	Average RF
2,4-Dichlorophenol	80.0	89.8	0.2802	0.3145	12.3	NA	±50	Average RF
2,4-Dimethylphenol	80.0	86.0	0.2554	0.2747	7.5	NA	±50	Average RF
2,4-Dinitrophenol	80.0	81.5	0.1392	0.1397	NA	1.8	±50	Quadratic
2,4-Dinitrotoluene	80.0	88.0	0.3754	0.4129	10.0	NA	±50	Average RF
2,6-Dinitrotoluene	80.0	89.2	0.3114	0.3471	11.5	NA	±50	Average RF
2-Chloronaphthalene	80.0	87.9	1.1902	1.3083	9.9	NA	±50	Average RF
2-Chlorophenol	80.0	86.7	1.2293	1.332	8.4	NA	±50	Average RF
2-Methyl-4,6-dinitrophenol	80.0	87.6	0.1914	0.2344	NA	9.5	±50	Quadratic
2-Methylnaphthalene	80.0	82.7	0.5699	0.589	3.4	NA	±50	Average RF
2-Methylphenol	80.0	91.6	0.8952	1.0254	14.5	NA	±50	Average RF
2-Nitroaniline	80.0	94.7	0.3782	0.4477	18.4	NA	±50	Average RF
2-Nitrophenol	80.0	97.8	0.1812	0.2215	22.3	NA	±50	Average RF
3,3'-Dichlorobenzidine	80.0	87.7	0.4549	0.4985	9.6	NA	±50	Average RF
3-Nitroaniline	80.0	85.8	0.3382	0.3629	7.3	NA	±50	Average RF
4-Bromophenyl Phenyl Ether	80.0	90.8	0.2116	0.2402	13.6	NA	±50	Average RF
4-Chloro-3-methylphenol	80.0	88.3	0.2619	0.2891	10.4	NA	±50	Average RF
4-Chloroaniline	80.0	81.6	0.3668	0.3739	2.0	NA	±50	Average RF
4-Chlorophenyl Phenyl Ether	80.0	79.8	0.6318	0.6299	-0.3	NA	±50	Average RF
4-Methylphenol	80.0	84.5	1.2501	1.3209	5.7	NA	±50	Average RF
4-Nitroaniline	80.0	87.8	0.3142	0.3448	9.7	NA	±50	Average RF
4-Nitrophenol	80.0	82.9	0.1617	0.1675	3.6	NA	±50	Average RF
Acenaphthene	80.0	86.7	1.0506	1.1381	8.3	NA	±50	Average RF
Acenaphthylene	80.0	86.3	1.7734	1.9139	7.9	NA	±50	Average RF
Anthracene	80.0	87.9	0.9527	1.0468	9.9	NA	±50	Average RF
Benz(a)anthracene	80.0	91.6	1.1292	1.2927	14.5	NA	±50	Average RF
Benzo(a)pyrene	80.0	93.8	0.8868	1.0403	17.3	NA	±50	Average RF
Benzo(b)fluoranthene	80.0	88.4	0.9447	1.0438	10.5	NA	±50	Average RF
Benzo(g,h,i)perylene	80.0	86.3	1.0034	1.0827	7.9	NA	±50	Average RF
Benzo(k)fluoranthene	80.0	90.1	0.9435	1.0623	12.6	NA	±50	Average RF
Benzoic Acid	80.0	84.6	0.1433	0.1656	NA	5.8	±50	Quadratic
Benzyl Alcohol	80.0	86.0	0.7554	0.8118	7.5	NA	±50	Average RF
Bis(2-chloroethoxy)methane	80.0	85.0	0.3597	0.3822	6.3	NA	±50	Average RF
Bis(2-chloroethyl) Ether	80.0	83.9	1.1519	1.2086	4.9	NA	±50	Average RF
Bis(2-ethylhexyl) Phthalate	80.0	102	0.9008	1.1482	27.5	NA	±50	Average RF
Butyl Benzyl Phthalate	80.0	101	0.6948	0.8785	26.4	NA	±50	Average RF

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1802993
Project: JBLM/6304305 **Date Analyzed:** 04/13/18 18:18

Continuing Calibration Verification (CCV) Summary
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D **Calibration Date:** 3/19/2018
File ID: J:\MS07\DATA\041318\0413F008.D\ **Calibration ID:** KC1800115
Signal ID: 1 **Analysis Lot:** 586850
Units: ug/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Carbazole	80.0	91.7	0.8644	0.9908	14.6	NA	±50	Average RF
Chrysene	80.0	90.2	1.092	1.2315	12.8	NA	±50	Average RF
Dibenz(a,h)anthracene	80.0	85.6	0.9578	1.0254	7.1	NA	±50	Average RF
Dibenzofuran	80.0	87.7	1.6031	1.7572	9.6	NA	±50	Average RF
Diethyl Phthalate	80.0	78.4	1.3206	1.2949	-1.9	NA	±50	Average RF
Dimethyl Phthalate	80.0	84.7	1.3369	1.4161	5.9	NA	±50	Average RF
Di-n-butyl Phthalate	80.0	93.7	1.0344	1.2117	17.1	NA	±50	Average RF
Di-n-octyl Phthalate	80.0	96.9	1.2437	1.506	21.1	NA	±50	Average RF
Fluoranthene	80.0	87.0	0.8686	0.9441	8.7	NA	±50	Average RF
Fluorene	80.0	79.6	1.2286	1.222	-0.5	NA	±50	Average RF
Hexachlorobenzene	80.0	82.8	0.2519	0.2607	3.5	NA	±50	Average RF
Hexachlorobutadiene	80.0	81.3	0.1744	0.1772	1.6	NA	±50	Average RF
Hexachloroethane	80.0	80.3	0.5559	0.5581	0.4	NA	±50	Average RF
Indeno(1,2,3-cd)pyrene	80.0	89.7	0.9891	1.109	12.1	NA	±50	Average RF
Isophorone	80.0	80.5	0.6083	0.6118	0.6	NA	±50	Average RF
Naphthalene	80.0	84.2	0.8612	0.9061	5.2	NA	±50	Average RF
Nitrobenzene	80.0	86.3	1.2166	1.3131	7.9	NA	±50	Average RF
N-Nitrosodimethylamine	80.0	93.7	0.8398	0.9835	17.1	NA	±50	Average RF
N-Nitrosodi-n-propylamine	80.0	77.4	0.8533	0.8261	-3.2	NA	±50	Average RF
N-Nitrosodiphenylamine	80.0	75.3	0.8758	0.8243	-5.9	NA	±50	Average RF
Pentachlorophenol	80.0	86.2	0.1185	0.1412	NA	7.8	±50	Quadratic
Phenanthrene	80.0	87.1	0.9511	1.0355	8.9	NA	±50	Average RF
Phenol	80.0	86.0	1.428	1.5356	7.5	NA	±50	Average RF
Pyrene	80.0	81.1	1.3576	1.3762	1.4	NA	±50	Average RF
2,4,6-Tribromophenol	80.0	93.3	0.146	0.1702	16.6	NA	±50	Average RF
2-Fluorobiphenyl	80.0	92.3	1.3475	1.5539	15.3	NA	±50	Average RF
2-Fluorophenol	80.0	90.6	1.082	1.2254	13.3	NA	±50	Average RF
Nitrobenzene-d5	80.0	86.6	1.2939	1.3999	8.2	NA	±50	Average RF
Phenol-d6	80.0	85.5	1.4006	1.4964	6.8	NA	±50	Average RF
Terphenyl-d14	80.0	88.0	0.8638	0.9501	10.0	NA	±50	Average RF
2,2'-Oxybis(1-chloropropane)	80.0	70.5	1.9529	1.721	-11.9	NA	±50	Average RF

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:**K1802993
Project: JBLM/6304305

Analysis Run Log
Semivolatile Organic Compounds by GC/MS

Analysis Method: **Analysis Lot:**586850
Instrument ID:K-MS-07

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS07\DATA\041318\0413F001.D\	ZZZZZZZ	ZZZZZZZ	4/13/2018	13:15:00	
J:\MS07\DATA\041318\0413F002.D\	Continuing Calibration Verification	KQ1804639-02	4/13/2018	13:57:00	
J:\MS07\DATA\041318\0413F003.D\	Method Blank	KQ1804225-04	4/13/2018	14:50:00	
J:\MS07\DATA\041318\0413F004.D\	Lab Control Sample	KQ1804225-03	4/13/2018	15:32:00	
J:\MS07\DATA\041318\0413F005.D\	FTP-1-20180328	K1802993-009	4/13/2018	16:14:00	
J:\MS07\DATA\041318\0413F006.D\	FTP-1-20180328 MS	KQ1804225-01	4/13/2018	16:55:00	
J:\MS07\DATA\041318\0413F007.D\	FTP-1-20180328 DMS	KQ1804225-02	4/13/2018	17:37:00	
J:\MS07\DATA\041318\0413F008.D\	Continuing Cal. Verification	KQ1804639-03	4/13/2018	18:18:00	

Prep Summary Report

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:**K1802993
Project: JBLM/6304305
Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Prep Method: EPA 3520C **Extraction Lot:** 311203
Analytical Method: 8270D **Extraction Date:** 04/04/18 07:54

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
FTP-1-20180328	K1802993-009	3/28/18	4/2/18	950.0000 mL	1 mL	
Matrix Spike	KQ1804225-01MS	3/28/18	4/2/18	950.0000 mL	1 mL	
Duplicate Matrix Spike	KQ1804225-02DMS	3/28/18	4/2/18	950.0000 mL	1 mL	
Lab Control Sample	KQ1804225-03LCS	NA	NA	1000 mL	1 mL	
Method Blank	KQ1804225-04MB	NA	NA	1000 mL	1 mL	

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SAMPLE DELIVERY GROUP K1803459

11 APRIL 2018

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Joint Base Lewis-McChord

Well Purging and Sampling Record

Well ID: FTP-14 **Sample ID:** FTP-14-20180411 **Sample Date/Time:** 4/11/18 @ 1150 + DUP @ 1155

DUP = FTP-14A-20180411

Casing diameter/type: 4" PVC Well location: FTP Weather: 53°F, PARTLY CLOUDY

Screened interval(s): 12'-22' Sampling personnel: G. LEE

Total depth: 22.51' BTOC Sampling method: BAILER

Initial depth to water (w/o pump): 19.25' BTOC Water level indicator: SOLINST 2.1703

Final depth to water (w/o pump): 18.25' BTOC Water quality meter: NA

Measuring point: **North side of casing** Pump depth setting: NA Pump type/model: NA

	Δ < 1° C	Δ < 10%	Δ <10%	Δ <10%	Δ < 0.1 pH	Δ < 10 mV	Δ < 0.3 ft	< 1L/min	Δ < 10 NTU		
Time	**Temp (°C)**	**Conductivity (mS/cm) or (µS/cm)**	**DO (%)**	**DO (mg/L)**	**pH**	**ORP (mV)**	**Water Level (feet btoc)**	**Flow Rate (L/min) or (mL/min)**	**Turbidity (NTU)**	**Purge Volume (L) or (mL)**	**Additional Comments**
1121	BEGAN BAILING.										
1150	3 well volumes purged. obtained sample.										

Note:

Parameter Stabilization Limits:
(3 consecutive readings) for percent difference type parameters
Percent difference formula =
ABS[((first reading - second reading)/first reading) x 100]
Ex: Readings 12, 16, 15, 13
((12-16)/12)*100 = 33% ((16-15)/16)*100 = 6%
((15-13)/15)*100 = 13% In example, stabilization has not occurred.

4.26 FT

0.09 + FT²

= 2.371 FT³

2.77 GAL

0.32 GAL = 3 well vol

# of Bottles / Analysis:

6 VOCs by 8260C

2 500 ML AMBER FOR TPH-Dx X2 FOR DUPLICATE = 4

3 VOA FOR TPH-Gx X2 FOR DUPLICATE = 6

Joint Base Lewis-McChord

Well Purging and Sampling Record

Well ID: FTP-15 **Sample ID:** FTP-15-20180411 **Sample Date/Time:** 4/11/18 @ 1310

Casing diameter/type: PVC 4" Well location: FTP Weather: 51° F, cloudy

Screened interval(s): 10' - 20' Sampling personnel: GLEE

Total depth: 22.40' Sampling method: BAILER

Initial depth to water (w/o pump): 14.88' BTOC Water level indicator: SOLINST 21703

Final depth to water (w/o pump): 14.90' BTOC Water quality meter: NA

Measuring point: **North side of casing** Pump depth setting: NA Pump type/model: NA

	Δ < 1° C	Δ < 10%	Δ <10%	Δ <10%	Δ < 0.1 pH	Δ < 10 mV	Δ < 0.3 ft	< 1L/min	Δ < 10 NTU		
Time	**Temp (°C)**	**Conductivity (mS/cm) or (µS/cm)**	**DO (%)**	**DO (mg/L)**	**pH**	**ORP (mV)**	**Water Level (feet btoc)**	**Flow Rate (L/min) or (mL/min)**	**Turbidity (NTU)**	**Purge Volume (L) or (mL)**	**Additional Comments**
1245	BEGAN BAILING.										
1310	3 WELL VOLUMES PURGED. OBTAINED SAMPLE.										

Note:

Parameter Stabilization Limits:
(3 consecutive readings) for percent difference type parameters
Percent difference formula =
ABS[((first reading - second reading)/first reading) x 100]
Ex: Readings 12, 16, 15, 13
((12-16)/12)*100 = 33% ((16-15)/16)*100 = 6%
((15-13)/15)*100 = 13% In example, stabilization has not occurred.

7.52 FT
x .087 FT²
.654 FT³ ⇒ 4.89 GAL

14.69 GAL = 3 WELL VOL

# of Bottles / Analysis:

8 VOCs by 8260C
2 500 mL AMBER FOR TPH-Dx
3 VOAs FOR TPH-Gx

Joint Base Lewis-McChord

Well Purging and Sampling Record

Well ID: FTP-16 **Sample ID:** FTP-16-20180411 **Sample Date/Time:** 4/11/18 @ 1345

Casing diameter/type: PVC 4" Well location: FTP Weather: 53° F, CLOUDY

Screened interval(s): 20' - 30' Sampling personnel: G. LEE

Total depth: 32.20' BTOC Sampling method: BAILER

Initial depth to water (w/o pump): 26.07' BTOC Water level indicator: SOLINST 21703

Final depth to water (w/o pump): 28.42' BTOC Water quality meter: NA

Measuring point: **North side of casing** Pump depth setting: NA Pump type/model: NA

	Δ < 1° C	Δ < 10%	Δ <10%	Δ <10%	Δ < 0.1 pH	Δ < 10 mV	Δ < 0.3 ft	< 1L/min	Δ < 10 NTU		
Time	**Temp (°C)**	**Conductivity (mS/cm) or (µS/cm)**	**DO (%)**	**DO (mg/L)**	**pH**	**ORP (mV)**	**Water Level (feet btoc)**	**Flow Rate (L/min) or (mL/min)**	**Turbidity (NTU)**	**Purge Volume (L) or (mL)**	**Additional Comments**
1052	BEGAN BAILING										
1106	WELL IS DRY, WL = 31.95. WILL ALLOW TO RECHARGE.										
1330	WL = 27.05', RECHARGED OVER 80%										
1345	SAMPLE COLLECTED										

Note: WELL PURGED DRY, ALLOWED TO RECHARGE PRIOR TO SAMPLING

Parameter Stabilization Limits:
(3 consecutive readings) for percent difference-type parameters
Percent difference formula =
ABS[((first reading - second reading)/first reading) x 100]
Ex: Readings 12, 16, 15, 13
((12-16)/12)*100 = 33% ((16-15)/16)*100 = 6%
((15-13)/15)*100 = 13% In example, stabilization has not occurred.

6.13 FT WATER
x 0.087 FT²
.533 FT³
⇒ 3.99 GAL x 3
11.97 GAL = 3 PURGE VOL

# of Bottles / Analysis:
6 VOCs by 8260C
2 500 mL AMBER FOR TPH-Dx
3 VOAs FOR TPH-Gx

EA ENGINEERING

Rite in the Rain®

ALL-WEATHER

UNIVERSAL

№ 373

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Email

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CONTENTS

PAGE	REFERENCE	DATE

YTC CONTACTS

MAIN POC:

BRIAN LAWRENCE	509.577.3545

ALT POC:

MARGERET TAAFFE	509.577.3151

ACCESS TO PAMOA WELL:

KRIS BRENNER	509.929.0699
SHANE POOLE	509.577.3407

ACCESS TO PAIC WELL:

LYNDEN ROGERS	509.961.4446
PETER DELL	509.949.3500

ACCESS TO LANDFILL:

JARED MURREY	509.577.3424
SHANE POOLE	509.577.3407

Scale: 1 square = _____

6304308 YTC 3/29/18

1530 BACK AT VEHICLE WASH RACK & DISPOSED OF TUR IDW.

1532 BACK AT PUBLIC WORK BLD, CONFIRMED IDW DISPOSAL PROTOCAL W/ KRIS BRENNER. HE AGREED & OKED DISPOSAL TO THE O/W SEPARATOR @ THE VEHICLE WASH RACK.

1536 UNLOADED & PACKED EQUIPMENT INTO GARRET'S PERSONAL VEHICLE FOR TRANSIT.

1610 CARS PACKED W/ EQUIPMENT. LEFT YTC.

Scale: 1 square = _____

6304305 YTC 4/11/18

PERSONNEL: G. LEE

WEATHER: 53°F, MOSTLY SUNNY

0955 ARRIVED AT YTC & CHECKED IN AT VISITORS CENTER. OBTAINED VISITORS PASS.

1012 ARRIVED AT MTS-2. REDEPLOYED PDB W/ NEW WEIGHT & CABLE.
DTW: 89.42' BTOC

1025 PDB PLACED WITHIN WELL SCREEN, SLIGHTLY BELOW THE MIDPOINT AT ~108'.

1037 ARRIVED AT FTP-16. ~~TOC~~ GL

1052 BEGAN PURGING.

1106 ~4.5 GALS PURGED, WL HAS DROPPED TO 31.95'. WELL TO DRY. WILL ALLOW TO RECHARGE THEN COLLECT SAMPLE.

1115 ARRIVED AT FTP-14. WL = ~~27.57~~ GL 18.25'

1121 BEGIN PURGING

1150 3 WELL VOLUMES PURGED, OBTAINED SAMPLE.
FTP-14-20180411
FOR TPH-Dx & TPH-Gx.

1155 DUPLICATE SAMPLE OBTAINED.
FTP-MA-20180411
FOR TPH-Dx & TPH-Gx.

1220 DEPARTED WELL. HEADING TO DISPOSE OF IDW.

1228 DISPOSED OF IDW AT VEHICLE WASH RACK.

1233 ARRIVED AT FTP-15. DTW = 19.88' BTOC

Scale: 1 square = _____

(22) 6304305 YTC 4/11/18

1245 BEGAN SAILING.

1310 3 WELL VOLUMES PURGED, COLLECTED SAMPLE.

FTP-15-20190411

FOR TPH-Dx & TPH-Gx.

1323 DEPART FROM WELL.

1330 AT FTP-16, DTW = 27.05' BTOC. WATER HAS RECHARGED OVER 80% OF INITIAL WATER COLUMN, SAMPLE OBTAINED

1345 COLLECTED SAMPLE

FTP-16-20190411

FOR TPH-Dx & TPH-Gx.

1351 DISPOSED OF IDW AT VEHICLE WASH RACK.

1405 DEPARTED YTC.

Scale: 1 square = _____

Scale: 1 square = _____

Rite in the Rain

DATA VALIDATION REPORT COVER
SAMPLE DELIVERY GROUP: K1803459

PROJECT NAME: Environmental Remediation Program Services, Joint Base Lewis McChord and Yakima Training Center, Washington

SITE NAME: Former Fire Training Pit and Tracked Vehicle Repair/Old Mobilization and Training Equipment Sites, Yakima Training Center, Washington

LABORATORY: ALS Environmental Laboratories, Inc., Kelso, Washington

REPORT DATE: 30 April 2018

PROJECT MANAGER: Timothy McCormack, EA Engineering, Science, and Technology, Inc., PBC (email: tmccormack@eaest.com)

CONTRACTOR OFFICE: EA Engineering, Science, and Technology, Inc., PBC
2200 6th Avenue, Suite 707, Seattle, Washington, 98121

REVIEWER: Brenda Nuding, Project Chemist, EA Engineering, Science, and Technology, Inc., PBC (email: bnuding@eaest.com)

VALIDATION STAGE: S2AVM

REVIEW DATE: 07 November 2018

Four groundwater samples including one field duplicate and one trip blank were collected on 11 April 2018 in support of the Environmental Remediation Program Services for the Yakima Training Center in Washington. The samples were delivered to ALS Environmental in Kelso, Washington for the analyses indicated in the table below. Table 1 below provides a list of the field sample identification (ID), sample ID, sample collection date, and analyses performed.

Table 1. Sample Summary Table

Field Sample ID	Laboratory Sample ID	Matrix	Date Collected	Analyses Performed
FTP-14-20180411	K1803459-001	Groundwater	11 April 2018	GRO, DRO, and RRO
FTP-14A-20180411	K1803459-002	Field duplicate	11 April 2018	
FTP-15-20180411	K1803459-003	Groundwater	11 April 2018	
FTP-16-20180411	K1803459-004	Groundwater	11 April 2018	
FTP-TB-001-20180411	K1803459-005	Trip blank	11 April 2018	GRO

Notes:
DRO – diesel range organics
GRO – gasoline range organics
RRO – residual range organics

1. DATA VALIDATION REPORT

The analytical data presented in Sample Delivery Group (SDG) K1803459 were reviewed with respect to quality assurance/quality control (QC) parameters specified in the 2018 Programmatic Quality Assurance Project Plan for Environmental Remediation Program Services, Joint Base Lewis-McChord and Yakima Training Center, Washington (QAPP). In addition, the following guidance documents were used while assessing the validity of these data: U.S. Department of Defense (DoD), General Data Validation Guidelines, February 2018; DoD Quality Systems Manual, Version 5.1, January 2017; U.S. Environmental Protection Agency (USEPA) National Functional Guidelines for Superfund Organic Methods Data Review, January 2017; and the USEPA Office of Solid Waste, SW-846 Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, April 1998 and updates, as well as the referenced methodology.

Section 1 of this data validation report identifies the criteria reviewed for analyses of target analytes by the corresponding method. Section 2 provides definitions of data qualifiers that may be applied to analytical results based on the validation process. Section 3 provides an assessment of the overall data quality and a summary of final data qualification if any, and Section 4 provides the references to the guidelines and documents used in performing the data review.

The items listed below were evaluated for the Stage 2A (S2AVM) manual validation review as defined in the DoD General Data Validation Guidelines (2018), as applicable to the analytical method.

- Deliverables
- Condition of sample at laboratory receipt
- Holding times
- Method blanks
- Matrix spikes (MSs) and laboratory replicates
- Surrogates
- Laboratory duplicates
- Laboratory control samples (LCSs)
- Field QC samples
- Overall assessment of data.

2. GLOSSARY OF DATA QUALIFIERS

The following definitions provide a brief explanation for the data qualifiers that may be used during the review process. The definitions are consistent with DoD Data Validation Guidelines (2018).

No Qualifier	Indicates that the data are acceptable both qualitatively and quantitatively.
U	The analyte was not detected and was reported as less than the limit of detection (LOD). The LOD has been adjusted for dilution or concentration of the sample.
J	The reported result was an estimated value with an unknown bias.
J-	The result was an estimated quantity, but the result may be biased low.
J+	The result was an estimated quantity, but the result may be biased high.
UJ	The analyte was not detected and was reported as less than the associated estimated numerical value.
R	The sample results are unusable to achieve project data quality objectives based on certain QC criteria outside of acceptance limits. The analyte may or may not be present in the sample.

3. DATA VALIDATION SUMMARY

Analytical results were reviewed for the criteria listed in Section 1.0. A discussion of the data is presented below.

3.1 DELIVERABLES

The data package is complete.

3.2 CONDITION OF SAMPLE AT LABORATORY RECEIPT

The sample cooler and the samples contained within were received at the laboratory with the proper chemical preservative at temperatures within the recommended range of ≤6 degrees Celsius and not frozen. No qualification of sample data is necessary on the basis of the condition upon sample receipt or chain of custody.

3.3 GASOLINE RANGE ORGANICS

Project samples were prepared and analyzed for GRO according to NWTPH-Gx.

3.3.1 Holding Times

Samples were prepared and analyzed within the holding time specified in the referenced method of analysis.

3.3.2 Method Blanks

Method blanks were prepared and analyzed as specified by the referenced method. The method blank results are within the QAPP-specified QC limit (< ½ LOQ).

3.3.3 Matrix Spikes and Laboratory Replicates

No MSs were prepared using project samples for the analysis of GRO. A laboratory duplicate sample was prepared and analyzed as recommended by the referenced method. The relative percent difference (RPD) for original and duplicate sample results is within the QAPP-specified QC limit.

3.3.4 Surrogates

Surrogates were added to environmental and QC samples and standards for the analysis of organic compounds as required by the referenced methodology. Surrogate percent recoveries (%Rs) are within the QAPP-specified QC limits.

3.3.5 Laboratory Control Samples

An LCS (one per preparation batch) were prepared and analyzed as recommended by the referenced method. The %R for LCSs is within the QAPP-specified QC limits.

3.3.6 Field Quality Control Samples

A field duplicate sample was collected: field duplicate (FTP-14A-20180411) is associated with parent sample (FTP-14-20180411). The RPD between the parent and duplicate sample results that are greater than the LOQ are within the QAPP-specified QC limit (RPD<30 percent).

A trip blank was included in this SDG (FTP-TB-001-20180411). The analytical result for the trip blank was nondetectable and met QC limits (<½ LOQ).

3.4 DIESEL RANGE ORGANICS AND RESIDUAL RANGE ORGANICS

Project samples were prepared and analyzed for DRO and RRO according to NWTPH-Dx.

3.4.1 Holding Times

Samples were prepared and analyzed within the holding time specified in the referenced method of analysis.

3.4.2 Method Blanks

Method blanks were prepared and analyzed as specified by the referenced method. The method blank results are within the QAPP-specified QC limit (< ½ LOQ).

3.4.3 Matrix Spikes and Laboratory Replicates

No MSs were prepared using project samples for the analysis of DRO/RRO. A laboratory duplicate sample was prepared and analyzed as recommended by the referenced method. The original and duplicate sample results RPDs are within the QAPP-specified QC limits.

3.4.4 Surrogates

Surrogates were added to environmental and QC samples and standards for the analysis of organic compounds as required by the referenced methodology. The surrogate %Rs are within the QAPP-specified QC limits.

3.4.5 Laboratory Control Samples

LCSs were prepared and analyzed as recommended by the referenced method. The %Rs and RPDs for LCS results are within the QAPP-specified QC limits.

3.4.6 Field Quality Control Samples

One field duplicate sample was collected: sample ID FTP-14A-20180411 is associated with parent sample FTP-14-20180411. The RPDs between the parent and duplicate sample results that are greater than the LOQ are within the QAPP-specified QC limit (RPD<30 percent).

4. OVERALL ASSESSMENT OF DATA

No additional qualification of sample results was necessary during data validation. The data are acceptable and meet the project data quality objectives and are usable to support project decision-making.

Appropriate data flags were used and defined in the analytical report.

5. REFERENCES

EA Engineering, Science, and Technology, Inc., PBC. 2018. *Programmatic Quality Assurance Project Plan for Environmental Remediation Program Services, Joint Base Lewis-McChord and Yakima Training Center, Washington*.

U.S. Department of Defense. 2018. *General Data Validation Guidelines*. Environmental Data Quality Workgroup. February.

———. 2017. *Department of Defense Quality Systems Manual for Environmental Laboratories, Final Version 5.1*. January.

U.S. Environmental Protection Agency. 2017. *National Functional Guidelines for Organic Superfund Methods Data Review*. Office of Superfund Remediation and Technology Innovation. OLEM 9355.0-136. EPA-540-R-2017-002. January.

ALS Environmental
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April 30, 2018

Analytical Report for Service Request No: K1803459

Tim McCormack
EA Engineering, Science and Technology
2200 6th Ave, Suite 707
Seattle, WA 98121

RE: JBLM / 6304305

Dear Tim,

Enclosed are the results of the sample(s) submitted to our laboratory April 13, 2018
For your reference, these analyses have been assigned our service request number **K1803459.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3356. You may also contact me via email at Kurt.Clarkson@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kurt Clarkson
Sr. Project Manager

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Table of Contents

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Client: EA Engineering, Science, and Technology (EAEST)
Project: JBLM
Sample Matrix: Ground Water

Service Request: K1803459
Date Received: 04/13/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt:

Five ground water samples were received for analysis at ALS Environmental on 04/13/2018. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4ºC upon receipt at the laboratory.

Semivoa GC:

No significant anomalies were noted with this analysis.

Volatiles by GC/MS:

No significant anomalies were noted with this analysis.

Approved by _____ Date 04/30/2018

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

K1803459

CHAIN OF CUSTODY

Laboratory Information

Address: 1317 South 13th Ave., Kelso, WA 98626

Phone #: 360-577-7222 POC: Kurt Clarkson

COC #	Cooler # 1 of 1
Lab Quote #	Lab Job #:

Client / Reporting Information

Company Name	EA Engineering, Science, and Technology, Inc., PBC
Address	2200 6th Ave., Suite 707
City / State / Zip	Seattle / WA / 98121
Project Contact	Tim McCormack and per contract
Phone #	206-452-5350
Samplers's Name/Signature	GARRETT LEE

Project Information

Project Name	JBLM
Street	
City / State	Joint Base Lewis McCHord / WA
Project #	6304305
Email	tmccormack@eaest.com, bnuding@eaest.com, and pacificchem@eaest.com
Purchase Order #	17578

Matrix Codes

W- Water
GW - Ground Water
SW - Surface Water
SO - Soil
OI - Oil
WP - Wipe
LIQ - Non-aqueous Liquid
AIR
DW - Drinking Water (Perchlorate Only)

Lab Sample ID	Sample ID	Collection Date	Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	Analytical Information: VOCs (SW8260c)	SVOCs (8270d)	TPH-Gx (NWPTH-Gx)	TPH-Dx (NWTPH-Dx)	Notes
	FTP-14-20180411	11-Apr-2018	11:50	GL	GW	5	5										X	X	
	FTP-14A-20180411	11-Apr-2018	11:55	GL	GW	5	5										X	X	
	FTP-15-20180411	11-Apr-2018	13:10	GL	GW	5	5										X	X	
	FTP-16-20180411	11-Apr-2018	13:45	GL	GW	5	5										X	X	
	FTP-TB-001-20180411	11-Apr-2018	14:00	GL	GW	2	2										X		

Turnaround Time (Business days)	Data Deliverable Information	Comments / Remarks
standard	Level IV deliverable, Equis EDD and per contract	Samples from Site YAKIMA TRAINING CENTER

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		4/12/18 12:30	KMorrow 4/13/18			
2						
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
4						
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	On Ice Y / N / Trip Blank Y / N / Labels Match Coc? Y / N	Cooler Temp. ____ °C

PC KC

Cooler Receipt and Preservation Form

Client EA Engineering Service Request K1803459

Received: 4/13/18 Opened: 4/13/18 By: Kim Unloaded: 4/13/18 By: PK

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* Kim *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 2 front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID (NA)	Tracking Number NA	File
3.4	3.4	3.3	3.3	0.0	565		7719 8464 9691	

4. Packing material: *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves*
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA (Y) N
   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
11. Were VOA vials received without headspace? *Indicate in the table below.* NA (Y) N
12. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions:

Diesel and Residual Range Organics

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Client: EA Engineering, Science, and Technology **Service Request:** K1803459
Project: JBLM/6304305

Cover Page - Organic Analysis Data Package
Diesel and Residual Range Organics

Sample Name	Lab Code	Date Collected	Date Received
FTP-14-20180411	K1803459-001	04/11/2018	04/13/2018
FTP-14A-20180411	K1803459-002	04/11/2018	04/13/2018
FTP-15-20180411	K1803459-003	04/11/2018	04/13/2018
FTP-16-20180411	K1803459-004	04/11/2018	04/13/2018

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1803459
Project:	JBLM/6304305	**Date Collected:**	04/11/2018
Sample Matrix:	Ground water	**Date Received:**	04/13/2018

Diesel and Residual Range Organics

Sample Name:	FTP-14-20180411	**Units:**	ug/L
Lab Code:	K1803459-001	**Basis:**	NA
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	NWTPH-Dx		

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	**230**	Y	110	22	12	1	04/18/18	04/19/18	KWG1802033	
Residual Range Organics (RRO)	**160**	L	110	54	21	1	04/18/18	04/19/18	KWG1802033	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	73	50-150	04/19/18	Acceptable
n-Triacontane	79	50-150	04/19/18	Acceptable

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1803459
Project:	JBLM/6304305	**Date Collected:**	04/11/2018
Sample Matrix:	Ground water	**Date Received:**	04/13/2018

Diesel and Residual Range Organics

Sample Name:	FTP-14A-20180411	**Units:**	ug/L
Lab Code:	K1803459-002	**Basis:**	NA
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	NWTPH-Dx		

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	**220**	Y	110	22	12	1	04/18/18	04/19/18	KWG1802033	
Residual Range Organics (RRO)	**150**	L	110	54	21	1	04/18/18	04/19/18	KWG1802033	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	63	50-150	04/19/18	Acceptable
n-Triacontane	70	50-150	04/19/18	Acceptable

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1803459
Project:	JBLM/6304305	**Date Collected:**	04/11/2018
Sample Matrix:	Ground water	**Date Received:**	04/13/2018

Diesel and Residual Range Organics

Sample Name:	FTP-15-20180411	**Units:**	ug/L
Lab Code:	K1803459-003	**Basis:**	NA
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	NWTPH-Dx		

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	**190**	Y	110	21	12	1	04/18/18	04/19/18	KWG1802033	
Residual Range Organics (RRO)	**180**	L	110	52	20	1	04/18/18	04/19/18	KWG1802033	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	85	50-150	04/19/18	Acceptable
n-Triacontane	94	50-150	04/19/18	Acceptable

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1803459
Project:	JBLM/6304305	**Date Collected:**	04/11/2018
Sample Matrix:	Ground water	**Date Received:**	04/13/2018

Diesel and Residual Range Organics

Sample Name:	FTP-16-20180411	**Units:**	ug/L
Lab Code:	K1803459-004	**Basis:**	NA
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	NWTPH-Dx		

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	**170**	Y	110	22	12	1	04/18/18	04/20/18	KWG1802033	
Residual Range Organics (RRO)	**200**	L	110	54	21	1	04/18/18	04/20/18	KWG1802033	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	81	50-150	04/20/18	Acceptable
n-Triacontane	88	50-150	04/20/18	Acceptable

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1803459
Project:	JBLM/6304305	**Date Collected:**	NA
Sample Matrix:	Ground water	**Date Received:**	NA

Diesel and Residual Range Organics

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1802033-4	**Basis:**	NA
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	NWTPH-Dx		

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	**22**	J	100	20	11	1	04/18/18	04/19/18	KWG1802033	
Residual Range Organics (RRO)	**42**	J	100	50	19	1	04/18/18	04/19/18	KWG1802033	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	66	50-150	04/19/18	Acceptable
n-Triacontane	72	50-150	04/19/18	Acceptable

Comments:

QA/QC Report

Client: EA Engineering, Science, and Technology **Service Request:** K1803459
Project: JBLM/6304305
Sample Matrix: Ground water

Surrogate Recovery Summary
Diesel and Residual Range Organics

Extraction Method: EPA 3510C **Units:** Percent
Analysis Method: NWTPH-Dx **Level:** Low

Sample Name	Lab Code	Sur1	Sur2
Batch QC	K1802993-009RE	88	97
FTP-14-20180411	K1803459-001	73	79
FTP-14A-20180411	K1803459-002	63	70
FTP-15-20180411	K1803459-003	85	94
FTP-16-20180411	K1803459-004	81	88
Batch QCDUP	KWG1802033-1	89	99
Method Blank	KWG1802033-4	66	72
Lab Control Sample	KWG1802033-2	92	94
Duplicate Lab Control Sample	KWG1802033-3	98	103

Surrogate Recovery Control Limits (%)

Sur1	= o-Terphenyl	50-150
Sur2	= n-Triacontane	50-150

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1803459
Project:	JBLM/6304305	**Date Extracted:**	04/18/2018
Sample Matrix:	Ground water	**Date Analyzed:**	04/20/2018

Duplicate Sample Summary
Diesel and Residual Range Organics

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1802993-009RE	**Basis:**	NA
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	NWTPH-Dx	**Extraction Lot:**	KWG1802033

				Batch QCDUP KWG1802033-1			
				Duplicate Sample			
Analyte Name	**LOQ**	**MDL**	**Sample Result**	**Result**	**Average**	**Relative Percent Difference**	**RPD Limit**
Diesel Range Organics (DRO)	110	12	9500	11000	10000	11	30
Residual Range Organics (RRO)	110	21	2100	2500	2300	17	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1803459
Project:	JBLM/6304305	**Date Extracted:**	04/18/2018
Sample Matrix:	Ground water	**Date Analyzed:**	04/19/2018

Lab Control Spike/Duplicate Lab Control Spike Summary
Diesel and Residual Range Organics

Extraction Method:	EPA 3510C	**Units:**	ug/L
Analysis Method:	NWTPH-Dx	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1802033

	Lab Control Sample KWG1802033-2 Lab Control Spike			Duplicate Lab Control Sample KWG1802033-3 Duplicate Lab Control Spike					
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Diesel Range Organics (DRO)	2270	3200	71	2750	3200	86	46-140	19	30
Residual Range Organics (RRO)	1190	1600	75	1380	1600	86	45-159	14	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1803459
Project:	JBLM/6304305	**Date Extracted:**	04/18/2018
Sample Matrix:	Ground water	**Date Analyzed:**	04/19/2018
		Time Analyzed:	22:08

Method Blank Summary
Diesel and Residual Range Organics

Sample Name:	Method Blank	**Instrument ID:**	GC21
Lab Code:	KWG1802033-4	**File ID:**	J:\GC21\DATA\041918F\0419040.D
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	NWTPH-Dx	**Extraction Lot:**	KWG1802033

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Lab Control Sample	KWG1802033-2	J:\GC21\DATA\041918F\0419038.D	04/19/18	21:24
Duplicate Lab Control Sample	KWG1802033-3	J:\GC21\DATA\041918F\0419039.D	04/19/18	21:46
FTP-14-20180411	K1803459-001	J:\GC21\DATA\041918F\0419043.D	04/19/18	23:14
FTP-14A-20180411	K1803459-002	J:\GC21\DATA\041918F\0419044.D	04/19/18	23:35
FTP-15-20180411	K1803459-003	J:\GC21\DATA\041918F\0419045.D	04/19/18	23:57
FTP-16-20180411	K1803459-004	J:\GC21\DATA\041918F\0419046.D	04/20/18	00:19
Batch QC	K1802993-009RE	J:\GC21\DATA\041918F\0419049.D	04/20/18	01:24
Batch QCDUP	KWG1802033-1	J:\GC21\DATA\041918F\0419050.D	04/20/18	01:46

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1803459
Project:	JBLM/6304305	**Date Extracted:**	04/18/2018
Sample Matrix:	Ground water	**Date Analyzed:**	04/19/2018
		Time Analyzed:	21:24

Lab Control Sample Summary
Diesel and Residual Range Organics

Sample Name:	Lab Control Sample	**Instrument ID:**	GC21
Lab Code:	KWG1802033-2	**File ID:**	J:\GC21\DATA\041918F\0419038.D
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	NWTPH-Dx	**Extraction Lot:**	KWG1802033

This Lab Control Sample applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Method Blank	KWG1802033-4	J:\GC21\DATA\041918F\0419040.D	04/19/18	22:08
FTP-14-20180411	K1803459-001	J:\GC21\DATA\041918F\0419043.D	04/19/18	23:14
FTP-14A-20180411	K1803459-002	J:\GC21\DATA\041918F\0419044.D	04/19/18	23:35
FTP-15-20180411	K1803459-003	J:\GC21\DATA\041918F\0419045.D	04/19/18	23:57
FTP-16-20180411	K1803459-004	J:\GC21\DATA\041918F\0419046.D	04/20/18	00:19
Batch QC	K1802993-009RE	J:\GC21\DATA\041918F\0419049.D	04/20/18	01:24
Batch QCDUP	KWG1802033-1	J:\GC21\DATA\041918F\0419050.D	04/20/18	01:46

Client: EA Engineering, Science, and Technology **Service Request:** K1803459
Project: JBLM/6304305 **Calibration Date:** 01/30/2018

Initial Calibration Summary
Diesel and Residual Range Organics

Calibration ID: CAL15680 **Column:** ZB-1
Instrument ID: GC21

Level ID	File ID	Level ID	File ID
A	J:\GC21\DATA\013018F\0130021.D	J	J:\GC21\DATA\020118F\0201019.D
B	J:\GC21\DATA\013018F\0130022.D	K	J:\GC21\DATA\020118F\0201020.D
C	J:\GC21\DATA\013018F\0130023.D	L	J:\GC21\DATA\020118F\0201021.D
D	J:\GC21\DATA\013018F\0130025.D	M	J:\GC21\DATA\042318F\0423023.D
E	J:\GC21\DATA\013018F\0130026.D	N	J:\GC21\DATA\042318F\0423024.D
F	J:\GC21\DATA\013018F\0130027.D	O	J:\GC21\DATA\042318F\0423025.D
G	J:\GC21\DATA\013018F\0130028.D	P	J:\GC21\DATA\042318F\0423026.D
H	J:\GC21\DATA\020118F\0201017.D	Q	J:\GC21\DATA\042318F\0423027.D
I	J:\GC21\DATA\020118F\0201018.D		

Analyte Name	Level ID	Amt	RF	Level ID	Amt	RF	Level ID	Amt	RF	Level ID	Amt	RF	Level ID	Amt	RF
Diesel Range Organics (DRO)	A	20	1420	B	50	1340	C	200	1370	D	2000	1300	E	5000	1100
	F	20000	1300	G	50000	1230									
							M	0.0	0.00	N	0.0	0.00	O	0.0	0.00
	P	0.0	0.00	Q	0.0	0.00									
Residual Range Organics (RRO)															
							H	50	746	I	200	702	J	500	679
	K	2000	661	L	5000	677	M	0.0	0.00	N	0.0	0.00	O	0.0	0.00
	P	0.0	0.00	Q	0.0	0.00									
o-Terphenyl	A	1.0	1910	B	2.5	1810	C	10	1920	D	100	1870	E	250	1560
							M	0.0	0.00	N	0.0	0.00	O	0.0	0.00
	P	0.0	0.00	Q	0.0	0.00									
n-Triacontane	A	1.0	1460	B	2.5	1380	C	10	1440	D	100	1410	E	250	1170
							M	0.0	0.00	N	0.0	0.00	O	0.0	0.00
	P	0.0	0.00	Q	0.0	0.00									

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: EA Engineering, Science, and Technology **Service Request:** K1803459
Project: JBLM/6304305 **Calibration Date:** 01/30/2018

Initial Calibration Summary
Diesel and Residual Range Organics

Calibration ID: CAL15680 **Column:** ZB-1
Instrument ID: GC21

Analyte Name	Compound Type	Calibration Evaluation: Fit Type	Eval.	Eval. Result	Q	Control Criteria
Diesel Range Organics (DRO)	MS	AverageRF	% RSD	7.9		≤ 20
Residual Range Organics (RRO)	MS	AverageRF	% RSD	4.8		≤ 20
o-Terphenyl	SURR	AverageRF	% RSD	8.2		≤ 20
n-Triacontane	SURR	AverageRF	% RSD	8.5		≤ 20

Results flagged with an asterisk (*) indicate values outside control criteria.

QA/QC Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1803459
Project:	JBLM/6304305	**Calibration Date:**	01/30/2018
		Date Analyzed:	01/30/2018 - 02/01/2018

Second Source Calibration Verification
Diesel and Residual Range Organics

Calibration Type:	External Standard	**Calibration ID:**	CAL15680
Analysis Method:	NWTPH-Dx	**Units:**	ppm
File ID:	J:\GC21\DATA\042318F\0423029.D J:\GC21\DATA\013018F\0130029.D J:\GC21\DATA\020118F\0201022.D	**Column ID:**	ZB-1

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1100	1290	1440	12	NA	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	890	693	613	-11	NA	± 15 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1803459
Date Analyzed: 04/19/2018

Continuing Calibration Verification Summary
Diesel and Residual Range Organics

Calibration Type: External Standard
Analysis Method: NWTPH-Dx

Calibration Date: 01/30/2018
Calibration ID: CAL15680
Analysis Lot: KWG1802072
Units: ppm

File ID: J:\GC21\DATA\041918F\0419035.D
J:\GC21\DATA\041918F\0419036.D

Column ID: ZB-1

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1100	1290	1420	10	NA	± 15	AverageRF
Residual Range Organics (RRO)	1000	1000	693	702	1	NA	± 15	AverageRF
o-Terphenyl	50	52	1810	1890	4	NA	± 15	AverageRF
n-Triacontane	50	55	1370	1500	9	NA	± 15	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1803459
Date Analyzed: 04/20/2018

Continuing Calibration Verification Summary
Diesel and Residual Range Organics

Calibration Type: External Standard
Analysis Method: NWTPH-Dx

Calibration Date: 01/30/2018
Calibration ID: CAL15680
Analysis Lot: KWG1802072
Units: ppm

File ID: J:\GC21\DATA\041918F\0419051.D
J:\GC21\DATA\041918F\0419052.D

Column ID: ZB-1

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1100	1290	1490	15	NA	± 15	AverageRF
Residual Range Organics (RRO)	1000	1100	693	743	7	NA	± 15	AverageRF
o-Terphenyl	50	54	1810	1950	8	NA	± 15	AverageRF
n-Triacontane	50	57	1370	1570	14	NA	± 15	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: EA Engineering, Science, and Technology **Service Request:** K1803459
Project: JBLM/6304305

Analysis Run Log
Diesel and Residual Range Organics

Analysis Method: NWTPH-Dx **Analysis Lot:** KWG1802072
Instrument ID: GC21
Column: ZB-1

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
\0419004.D	Continuing Calibration Verification	KWG1802072-1	4/19/2018	09:09		4/19/2018	09:25
\0419005.D	Continuing Calibration Verification	KWG1802072-1	4/19/2018	09:31		4/19/2018	09:47
\0419006.D	Instrument Blank	KWG1802072-6	4/19/2018	09:53		4/19/2018	10:09
\0419009.D	ZZZZZZ	ZZZZZZ	4/19/2018	10:58		4/19/2018	11:14
\0419010.D	ZZZZZZ	ZZZZZZ	4/19/2018	11:19		4/19/2018	11:35
\0419011.D	ZZZZZZ	ZZZZZZ	4/19/2018	11:41		4/19/2018	11:57
\0419012.D	ZZZZZZ	ZZZZZZ	4/19/2018	12:03		4/19/2018	12:19
\0419013.D	ZZZZZZ	ZZZZZZ	4/19/2018	12:24		4/19/2018	12:40
\0419014.D	ZZZZZZ	ZZZZZZ	4/19/2018	12:46		4/19/2018	13:02
\0419015.D	ZZZZZZ	ZZZZZZ	4/19/2018	13:08		4/19/2018	13:24
\0419016.D	ZZZZZZ	ZZZZZZ	4/19/2018	13:29		4/19/2018	13:45
\0419017.D	ZZZZZZ	ZZZZZZ	4/19/2018	13:51		4/19/2018	14:07
\0419018.D	ZZZZZZ	ZZZZZZ	4/19/2018	14:12		4/19/2018	14:28
\0419019.D	ZZZZZZ	ZZZZZZ	4/19/2018	14:33		4/19/2018	14:49
\0419020.D	ZZZZZZ	ZZZZZZ	4/19/2018	14:55		4/19/2018	15:11
\0419021.D	ZZZZZZ	ZZZZZZ	4/19/2018	15:16		4/19/2018	15:32
\0419022.D	Continuing Calibration Verification	KWG1802072-2	4/19/2018	15:38		4/19/2018	15:54
\0419023.D	Continuing Calibration Verification	KWG1802072-2	4/19/2018	15:59		4/19/2018	16:15
\0419024.D	Instrument Blank	KWG1802072-7	4/19/2018	16:21		4/19/2018	16:37
\0419025.D	ZZZZZZ	ZZZZZZ	4/19/2018	16:42		4/19/2018	16:58
\0419026.D	ZZZZZZ	ZZZZZZ	4/19/2018	17:04		4/19/2018	17:20
\0419027.D	ZZZZZZ	ZZZZZZ	4/19/2018	17:25		4/19/2018	17:41
\0419028.D	ZZZZZZ	ZZZZZZ	4/19/2018	17:47		4/19/2018	18:03
\0419029.D	ZZZZZZ	ZZZZZZ	4/19/2018	18:08		4/19/2018	18:24
\0419030.D	ZZZZZZ	ZZZZZZ	4/19/2018	18:29		4/19/2018	18:45
\0419031.D	ZZZZZZ	ZZZZZZ	4/19/2018	18:51		4/19/2018	19:07
\0419032.D	ZZZZZZ	ZZZZZZ	4/19/2018	19:12		4/19/2018	19:28
\0419033.D	ZZZZZZ	ZZZZZZ	4/19/2018	19:34		4/19/2018	19:50
\0419034.D	ZZZZZZ	ZZZZZZ	4/19/2018	19:56		4/19/2018	20:12
\0419035.D	Continuing Calibration Verification	KWG1802072-3	4/19/2018	20:18		4/19/2018	20:34
\0419036.D	Continuing Calibration Verification	KWG1802072-3	4/19/2018	20:40		4/19/2018	20:56
\0419037.D	Instrument Blank	KWG1802072-8	4/19/2018	21:02		4/19/2018	21:18
\0419038.D	Lab Control Sample	KWG1802033-2	4/19/2018	21:24		4/19/2018	21:40
\0419039.D	Duplicate Lab Control Sample	KWG1802033-3	4/19/2018	21:46		4/19/2018	22:02
\0419040.D	Method Blank	KWG1802033-4	4/19/2018	22:08		4/19/2018	22:24

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

Client: EA Engineering, Science, and Technology **Service Request:** K1803459
Project: JBLM/6304305

Analysis Run Log
Diesel and Residual Range Organics

Analysis Method: NWTPH-Dx **Analysis Lot:** KWG1802072
Instrument ID: GC21
Column: ZB-1

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
\0419041.D	ZZZZZZ	ZZZZZZ	4/19/2018	22:30		4/19/2018	22:46
\0419042.D	ZZZZZZ	ZZZZZZ	4/19/2018	22:52		4/19/2018	23:08
\0419043.D	FTP-14-20180411	K1803459-001	4/19/2018	23:14		4/19/2018	23:30
\0419044.D	FTP-14A-20180411	K1803459-002	4/19/2018	23:35		4/19/2018	23:51
\0419045.D	FTP-15-20180411	K1803459-003	4/19/2018	23:57		4/20/2018	00:13
\0419046.D	FTP-16-20180411	K1803459-004	4/20/2018	00:19		4/20/2018	00:35
\0419047.D	ZZZZZZ	ZZZZZZ	4/20/2018	00:41		4/20/2018	00:57
\0419048.D	ZZZZZZ	ZZZZZZ	4/20/2018	01:02		4/20/2018	01:18
\0419049.D	Batch QC	K1802993-009RE	4/20/2018	01:24		4/20/2018	01:40
\0419050.D	Batch QCDUP	KWG1802033-1	4/20/2018	01:46		4/20/2018	02:02
\0419051.D	Continuing Calibration Verification	KWG1802072-4	4/20/2018	02:08		4/20/2018	02:24
\0419052.D	Continuing Calibration Verification	KWG1802072-4	4/20/2018	02:30		4/20/2018	02:46
\0419053.D	Instrument Blank	KWG1802072-9	4/20/2018	02:51		4/20/2018	03:07
\0419054.D	ZZZZZZ	ZZZZZZ	4/20/2018	03:13		4/20/2018	03:29
\0419055.D	ZZZZZZ	ZZZZZZ	4/20/2018	03:34		4/20/2018	03:50
\0419056.D	ZZZZZZ	ZZZZZZ	4/20/2018	03:56		4/20/2018	04:12
\0419057.D	ZZZZZZ	ZZZZZZ	4/20/2018	04:18		4/20/2018	04:34
\0419058.D	ZZZZZZ	ZZZZZZ	4/20/2018	04:39		4/20/2018	04:55
\0419059.D	ZZZZZZ	ZZZZZZ	4/20/2018	05:01		4/20/2018	05:17
\0419060.D	ZZZZZZ	ZZZZZZ	4/20/2018	05:23		4/20/2018	05:39
\0419061.D	ZZZZZZ	ZZZZZZ	4/20/2018	05:44		4/20/2018	06:00
\0419062.D	ZZZZZZ	ZZZZZZ	4/20/2018	06:06		4/20/2018	06:22
\0419064.D	Continuing Calibration Verification	KWG1802072-5	4/20/2018	06:49		4/20/2018	07:05
\0419065.D	Continuing Calibration Verification	KWG1802072-5	4/20/2018	07:11		4/20/2018	07:27
\0419066.D	Instrument Blank	KWG1802072-10	4/20/2018	07:33		4/20/2018	07:49

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

QA/QC Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1803459
Date Extracted: 04/18/2018

Extraction Prep Log
Diesel and Residual Range Organics

Extraction Method: EPA 3510C
Analysis Method: NWTPH-Dx

Extraction Lot: KWG1802033
Level: Low

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Volume	% Solids	Note
FTP-14-20180411	K1803459-001	04/11/18	04/13/18	470ml	1ml	NA	
FTP-14A-20180411	K1803459-002	04/11/18	04/13/18	470ml	1ml	NA	
FTP-15-20180411	K1803459-003	04/11/18	04/13/18	490ml	1ml	NA	
FTP-16-20180411	K1803459-004	04/11/18	04/13/18	470ml	1ml	NA	
Batch QCDUP	KWG1802033-1	NA	NA	470ml	1ml	NA	
Method Blank	KWG1802033-4	NA	NA	500ml	1ml	NA	
Batch QC	K1802993-009RE	NA	NA	460ml	1ml	NA	*
Lab Control Sample	KWG1802033-2	NA	NA	500ml	1ml	NA	
Duplicate Lab Control Sample	KWG1802033-3	NA	NA	500ml	1ml	NA	

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

Gasoline Range Organics

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Client: EA Engineering, Science, and Technology **Service Request:** K1803459
Project: JBLM/6304305

Cover Page - Organic Analysis Data Package
Gasoline Range Organics

Sample Name	Lab Code	Date Collected	Date Received
FTP-14-20180411	K1803459-001	04/11/2018	04/13/2018
FTP-14A-20180411	K1803459-002	04/11/2018	04/13/2018
FTP-15-20180411	K1803459-003	04/11/2018	04/13/2018
FTP-16-20180411	K1803459-004	04/11/2018	04/13/2018
FTP-TB-001-20180411	K1803459-005	04/11/2018	04/13/2018
FTP-14-20180411	KWG1802186-1	04/11/2018	04/13/2018

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1803459
Project:	JBLM/6304305	**Date Collected:**	04/11/2018
Sample Matrix:	Ground water	**Date Received:**	04/13/2018

Gasoline Range Organics

Sample Name:	FTP-14-20180411	**Units:**	ug/L
Lab Code:	K1803459-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	**19**	J	250	25	12	1	04/16/18	04/16/18	KWG1802186	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	82	50-150	04/16/18	Acceptable

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1803459
Project:	JBLM/6304305	**Date Collected:**	04/11/2018
Sample Matrix:	Ground water	**Date Received:**	04/13/2018

Gasoline Range Organics

Sample Name:	FTP-14A-20180411	**Units:**	ug/L
Lab Code:	K1803459-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	**14**	J	250	25	12	1	04/16/18	04/16/18	KWG1802186	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	82	50-150	04/16/18	Acceptable

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1803459
Project:	JBLM/6304305	**Date Collected:**	04/11/2018
Sample Matrix:	Ground water	**Date Received:**	04/13/2018

Gasoline Range Organics

Sample Name:	FTP-15-20180411	**Units:**	ug/L
Lab Code:	K1803459-003	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	25	12	1	04/16/18	04/16/18	KWG1802186	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	81	50-150	04/16/18	Acceptable

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1803459
Project:	JBLM/6304305	**Date Collected:**	04/11/2018
Sample Matrix:	Ground water	**Date Received:**	04/13/2018

Gasoline Range Organics

Sample Name:	FTP-16-20180411	**Units:**	ug/L
Lab Code:	K1803459-004	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	25	12	1	04/16/18	04/16/18	KWG1802186	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	80	50-150	04/16/18	Acceptable

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1803459
Project:	JBLM/6304305	**Date Collected:**	04/11/2018
Sample Matrix:	Ground water	**Date Received:**	04/13/2018

Gasoline Range Organics

Sample Name:	FTP-TB-001-20180411	**Units:**	ug/L
Lab Code:	K1803459-005	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	25	12	1	04/16/18	04/16/18	KWG1802186	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	83	50-150	04/16/18	Acceptable

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1803459
Project:	JBLM/6304305	**Date Collected:**	NA
Sample Matrix:	Ground water	**Date Received:**	NA

Gasoline Range Organics

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1802186-3	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	25	12	1	04/16/18	04/16/18	KWG1802186	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	81	50-150	04/16/18	Acceptable

Comments:

QA/QC Report

Client: EA Engineering, Science, and Technology **Service Request:** K1803459
Project: JBLM/6304305
Sample Matrix: Ground water

Surrogate Recovery Summary
Gasoline Range Organics

Extraction Method: EPA 5030B **Units:** Percent
Analysis Method: NWTPH-Gx **Level:** Low

Sample Name	Lab Code	Sur1
FTP-14-20180411	K1803459-001	82
FTP-14A-20180411	K1803459-002	82
FTP-15-20180411	K1803459-003	81
FTP-16-20180411	K1803459-004	80
FTP-TB-001-20180411	K1803459-005	83
FTP-14-20180411DUP	KWG1802186-1	81
Method Blank	KWG1802186-3	81
Lab Control Sample	KWG1802186-2	82

Surrogate Recovery Control Limits (%)

Sur1 = 1,4-Difluorobenzene 50-150

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1803459
Project:	JBLM/6304305	**Date Extracted:**	04/16/2018
Sample Matrix:	Ground water	**Date Analyzed:**	04/16/2018

Duplicate Sample Summary
Gasoline Range Organics

Sample Name:	FTP-14-20180411	**Units:**	ug/L
Lab Code:	K1803459-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx	**Extraction Lot:**	KWG1802186

				FTP-14-20180411DUP KWG1802186-1 Duplicate Sample			
Analyte Name	**LOQ**	**MDL**	**Sample Result**	**Result**	**Average**	**Relative Percent Difference**	**RPD Limit**
Gasoline Range Organics-NWTPH	250	12	19	17	18	14 #	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1803459
Project:	JBLM/6304305	**Date Extracted:**	04/16/2018
Sample Matrix:	Ground water	**Date Analyzed:**	04/16/2018

Lab Control Spike Summary
Gasoline Range Organics

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	NWTPH-Gx	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1802186

Lab Control Sample
KWG1802186-2
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Gasoline Range Organics-NWTPH	501	500	100	80-119

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1803459
Project:	JBLM/6304305	**Date Extracted:**	04/16/2018
Sample Matrix:	Ground water	**Date Analyzed:**	04/16/2018
		Time Analyzed:	10:43

Method Blank Summary
Gasoline Range Organics

Sample Name:	Method Blank	**Instrument ID:**	GC39
Lab Code:	KWG1802186-3	**File ID:**	J:\GC39\DATA\041618\0416F005.D
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx	**Extraction Lot:**	KWG1802186

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Lab Control Sample	KWG1802186-2	J:\GC39\DATA\041618\0416F006.D	04/16/18	11:08
FTP-14-20180411	K1803459-001	J:\GC39\DATA\041618\0416F008.D	04/16/18	12:06
FTP-14-20180411DUP	KWG1802186-1	J:\GC39\DATA\041618\0416F009.D	04/16/18	12:30
FTP-14A-20180411	K1803459-002	J:\GC39\DATA\041618\0416F010.D	04/16/18	12:54
FTP-15-20180411	K1803459-003	J:\GC39\DATA\041618\0416F011.D	04/16/18	13:19
FTP-16-20180411	K1803459-004	J:\GC39\DATA\041618\0416F012.D	04/16/18	13:43
FTP-TB-001-20180411	K1803459-005	J:\GC39\DATA\041618\0416F013.D	04/16/18	14:07

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1803459
Project:	JBLM/6304305	**Date Extracted:**	04/16/2018
Sample Matrix:	Ground water	**Date Analyzed:**	04/16/2018
		Time Analyzed:	11:08

Lab Control Sample Summary
Gasoline Range Organics

Sample Name:	Lab Control Sample	**Instrument ID:**	GC39
Lab Code:	KWG1802186-2	**File ID:**	J:\GC39\DATA\041618\0416F006.D
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx	**Extraction Lot:**	KWG1802186

This Lab Control Sample applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Method Blank	KWG1802186-3	J:\GC39\DATA\041618\0416F005.D	04/16/18	10:43
FTP-14-20180411	K1803459-001	J:\GC39\DATA\041618\0416F008.D	04/16/18	12:06
FTP-14-20180411DUP	KWG1802186-1	J:\GC39\DATA\041618\0416F009.D	04/16/18	12:30
FTP-14A-20180411	K1803459-002	J:\GC39\DATA\041618\0416F010.D	04/16/18	12:54
FTP-15-20180411	K1803459-003	J:\GC39\DATA\041618\0416F011.D	04/16/18	13:19
FTP-16-20180411	K1803459-004	J:\GC39\DATA\041618\0416F012.D	04/16/18	13:43
FTP-TB-001-20180411	K1803459-005	J:\GC39\DATA\041618\0416F013.D	04/16/18	14:07

Client: EA Engineering, Science, and Technology **Service Request:** K1803459
Project: JBLM/6304305 **Calibration Date:** 03/27/2018

Initial Calibration Summary
Gasoline Range Organics

Calibration ID: CAL15712 **Column:** DB-624
Instrument ID: GC39

Level ID	File ID	Level ID	File ID
A	J:\GC39\DATA\0032718\0327F008.D	E	J:\GC39\DATA\0032718\0327F012.D
B	J:\GC39\DATA\0032718\0327F009.D	F	J:\GC39\DATA\0032718\0327F013.D
C	J:\GC39\DATA\0032718\0327F010.D	G	J:\GC39\DATA\0032718\0327F014.D
D	J:\GC39\DATA\0032718\0327F011.D		

Analyte Name	Level ID	Amt	RF	Level ID	Amt	RF	Level ID	Amt	RF	Level ID	Amt	RF	Level ID	Amt	RF
Gasoline Range Organics-NWTPH	A	50	69700	B	100	71000	C	200	62700	D	500	69000	E	1000	68300
	F	5000	68300	G	10000	70400									
1,4-Difluorobenzene	A	20	1.38E+5	B	25	1.25E+5	C	50	1.54E+5	D	100	1.52E+5	E	150	1.49E+5

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: EA Engineering, Science, and Technology **Service Request:** K1803459
Project: JBLM/6304305 **Calibration Date:** 03/27/2018

Initial Calibration Summary
Gasoline Range Organics

Calibration ID: CAL15712 **Column:** DB-624
Instrument ID: GC39

Analyte Name	Compound Type	Calibration Evaluation				
		Fit Type	Eval.	Eval. Result	Q	Control Criteria
Gasoline Range Organics-NWTPH	MS	AverageRF	% RSD	4.0		≤ 20
1,4-Difluorobenzene	SURR	AverageRF	% RSD	8.5		≤ 20

Results flagged with an asterisk (*) indicate values outside control criteria.

QA/QC Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1803459
Calibration Date: 03/27/2018
Date Analyzed: 03/27/2018

Second Source Calibration Verification
Gasoline Range Organics

Calibration Type: External Standard
Analysis Method: NWTPH-Gx

Calibration ID: CAL15712
Units: ug/L

File ID: J:\GC39\DATA\0032718\0327F018.D

Column ID: DB-624

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Gasoline Range Organics-NWTPH	500	520	68500	73400	7	NA	± 15 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

QA/QC Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1803459
Project:	JBLM/6304305	**Date Analyzed:**	04/16/2018

Continuing Calibration Verification Summary
Gasoline Range Organics

Calibration Type:	External Standard	**Calibration Date:**	03/27/2018
Analysis Method:	NWTPH-Gx	**Calibration ID:**	CAL15712
		Analysis Lot:	KWG1802185
		Units:	ug/L
File ID:	J:\GC39\DATA\041618\0416F003.D	**Column ID:**	DB-624

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Gasoline Range Organics-NWTPH	500	510	68500	69400	1	NA	± 20	AverageRF
1,4-Difluorobenzene	100	84	144000	120000	-16	NA	± 20	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1803459
Date Analyzed: 04/16/2018

Continuing Calibration Verification Summary
Gasoline Range Organics

Calibration Type: External Standard
Analysis Method: NWTPH-Gx

Calibration Date: 03/27/2018
Calibration ID: CAL15712
Analysis Lot: KWG1802185
Units: ug/L

File ID: J:\GC39\DATA\041618\0416F014.D

Column ID: DB-624

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Gasoline Range Organics-NWTPH	500	510	68500	69400	1	NA	± 20	AverageRF
1,4-Difluorobenzene	100	86	144000	124000	-14	NA	± 20	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

QA/QC Results

Client: EA Engineering, Science, and Technology **Service Request:** K1803459
Project: JBLM/6304305

Analysis Run Log
Gasoline Range Organics

Analysis Method: NWTPH-Gx

Analysis Lot: KWG1802185
Instrument ID: GC39
Column: DB-624

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0416F003.D	Continuing Calibration Verification	KWG1802185-1	4/16/2018	09:55		4/16/2018	10:10
0416F004.D	Instrument Blank	KWG1802185-3	4/16/2018	10:19		4/16/2018	10:34
0416F005.D	Method Blank	KWG1802186-3	4/16/2018	10:43		4/16/2018	10:58
0416F006.D	Lab Control Sample	KWG1802186-2	4/16/2018	11:08		4/16/2018	11:23
0416F007.D	ZZZZZZ	ZZZZZZ	4/16/2018	11:42		4/16/2018	11:57
0416F008.D	FTP-14-20180411	K1803459-001	4/16/2018	12:06		4/16/2018	12:21
0416F009.D	FTP-14-20180411DUP	KWG1802186-1	4/16/2018	12:30		4/16/2018	12:45
0416F010.D	FTP-14A-20180411	K1803459-002	4/16/2018	12:54		4/16/2018	13:09
0416F011.D	FTP-15-20180411	K1803459-003	4/16/2018	13:19		4/16/2018	13:34
0416F012.D	FTP-16-20180411	K1803459-004	4/16/2018	13:43		4/16/2018	13:58
0416F013.D	FTP-TB-001-20180411	K1803459-005	4/16/2018	14:07		4/16/2018	14:22
0416F014.D	Continuing Calibration Verification	KWG1802185-2	4/16/2018	14:31		4/16/2018	14:46
0416F015.D	Instrument Blank	KWG1802185-4	4/16/2018	14:55		4/16/2018	15:10

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

QA/QC Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1803459
Date Extracted: 04/16/2018

Extraction Prep Log
Gasoline Range Organics

Extraction Method: EPA 5030B
Analysis Method: NWTPH-Gx

Extraction Lot: KWG1802186
Level: Low

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Volume	% Solids	Note
FTP-14-20180411	K1803459-001	04/11/18	04/13/18	10ml	10ml	NA	
FTP-14A-20180411	K1803459-002	04/11/18	04/13/18	10ml	10ml	NA	
FTP-15-20180411	K1803459-003	04/11/18	04/13/18	10ml	10ml	NA	
FTP-16-20180411	K1803459-004	04/11/18	04/13/18	10ml	10ml	NA	
FTP-TB-001-20180411	K1803459-005	04/11/18	04/13/18	10ml	10ml	NA	
FTP-14-20180411DUP	KWG1802186-1	04/11/18	04/13/18	10ml	10ml	NA	
Method Blank	KWG1802186-3	NA	NA	10ml	10ml	NA	
Lab Control Sample	KWG1802186-2	NA	NA	10ml	10ml	NA	

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

SAMPLE DELIVERY GROUP K1808923

12-13 SEPTEMBER 2018

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Joint Base Lewis-McChord

Well Purging and Sampling Record

Well ID: FTP-1 **Sample ID:** FTP-1-20180912 **Sample Date/Time:** 9/12/18/1515

Casing diameter/type: 4" | Well location: Fire training pit | Weather: 78°, sunny

Screened interval(s): 8'-18' | Sampling personnel: GL HD

Total depth: 23.88 | Sampling method: Bailer

Initial depth to water (w/o pump): 12.76 | Water level indicator: Solinst 21703

Final depth to water (w/o pump): ~~GL 23.60 + 19.35 - 23.88~~ | Water quality meter: —

Measuring point: **North side of casing** | Pump depth setting: — | Pump type/model: —

	Δ < 1° C	Δ < 10%	Δ <10%	Δ <10%	Δ < 0.1 pH	Δ < 10 mV	Δ < 0.3 ft	< 1L/min	Δ < 10 NTU		
Time	**Temp (°C)**	**Conductivity (mS/cm) or (µS/cm)**	**DO (%)**	**DO (mg/L)**	**pH**	**ORP (mV)**	**Water Level (feet btoc)**	**Flow Rate (L/min) or (mL/min)**	**Turbidity (NTU)**	**Purge Volume (L) or (mL)**	**Additional Comments**
Purged	3 well	volumes ≈ 21.73		GAL						Petroleum odor	
1515	COLLECTED SAMPLE										
										HD	

Note: MS/MSD COLLECTED

Parameter Stabilization Limits:
(3 consecutive readings) for percent difference type parameters
Percent difference formula =
ABS[((first reading - second reading)/first reading) x 100]
Ex: Readings 12, 16, 15, 13
((12-16)/12)*100 = 33% ((16-15)/16)*100 = 6%
((15-13)/15)*100 = 13% In example, stabilization has not occurred.

# of Bottles / Analysis:

9 VOCs by 8260C
9 TPH-Gx (NWTPH-Gx)
6 TPH-Dx (NWTPH-Dx)
6 SVOCs (EZ700)
—
—
—

Joint Base Lewis-McChord

Well Purging and Sampling Record

Well ID: FTP-14 **Sample ID:** FTP-14-20180912 **Sample Date/Time:** 9/12/18 / 1235

Casing diameter/type: 4" PVC
Well location: Fire Training Pit
Weather: 70° sunny windy
Screened interval(s): 12'-22'
Sampling personnel: GL + HD
Total depth: 22.78
Sampling method: Bailer
Initial depth to water (w/o pump): 18.25
Water level indicator: Solinst 21703
Final depth to water (w/o pump): 18.23
Water quality meter: —
Measuring point: **North side of casing**
Pump depth setting: —
Pump type/model: —

	Δ < 1° C	Δ < 10%	Δ <10%	Δ <10%	Δ < 0.1 pH	Δ < 10 mV	Δ < 0.3 ft	< 1L/min	Δ < 10 NTU		
Time	**Temp (°C)**	**Conductivity (mS/cm) or (µS/cm)**	**DO (%)**	**DO (mg/L)**	**pH**	**ORP (mV)**	**Water Level (feet btoc)**	**Flow Rate (L/min) or (mL/min)**	**Turbidity (NTU)**	**Purge Volume (L) or (mL)**	**Additional Comments**
Purged	3 well volumes ≈	8.85 gal									
1235	Collected	sample									
											HD

Note:

Parameter Stabilization Limits:
(3 consecutive readings) for percent difference type parameters
Percent difference formula =
ABS[((first reading - second reading)/first reading) x 100]
Ex: Readings 12, 16, 15, 13
((12-16)/12)*100 = 33% ((16-15)/16)*100 = 6%
((15-13)/15)*100 = 13% In example, stabilization has not occurred.

# of Bottles / Analysis:

0 VOCs by 8260C
3 TPH-Gx (NWTPH-Gx)
2 TPH-Dx (NWTPH-Dx)
—
—
—
—

Joint Base Lewis-McChord

Well Purging and Sampling Record

Well ID: FTP-15 **Sample ID:** FTP-15-20180912 **Sample Date/Time:** 9/12/18 / 1325

Casing diameter/type: 4" PVC
Well location: Fire Training Pit
Weather: 75, Sunny
Screened interval(s): 10'-26'
Sampling personnel: GL + HD
Total depth: 22.69
Sampling method: Bailer
Initial depth to water (w/o pump): 14.58
Water level indicator: Solinst 21703
Final depth to water (w/o pump): 14.59
Water quality meter: —
Measuring point: **North side of casing**
Pump depth setting: —
Pump type/model: —

	Δ < 1° C	Δ < 10%	Δ <10%	Δ <10%	Δ < 0.1 pH	Δ < 10 mV	Δ < 0.3 ft	< 1L/min	Δ < 10 NTU		
Time	**Temp (°C)**	**Conductivity (mS/cm) or (µS/cm)**	**DO (%)**	**DO (mg/L)**	**pH**	**ORP (mV)**	**Water Level (feet btoc)**	**Flow Rate (L/min) or (mL/min)**	**Turbidity (NTU)**	**Purge Volume (L) or (mL)**	**Additional Comments**
PURGED 3 WELL VOLUMES ≈ 15.83 GAL											
1325	COLLECTED SAMPLE										

Note:

Parameter Stabilization Limits:
(3 consecutive readings) for percent difference type parameters
Percent difference formula =
ABS[((first reading - second reading)/first reading) x 100]
Ex: Readings 12, 16, 15, 13
((12-16)/12)*100 = 33% ((16-15)/16)*100 = 6%
((15-13)/15)*100 = 13% In example, stabilization has not occurred.

# of Bottles / Analysis:

0 VOCs by 8260C
3 TPH-Gx (NWTPH-Gx)
2 TPH-Dx (NWTPH-Dx)
—
—
—
—

Joint Base Lewis-McChord

Well Purging and Sampling Record

Well ID: FTP-16 **Sample ID:** FTP-16-20180913 **Sample Date/Time:** 9/13/18 / 0745

Casing diameter/type: 4" PVC
Well location: Fire Training Pit
Weather: 50°, sunny
Screened interval(s): 20' - 30'
Sampling personnel: GL + HD
Total depth: ~~20-30'~~ HD 32.15
Sampling method: Bailer
Initial depth to water (w/o pump): 26.20
Water level indicator: Solinst 21703
Final depth to water (w/o pump): 26.90
Water quality meter: –
Measuring point: **North side of casing**
Pump depth setting: –
Pump type/model: –

	Δ < 1° C	Δ < 10%	Δ <10%	Δ <10%	Δ < 0.1 pH	Δ < 10 mV	Δ < 0.3 ft	< 1L/min	Δ < 10 NTU		
Time	**Temp (°C)**	**Conductivity (mS/cm) or (µS/cm)**	**DO (%)**	**DO (mg/L)**	**pH**	**ORP (mV)**	**Water Level (feet btoc)**	**Flow Rate (L/min) or (mL/min)**	**Turbidity (NTU)**	**Purge Volume (L) or (mL)**	**Additional Comments**
Bailed	dry on	9/12/18 ≈	4 gallons								
0740	on 9/13/18: DTW = 26.52. This is greater than 80% recovery.										
0745	collected sample										
											HD

Note: 1 well volume = $(32.15 - 26.20) \cdot \pi \cdot (2/12)^2 = 0.5192\ ft^3 = 3.88$ gal.
3 well volumes = $3.88 \cdot 3 = 11.64$ gal
Bail to dry (~4 gallons) on 9/12/18
80% recharge: DTW ≤ 27.39

Parameter Stabilization Limits:
(3 consecutive readings) for percent difference type parameters
Percent difference formula =
ABS[((first reading - second reading)/first reading) x 100]
Ex: Readings 12, 16, 15, 13
((12-16)/12)*100 = 33% ((16-15)/16)*100 = 6%
((15-13)/15)*100 = 13% In example, stabilization has not occurred.

# of Bottles / Analysis:
0 VOCs by 8260C
3 TPH-Gx
2 TPH-Dx

Passive Diffusion Bag Sampling Form

Well Identification: MTS-1

Depth (BTOC)

98.43' DTW at installation

93.84 DTW at sampling

Top

~ 120'

Bottom

Weight

127.41' Well TD

Site Location: TVR

Project Number: 6304305

Well Diameter: 4"

PDB Installation Date: 3/29/18 Time: 1134

Sample Information

Sample No: TVR-MTS-1-20180913

Sample Date: 9/13/18 Time: 0923

Sampling Personnel: GL+HD

Analyses: 8260C

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

Well Condition at Sampling

Well Monument Locked and in Good Condition? Y

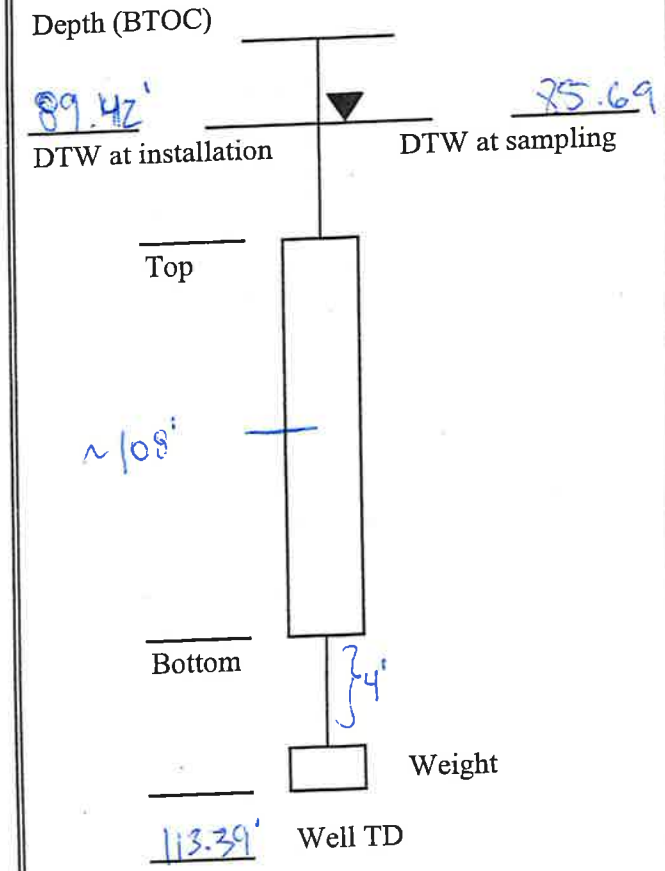
Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? No plug

Comments:

Passive Diffusion Bag Sampling Form

Well Identification: MTS-2



Site Location: YTC ~~YTC~~ TVR

Project Number: 60604305

Well Diameter: 4"

PDB Installation Date: ~~9~~ 4/11/17 Time: 1025

Sample Information

Sample No: TVR-MTS-2-20180913

Sample Date: 9/13/18 Time: 0935

Sampling Personnel: HD + GL

Analyses: 8260c

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

Well Condition at Sampling

Well Monument Locked and in Good Condition? Y

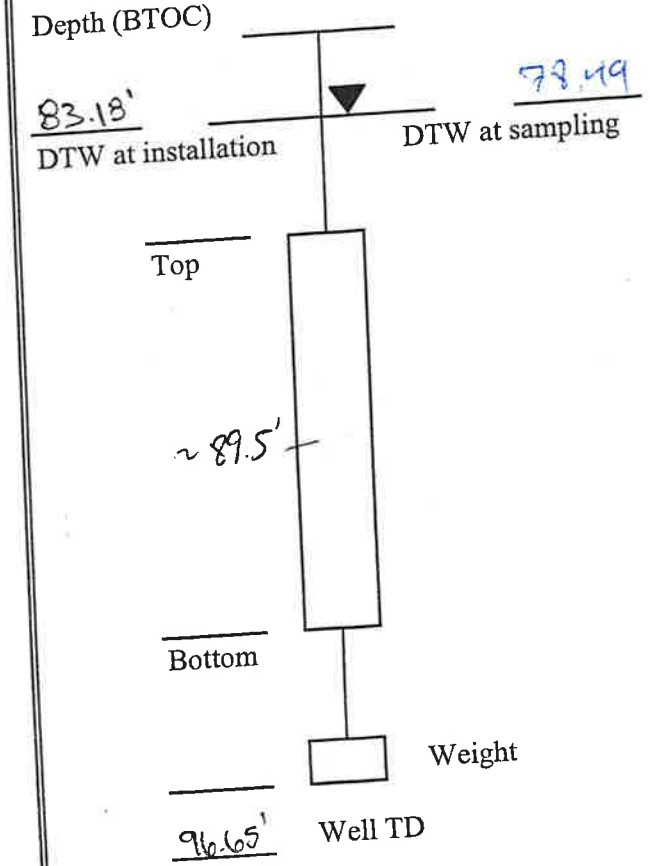
Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? Not plugged

Comments:

Passive Diffusion Bag Sampling Form

Well Identification: MTS-4



Site Location: TVR/OLD MATES

Project Number: 6304305

Well Diameter: 4"

PDB Installation Date: 3/29/18 Time: 1252

Sample Information

Sample No: TVR-MTS-4-20180913 Time: 1130

Sample Date: 9/13/18

Sampling Personnel: HD+GL

Analyses: 8260c

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

Well Condition at Sampling

Well Monument Locked and in Good Condition? Bolts are stripped

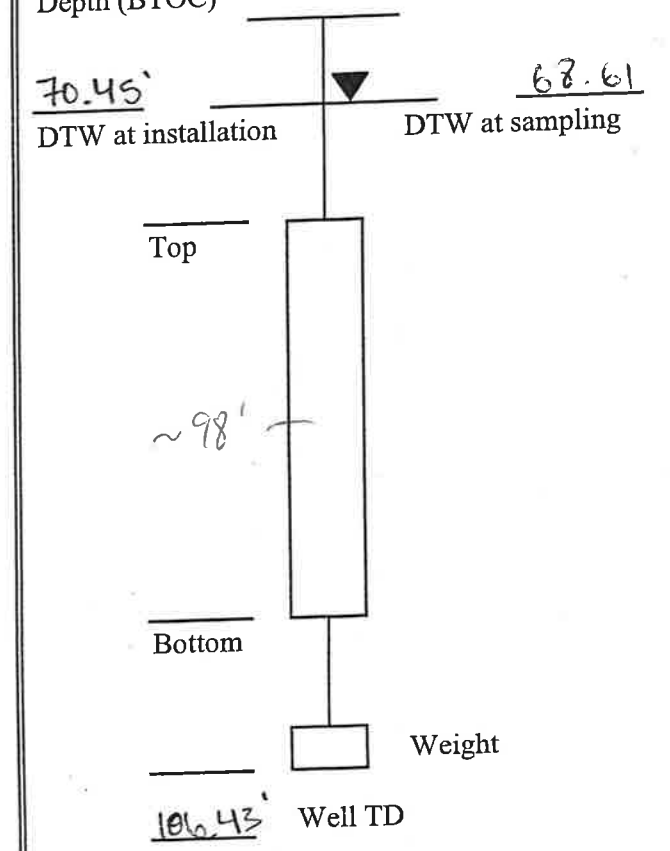
Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing): D

Well Casing Plug Locked and in Good Condition? Plugged, not locked

Comments:

Passive Diffusion Bag Sampling Form

Well Identification: TUR-1



Site Location: TUR

Project Number: 6304305

Well Diameter: 4"

PDB Installation Date: 3/29/18 Time: 1437

Sample Information

Sample No: TUR-1-20180913

Sample Date: 9/13/18 Time: 0845

Sampling Personnel: HD + GI

Analyses: 8260c

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

Well Condition at Sampling

Well Monument Locked and in Good Condition? ~~bad~~ Y

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing): D

Well Casing Plug Locked and in Good Condition? No plug

Comments:

Passive Diffusion Bag Sampling Form

Well Identification: TVR-3

Depth (BTOC)

63.30 DTW at installation

59.60 DTW at sampling

Top

~150

XZ (DUPLICATE)

Bottom

Weight

157.63' Well TD

Site Location: TVR

Project Number: 6304305

Well Diameter: 4"

PDB Installation Date: 3/29/18 Time: 1351

Sample Information

Sample No: TVR-3A-20180913 (Dup) / TVR-3-20180913

Sample Date: 9/13/18 Time: 1105 Dup: 1115

Sampling Personnel: HD + GL

Analyses: 8260c

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

Well Condition at Sampling

Well Monument Locked and in Good Condition? Stripped bolts

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? No well cap

Comments:

Passive Diffusion Bag Sampling Form

Well Identification: TVR-5

Depth (BTOC)

56.38' DTW at installation

47.78' DTW at sampling

Top

~137'

Bottom

Weight

144.56' Well TD

Site Location: TVR

Project Number: 6304305

Well Diameter: 2"

PDB Installation Date: 3/29/13 Time: 1045

Sample Information

Sample No: TVR-5-20180913

Sample Date: 9/13/18 Time: 0825

Sampling Personnel: GL+HD

Analyses: 8260c

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

Well Condition at Sampling

Well Monument Locked and in Good Condition? Y

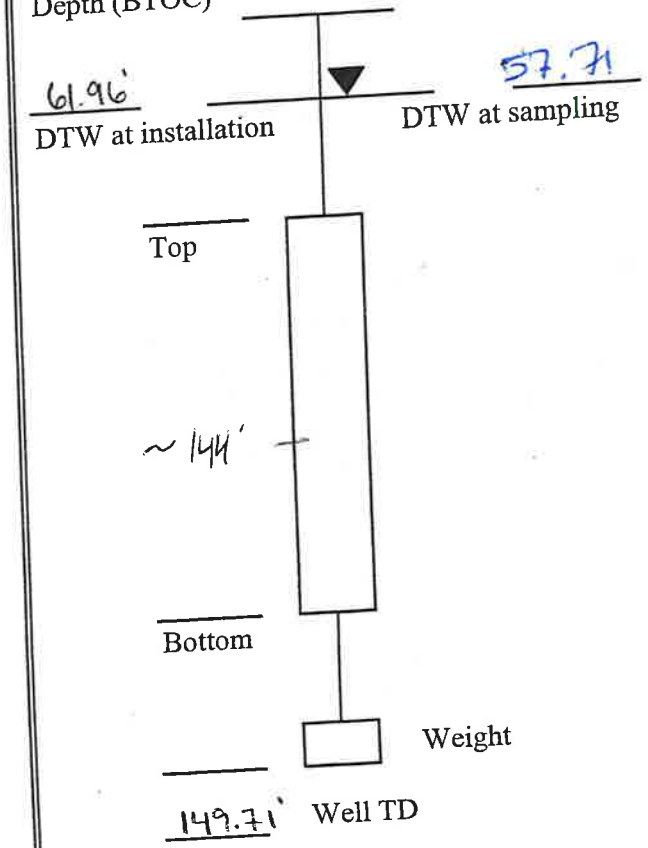
Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? Good cond; not locked

Comments:

Passive Diffusion Bag Sampling Form

Well Identification: TVR-6



Site Location: TVR

Project Number: 6304305

Well Diameter: 2"

PDB Installation Date: 3/29/18 Time: 0954

Sample Information

Sample No: TVR-6-20180913 Time: 0909

Sample Date: 9/13/18

Sampling Personnel: HD + GL

Analyses: 8260

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

Well Condition at Sampling

Well Monument Locked and in Good Condition? No bolts

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? No plug

Comments:

Passive Diffusion Bag Sampling Form

Well Identification: TVR-7

Depth (BTOC)

63.71' DTW at installation

58.87 DTW at sampling

Top

~ 145'

Bottom

~~58.87~~ 149 Weight

149.45' Well TD

Site Location: TVR

Project Number: 6304305

Well Diameter: 2"

PDB Installation Date: 3/29/18 Time: 1321

Sample Information

Sample No: TVR-7-20180913

Sample Date: 9/13/18 Time: 1055

Sampling Personnel: HD + BL

Analyses: 8260

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

Well Condition at Sampling

Well Monument Locked and in Good Condition? No lock; stripped bolts

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

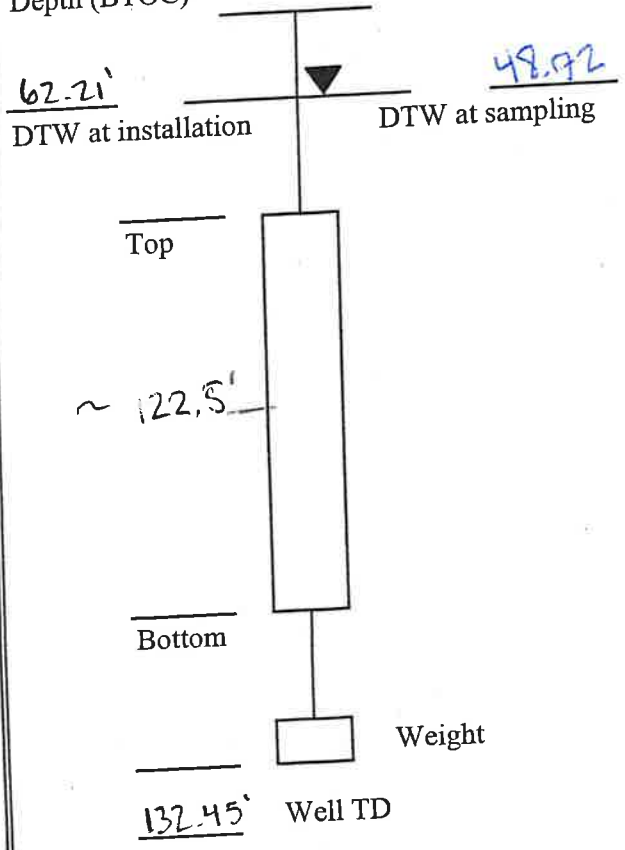
Well Casing Plug Locked and in Good Condition? No well cap

Comments:

Passive Diffusion Bag Sampling Form

Well Identification: 815-2

Depth (BTOC)



Site Location: TVR

Project Number: 6304305

Well Diameter: 2"

PDB Installation Date: 3/29/18 Time: 1024

Sample Information

Sample No: ~~FTR-10~~ TVR-815-2-20180913

Sample Date: 9/13/18 Time: 0810

Sampling Personnel: GL + HD

Analyses: 8260 +

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

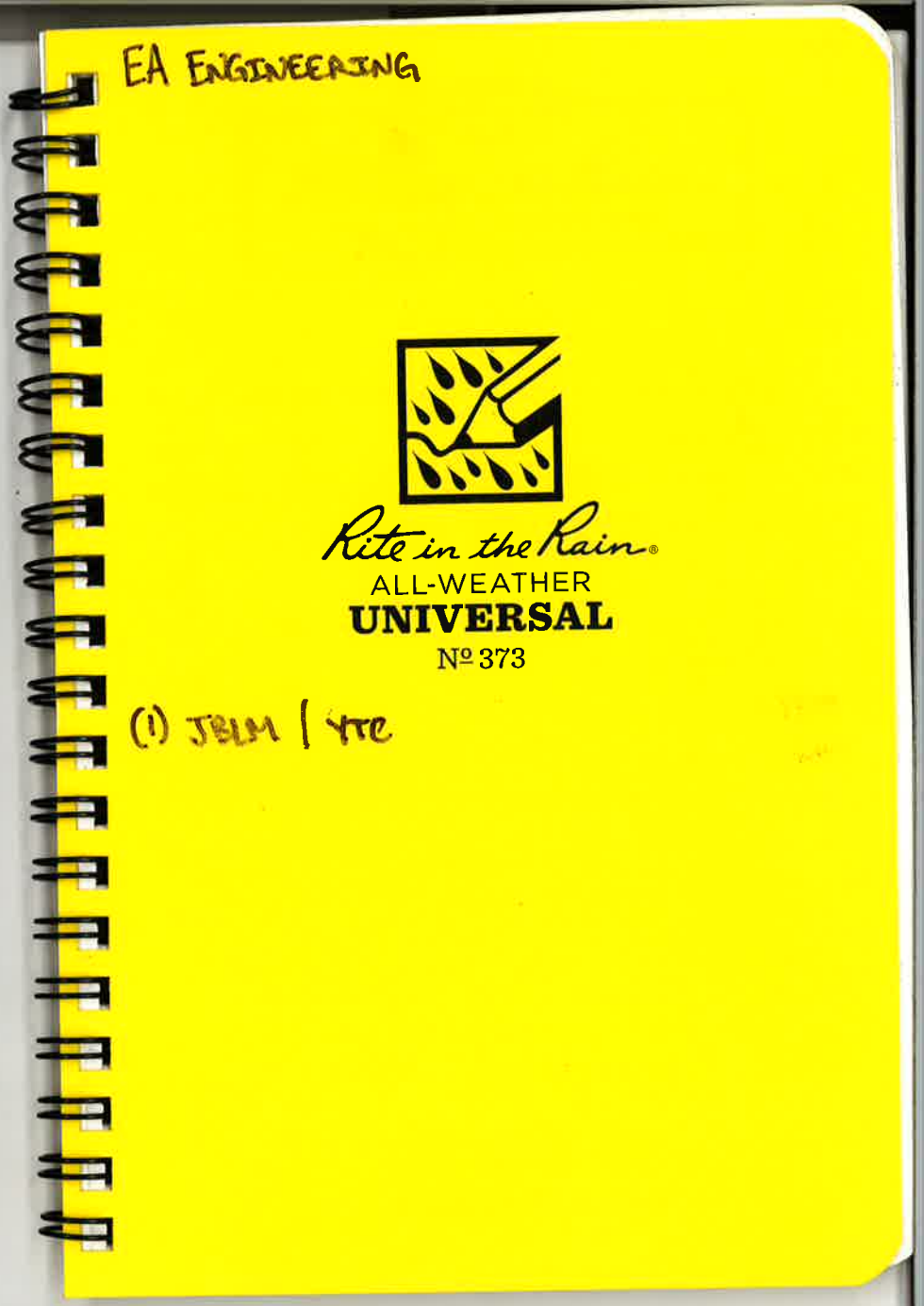
Well Condition at Sampling

Well Monument Locked and in Good Condition? Y

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? Locked. Plug does not fit

Comments: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SHANE POOLE	509.577.3407

ACCESS TO PAIC WELL:

LYNDEN ROGERS	509.961.4446
PETER DELL	509.949.3500

ACCESS TO LANDFILL:

JARED MURREY	509.577.3424
SHANE POOLE	509.577.3407

Scale: 1 square = _____

6304305 YTC 7/12/18

0600 Col+HD arrive at Seattle office.
Depart for Yakima.

0815 Pick up generator at Yakima Home depot, Call Kris Brenner for access to LPL.

0835 Pick up ice, bags at gas station

0850 Arrive at YTC.

0900 Health and Safety meeting.
Weather = 50°, Mostly sunny.
Personnel: Garrett Lee and Hannah Dennis

0910 Mob to MW-7
Locked, good condition.
DTW = N/A
TD = 105.91' BTOC
Well is dry.

0916 Mob to MW-5
Locked, good condition.
DTW = N/A
TD = 99.68' BTOC
Well is dry

0922 Mob to MW-6
DTW = 39.27' BTOC
TD = 50.60 BTOC
Pump to control box connection does not match (male/male). Call Geotech for cord. Will arrive Thurs am.

Scale: 1 square = _____ HD

6304305 YTC 9/12/18

1000 Garrett calls Chris Van Wart to discuss plan of action.

1010 Begin bailing well

1045 DTW After bailing = 50.12

1100 Mob to MW-4

1110 DTW = 67.33' BTOC
TD = 126.45' BTOC
Bailing ≈ 38 gallons not feasible. Will return with pump tomorrow to purge dry.

1120 Mob to vehicle wash rack to dispose of IDW

1130 Mob FTP-16
DTW = 26.20
TD = 32.15
3 well volume calculation:
1 well volume =
h = ~~26.20~~ 32.15 - 26.20 = 5.95 ft
a = π(2/12)² = 0.087 ft²
a·h = 0.5192 ft³ = 3.88 gallons
3 well volumes = 11.64 gallons

1140 Bail well to dry (~4 gallons)
DTW = 31.50
80% Recharge will be DTW ≤ 27.31 ft

1210 Mob to FTP-14

Scale: 1 square = _____ HD

6304305 YTC 9/12/18 25

DTW = 18.25' BTOC
TD = ~~22.50' BTOC~~ HD 22.50 BTOC
+.28 = 22.78

3 well volume calculation:
1 well volume
h = 22.78 - 18.25 = 4.53 ft
a = π(2/12)² = 0.087 ft²
a·h = 4.53 · 0.087 ft² = .394 ft³
.394 ft³ = 2.95 gal
3 well volumes = 2.95 · 3 = 8.85 gal

1235 Collect sample
FTP-14-20180912

1250 Mob FTP-15
DTW = 14.57
TD = 22.41 + .28
h = 22.41 - 14.58 = ~~7.83 ft~~ 8.11 ft
a = π(2/12)² = .087 ft²
a·h = .087 ft² · 8.11 ft = .7056 ft³
.7056 ft³ = 5.278 gal
3 well volumes = 3 · 5.278 = 15.83 gal

1325 Collect sample
FTP-15-20180912

1330 Mob FTP-1
DTW = 12.76
TD = 23.60 + .28 = 23.88

Scale: 1 square = _____ HD

0304305 YTC 9/12/18

Petroleum odor on water

h = 23.88 - 12.76 = 11.12 ft

a = π·(2/12)² = .087 ft²

a·h = .9674 ft³ = 7.24 gal

Three well volumes = 3·7.24 gal = 21.72 gal

1440 APPROX. 2 WELL VOLUMES PURGED. WL HAS DRAWN SIGNIFICANTLY, SLOWING THE BAILING PROCESS. G. LEE WENT TO COLLECT WLs WHILE H. DENNIS CONTINUED @ FTP-1.

1451 ARRIVE @ FTP-13

WL = 15.07' BTOC

TD = 22.21 + .28 = 22.49' BTOC

1455 ARRIVE BACK AT FTP-16. WL HAS RECOVERED TO 28.15', NOT @ 80%.

1515 Collect Sample: FTP-1-20180912 MS/MSD

1610 Final DTW = 19.35

1625 Mob to FTP-16. WL has recovered to 27.8', not at 80%.

1630 Called Peter Dell to set up time to sample PATC well (Thurs. @ 9)

1640 Leave YTC. Stop at store for ice.

Hannah Dennis

Scale: 1 square = _____

0304305 YTC 9/13/18

0715 Garrett Lee + Hannah Dennis leave Yakima hotel

Weather: 50°, mostly sunny

0725 Arrive at YTC

0730 Conduct Health and safety meeting

0735 Arrive FTP-16

DTW = 26.52

Recharged > 80%

0745 Collect Sample:

FTP-16-20180913

0752 Arrive 815-2

DTW = 48.72'

TD = 132.45'

0810 Sample collected

TVR-815-2-20180913

0815 Deployed PDB

0820 Arrive TVR-5

DTW = 47.78'

TD = 144.56'

0825 Sample collected

TVR-5-20180913

0827 Deployed PDB

0830 Call Chris VW to confirm whether TVR 2 or TVR 3

Scale: 1 square = _____

HD

6304305 YTC 9/13/18

should be sampled due to discrepancy between table/figure

0835 Arrive TVR-1
DTW = 68.61'
TD = 106.43'
0840 Deploy PDB
0845 Collect sample
TVR-1-20180913
0850 Mob TVR-6
DTW = 57.71'
TD = 149.71'
0900 Deploy PDB
~~Collect Sample~~ HD
~~TVR-6-20180913~~ HD
0901 Mob to PAIC Spigot
while wellhouse is open - Peter Dell
0905 Collect sample
TVR-PAIC-20180913
0906 Return to TVR-6
Collect sample
0909 TVR-6-20180913
0915 Mob MTS-1
DTW = 93.84'
TD 127.41'
0920 Deploy PDB

Scale: 1 square = _____ HD

6304305 YTC 9/13/18

0923 Collect Sample
TVR-MTS-1-20180913
0926 Mob MTS-2
DTW = 85.69'
TD = 113.39'
0933 Deploy PDB
0935 Collect sample
TVR-MTS-2-20180913
0945 Mob to MTS-3
DTW = 26.75'
TD = 71.42'
0956 Mob to Pomona Well
1000 Collect sample
TVR-Pomona-20180913
1005 Mob to TVR-7
DTW = Probe not reading
TD = 149.45'
Need new battery for WL meter.
1010 Mob to gas station for battery.
1030 Return to YTC
1032 Mob MMP-1
DTW = 50.55'
TD = 102.60' (soft bottom)
No well cap
Silt on probe

Scale: 1 square = _____ HD

6304305 YTC 9/13/18

1045 Mob back to TVR-7
DTW = 58.87'
TD = 149.45'
1052 Deploy PDB
1055 Collect sample
TVR-7-20180913
1057 Mob TVR-3
DTW = 58.00'
TD = 157.63'
1100 Deploy PDB x2
1105 Collect sample
TVR-3-20180913
1115 Collect DUP
TVR-3A-20180913
1116 Mob to TVR-2
DTW = 64.83'
TD = 97.17'
1118 Mob to MTS-4
DTW = 78.49
TD = 96.65'
1125 Deploy PDB
1130 Collect sample
TVR-MTS-4-20180913
1140 Leave YTC. Go to hotel to pick up pump cord.

HD

Scale: 1 square = _____

6304305 YTC 9/13/18

1205 Pick up cord and mob to YTC
1215 Arrive YTC
1230 Arrive MW-4
DTW = 67.32
TD = 126.45 BTOC
1245 Begin purging dry with grundfos pump. Pumping at 230 Hz.
1330 Pause pump. GL to dispose of IDW at vehicle wash rack (out of buckets).
1330 Begin purging again.
1400 Stop purging (well = dry) approx 45 gal.
DTW = 123.50. Decon pump.
1415 Mob to vehicle wash rack to dispose of IDW
1430 Mob to MW-6
DTW = 43.25
TD = 50.60
1450 Purge dry w/ ~~peristaltic~~ grundfos (~2.5 gal)
DTW = 49.25
Decon pump.
1510 Leave YTC
1530 Stop for ice to repack coolers
1550 Complete COCs at hotel.

Scale: 1 square = _____

HDunn Dennis the Rain

DATA VALIDATION REPORT COVER
SAMPLE DELIVERY GROUP: K1808923

PROJECT NAME: Environmental Remediation Program Services, Joint Base Lewis McChord and Yakima Training Center, Washington

SITE NAME: Former Fire Training Pit and Tracked Vehicle Repair/Old Mobilization and Training Equipment Sites, Yakima Training Center, Washington

LABORATORY: ALS Environmental Laboratories, Inc., Kelso, Washington

REPORT DATE: 25 October 2018

PROJECT MANAGER: Timothy McCormack, EA Engineering, Science, and Technology, Inc., PBC (email: tmccormack@eaest.com)

CONTRACTOR OFFICE: EA Engineering, Science, and Technology, Inc., PBC
2200 6th Avenue, Suite 707, Seattle, Washington, 98121

REVIEWER: Brenda Nuding, Project Chemist, EA Engineering, Science, and Technology, Inc., PBC (email: bnuding@eaest.com)

VALIDATION STAGE: S2AVM

REVIEW DATE: 5 November 2018

Sixteen groundwater samples including one field duplicate and one trip blank were collected on 12 and 13 September 2018 in support of the Environmental Remediation Program Services for Yakima Training Center in Washington. The samples were delivered to ALS Environmental in Kelso, Washington for the analyses indicated in the table below. Table 1 below provides a list of the field sample identification (ID), sample ID, sample collection date, and analyses performed.

Table 1. Sample Summary Table

Field Sample ID	Lab Sample ID	Matrix	Date Collected	Analyses Performed
FTP-1-20180912	K1808923-001	Groundwater	12 September 2018	VOCs, SVOCs, GRO, DRO, RRO
FTP-14-20180912	K1808923-002	Groundwater	12 September 2018	GRO, DRO, and RRO
FTP-15-20180912	K1808923-003	Groundwater	12 September 2018	GRO, DRO, and RRO
FTP-16-20180913	K1808923-004	Groundwater	13 September 2018	GRO, DRO, and RRO
TVR-815-2-20180913	K1808923-005	Groundwater	13 September 2018	VOCs
TVR-MTS-1-20180913	K1808923-006	Groundwater	13 September 2018	VOCs
TVR-MTS-2-20180913	K1808923-007	Groundwater	13 September 2018	VOCs
TVR-MTS-4-20180913	K1808923-008	Groundwater	13 September 2018	VOCs
TVR-TB-001-20180912	K1808923-009	Trip blank	12 September 2018	VOCs
TVR-3-20180913	K1808923-010	Groundwater	13 September 2018	VOCs
TVR-3A-20180913	K1808923-011	Groundwater	13 September 2018	VOCs
TVR-5-20180913	K1808923-012	Groundwater	13 September 2018	VOCs
TVR-6-20180913	K1808923-013	Groundwater	13 September 2018	VOCs
TVR-7-20180913	K1808923-014	Groundwater	13 September 2018	VOCs
TVR-POMONA-20180913	K1808923-015	Groundwater	13 September 2018	VOCs
TVR-PAIC-20180913	K1808923-016	Groundwater	13 September 2018	VOCs
TVR-1-20180913	K1808923-017	Groundwater	13 September 2018	VOCs

Notes:
DRO – diesel range organics
GRO – gasoline range organics
RRO – residual range organics
SVOCs – semivolatile organic compounds
VOCs – volatile organic compounds

1. DATA VALIDATION REPORT

The analytical data presented in Sample Delivery Group (SDG) K1808923 were reviewed with respect to quality assurance/quality control (QC) parameters specified in the 2018 *Programmatic Quality Assurance Project Plan* for Environmental Remediation Program Services, Joint Base Lewis-McChord and Yakima Training Center, Washington (QAPP). In addition, the following guidance documents were used while assessing the validity of these data: U.S. Department of Defense (DoD), General Data Validation Guidelines, February 2018; DoD Quality Systems Manual, Version 5.1, January 2017; U.S. Environmental Protection Agency (USEPA) National Functional Guidelines for Superfund Organic Methods Data Review, January 2017; and the USEPA Office of Solid Waste, SW-846 Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, April 1998 and updates, as well as the referenced methodology.

Section 1 of this data validation report identifies the criteria reviewed for analyses of target analytes by the corresponding method. Section 2 provides definitions of data qualifiers that may be applied to analytical results based on the validation process. Section 3 provides an assessment of the overall data quality and a summary of final data qualification if any, and Section 4 provides the references to the guidelines and documents used in performing the data review.

The items listed below were evaluated for the Stage 2A (S2AVM) manual validation review as defined in the DoD General Data Validation Guidelines (2018), as applicable to the analytical method.

- Deliverables
- Condition of sample at laboratory receipt
- Holding times
- Method blanks
- Matrix spikes (MSs) and laboratory replicates
- Surrogates
- Laboratory duplicates
- Laboratory control samples (LCSs)
- Field QC samples
- Overall assessment of data.

2. GLOSSARY OF DATA QUALIFIERS

The following definitions provide a brief explanation for the data qualifiers that may be used during the review process. The definitions are consistent with the DoD Data Validation Guidelines (2018).

No Qualifier	Indicates that the data are acceptable both qualitatively and quantitatively.
U	The analyte was not detected and was reported as less than the limit of detection (LOD). The LOD has been adjusted for dilution or concentration of the sample.
J	The reported result was an estimated value with an unknown bias.
J-	The result was an estimated quantity, but the result may be biased low.
J+	The result was an estimated quantity, but the result may be biased high.
UJ	The analyte was not detected and was reported as less than the associated estimated numerical value.
R	The sample results are unusable to achieve project data quality objectives based on certain QC criteria outside of acceptance limits. The analyte may or may not be present in the sample.

3. DATA VALIDATION SUMMARY

Analytical results were reviewed for the criteria listed in Section 1.0. A discussion of the data is presented below.

3.1 DELIVERABLES

The data package for this SDG is complete.

3.2 CONDITION OF SAMPLE AT LABORATORY RECEIPT

The sample cooler(s) and the samples contained within were received at the laboratory with the proper chemical preservative at temperatures within the recommended range of ≤6 degrees Celsius and not frozen. No qualification of sample data is necessary on the basis of the condition upon sample receipt or chain of custody.

3.3 GASOLINE RANGE ORGANICS

Project samples were prepared and analyzed for gasoline range organics (GRO) according to NWTPH-Gx.

3.3.1 Holding Times

Samples were prepared and analyzed within the holding time specified in the referenced method of analysis.

3.3.2 Method Blanks

A method blank was prepared and analyzed as specified by the referenced method. The method blank result is within the QAPP-specified QC limit (< ½ limit of quantitation [LOQ]).

3.3.3 Matrix Spikes and Laboratory Duplicates

No MSs were prepared using project samples for GRO. A laboratory duplicate sample was prepared and analyzed as recommended by the referenced method. The original and duplicate sample results relative percent difference (RPD) is within the QAPP-specified QC limit.

3.3.4 Surrogates

A surrogate was added to environmental and QC samples and standards for the analysis of GRO as required by the referenced methodology. Surrogate percent recoveries (%Rs) are within the QAPP-specified QC limits.

3.3.5 Laboratory Control Samples

An LCS (one per preparation batch) was prepared and analyzed as recommended by the referenced method. The %R for LCS is within the QAPP-specified QC limits.

3.4 DIESEL RANGE ORGANICS AND RESIDUAL RANGE ORGANICS

Project samples were prepared and analyzed for diesel range organics (DRO) and residual range organics (RRO) according to NWTPH-Dx.

3.4.1 Holding Times

Samples were prepared and analyzed within the holding time specified in the referenced method of analysis.

3.4.2 Method Blanks

Method blanks were prepared and analyzed as specified by the referenced method. The method blank results are within the QAPP-specified QC limit (< ½ LOQ).

3.4.3 Matrix Spikes and Laboratory Replicates

Project sample FTP-1-20180912 was used to prepare MS and a laboratory replicate samples for DRO and RRO. The %Rs and RPDs are within the QAPP-specified QC limits.

3.4.4 Surrogates

Surrogates were added to environmental and QC samples and standards for the analysis of organic compounds as required by the referenced methodology. Surrogate %Rs are within the QAPP-specified QC limits.

3.4.5 Laboratory Control Samples

An LCS (one per preparation batch) was prepared and analyzed as recommended by the referenced method. The %Rs for the LCS are within the QAPP-specified QC limits.

3.5 VOLATILE ORGANIC COMPOUNDS

Project samples were prepared and analyzed for volatile organic compounds (VOCs) according to SW8260C.

3.5.1 Holding Times

Samples were prepared and analyzed within the holding time specified in the referenced method of analysis.

3.5.2 Method Blanks

Method blanks were prepared and analyzed as specified by the referenced method. The method blank results are within the QAPP-specified QC limit (<½LOQ).

3.5.3 Matrix Spikes

Sample FTP-1-20180912 was selected for spiking for the MS and matrix spike duplicate (MSD) samples. The %Rs and RPDs are within the QAPP-specified QC limits, or the %Rs are above

QC limits and/or RPDs are outside QC limits, and the associated sample results are below LOQ, with the following exception.

The MS/MSD %Rs for 1,2,4-trimethylbenzene and naphthalene are outside QC limits. No qualification has been performed because the native analyte concentration in the sample spiked is more than four times the spike added.

3.5.4 Surrogates

Surrogates were added to environmental and QC samples and standards for the analysis of organic compounds as required by the referenced methodology. Surrogate %Rs are within the QAPP-specified QC limits with the following exception.

The %Rs for the surrogate dibromofluoromethane are above QC limits for project samples TVR-3-20180913 and TVR-POMONA-20180913. The results for project sample TVR-POMONA-20180913 are nondetectable and no qualification has been made on the basis of evidence of potential high bias. The detectable VOC result (trichloroethene) for project sample TVR-3-20180913 has been flagged with the "J+" qualifier due to high surrogate %R.

3.5.5 Laboratory Control Samples

LCSs (one per preparation batch) were prepared and analyzed as recommended by the referenced method. The %Rs for LCSs are within the QAPP-specified QC limits.

3.5.6 Field Quality Control Samples

A field duplicate sample was collected. Field duplicate (TVR-3A-20180913) is associated with parent sample (TVR-3-20180913). The RPDs between the parent and duplicate sample results that are greater than the LOQ are within the QAPP-specified QC limit (RPD<30 percent).

A trip blank was included in this SDG (TVR-TB-001-20180912). The analytical results for the trip blank are within QAPP-specified QC limits (not detected above ½ LOQ).

3.6 SEMIVOLATILE ORGANIC COMPOUNDS

A project sample (was prepared and analyzed for semivolatile organic compounds according to SW8270D.

3.6.1 Holding Times

The sample was prepared and analyzed within the holding time specified in the referenced method of analysis.

3.6.2 Method Blanks

A method blank was prepared and analyzed as specified by the referenced method. The method blank results are within the QAPP-specified QC limit (<½ LOQ).

3.6.3 Matrix Spikes

Project sample FTP-1-20180912 was selected for spiking for the MS and MSD samples. The %Rs and RPDs are within the QAPP-specified QC limits, with the following exceptions.

- The MS/MSD %Rs for 4-chloroaniline, 3-nitroaniline, and 4-nitroaniline by SW8270D are below QC limits. The associated sample results for these analytes are non-detectable and have been flagged as estimated with the UJ qualifier because of evidence of low bias.
- The MS/MSD %Rs for 3,3'-dichlorobenzidine are below QC limits at 0 percent. The associated sample result for 3,3'-dichlorobenzidine was non-detectable and has been flagged as unusable with the R qualifier due to MS/MSD %Rs.
- The MS %R for N-nitrosodiphenylamine is below QC limits. The associated project sample result for N-nitrosodiphenylamine is already flagged with the J qualifier; therefore, no further qualification is necessary.
- The MS/MSD RPDs for 4-nitrophenol, di-n-octyl phthalate, and hexachlorobutadiene are outside QC limits. The associated sample results for these analytes are non-detectable; therefore, no qualification has been performed on the basis of elevated RPDs.

3.6.4 Surrogates

Surrogates were added to environmental and QC samples and standards for the analysis of organic compounds as required by the referenced methodology. Surrogate %Rs are within the QAPP-specified QC limits.

3.6.5 Laboratory Control Samples

LCSs (one per preparation batch) were prepared and analyzed as recommended by the referenced method. The %Rs for LCSs are within the QAPP-specified QC limits.

4. OVERALL ASSESSMENT OF DATA

The data are acceptable and meet the project data quality objectives and are usable to support project decision-making. Appropriate data flags were used and defined in the analytical report. The qualifiers added during data validation are summarized in Table 2.

Table 2. Qualifier Summary Table

Field Sample ID	Lab Sample ID	Analyte	Result	Validation Qualifier	Reason
FTP-1-20180912	K1808923-001	3,3'-Dichlorobenzidine	2.0 U	R	MS %R
FTP-1-20180912	K1808923-001	4-Chloroaniline	2.0 U	UJ	MS %R
FTP-1-20180912	K1808923-001	3-Nitroaniline	3.3 U	UJ	MS %R
FTP-1-20180912	K1808923-001	4-Nitroaniline	4.0 U	UJ	MS %R
TVR-3-20180913	K1808923-010	Trichloroethene	2.6	J+	Surrogate %R

5. REFERENCES

EA Engineering, Science, and Technology, Inc., PBC. 2018. *Programmatic Quality Assurance Project Plan for Environmental Remediation Program Services, Joint Base Lewis-McChord and Yakima Training Center, Washington*.

U.S. Department of Defense (DoD). 2018. *General Data Validation Guidelines*. Environmental Data Quality Workgroup. February.

———. 2017. *Department of Defense Quality Systems Manual for Environmental Laboratories, Final Version 5.1*. January.

U.S. Environmental Protection Agency. 2017. *National Functional Guidelines for Organic Superfund Methods Data Review*. Office of Superfund Remediation and Technology Innovation. OLEM 9355.0-136. EPA-540-R-2017-002. January.

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October 25, 2018

Analytical Report for Service Request No: K1808923

Tim McCormack
EA Engineering, Science and Technology
2200 6th Ave, Suite 707
Seattle, WA 98121

RE: JBLM / 6304305

Dear Tim,

Enclosed are the results of the sample(s) submitted to our laboratory September 15, 2018
For your reference, these analyses have been assigned our service request number **K1808923.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3356. You may also contact me via email at Kurt.Clarkson@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kurt Clarkson
Sr. Project Manager

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Table of Contents

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
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ALS Environmental

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Date Received:** 09/15/2018
Sample Matrix: Ground Water

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt:

Seventeen ground water samples were received for analysis at ALS Environmental on 09/15/2018. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4ºC upon receipt at the laboratory.

Semivolatiles by GC/MS:

Method 8270D, 10/02/2018: The following analytes were flagged as outside the control criterion for Continuing Calibration Verification (CCV) MS06\0727F003.D: Hexachlorocyclopentadiene, 2-Nitroaniline, 4-Nitrophenol and 2-Methyl-4,6-dinitrophenol. In accordance with the EPA Method, 80% or more of the CCV analytes must have passed within 20% of the true value. The remaining analytes are allowed a 40% difference as per the ALS SOP. These values are outside of the DoD QSM 5.0 criteria of ±20%, but within the method criteria. The data was flagged to indicate the issue. No further corrective action was taken.

Method 8270D, 10/02/2018: The upper control criterion was exceeded for 4-Methylphenol in the Initial Calibration Verification (ICV). The field samples analyzed in this sequence did not contain the analyte in question. Since the apparent problem indicated a potential high bias, the data quality was not affected. No further corrective action was required.

Method 8270D, 10/02/2018: The lower control criterion was exceeded for N-Nitrosodiphenylamine in the Initial Calibration Verification (ICV). The ICV was outside the 20 percent DOD QSM criteria but within the 30 percent laboratory SOP criteria. The field samples analyzed in this sequence did not contain the analyte in question. The apparent problem indicated a potential low bias for this analyte. The data has been flagged to indicate the exceedance.
The control criteria were exceeded for Dibenzofuran and Di-n-butyl Phthalate in Laboratory Control Sample (LCS) KQ1812935-03. These compounds are outside the control criteria but within the marginal exceedance limits. The samples have been flagged to indicate the exceedance.

Method 8270D, Semivolatile Organic Compounds by GC/MS 10/02/2018: The matrix spike recovery and RPD of a few analytes for sample FTP-1-20180912 was outside control criteria because of suspected matrix interference. A matrix spike duplicate was also analyzed, but produced similar results. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential low bias in this matrix. No further corrective action was appropriate.

Semivoa GC:

Method NWTPH-Dx, Diesel and Residual Range Organics, Calibration Verification Exceptions: The upper control criterion was exceeded for Diesel and/or Residual Range Organics in Continuing Calibration Verification (CCV) KWG1804989-2 and KWG1804989-3. The field samples analyzed in this sequence did not contain the analytes in question above the MRL. Since the apparent problem indicated a potential high bias, the data quality was not affected. No further corrective action was required.

Volatiles by GC/MS:

Method 8260C, 09/25/2018:The following analytes were flagged as outside the control criterion for Continuing Calibration Verification (CCV) MS46\0925F006.D: Dichlorodifluoromethane, Bromomethane, Chloroethane, 1,1-Dichloroethene, Tetrachloroethene and Hexachlorobutadiene. In accordance with the EPA Method, 80% or more of the CCV analytes must pass within 20% of the true value. The ALS SOP allows for 40% difference for the remaining analytes. The CCV met these criteria. The quality of the sample data was not significantly affected. No further corrective action was required.
Method 8260C, 09/26/2018:The upper control criterion was exceeded for Dibromofluoromethane in samples TVR-3-20180913 and TVR-POMONA-20180913. No target analytes associated with the surrogate were detected in the sample. The error associated with an elevated recovery equated to a high bias. The quality of the sample data was not significantly affected. No further corrective action was appropriate.

Approved by  Date 10/25/2018

Method 8260C, 09/25/2018:The matrix spike recovery of several compounds for sample FTP-1-20180912 were outside control criteria. Positive detections in the parent sample are flagged as per the DOD QAPP. No further corrective action was appropriate.

Method 8260C, 09/25/2018:The Relative Percent Difference (RPD) for 1,1-Dichloroethene, Carbon Disulfide, Chloroform and 1,1,1-Trichloroethane in the replicate matrix spike analyses of FTP-1-20180912 were outside control criteria. Positive detections in the parent sample were flagged, as per the DOD QAPP. No further corrective action was appropriate.

Method 8260C, 09/25/2018:The upper control criterion was exceeded for Bromoform in Laboratory Control Sample (LCS) KWG1805293-3. The analyte in question was not detected in the associated field samples. The error associated with elevated recovery indicated a high bias. The sample data was not significantly affected. No further corrective action was appropriate.

Method 8260C, 09/25/2018:Manual integration of one or more chromatographic peaks was required to correct the integration performed by the automated data processing program. The manual integration was performed in accordance with ALS policy, which is consistent with the National Environmental Laboratory Accreditation Program (NELAP), Department of Defense (DOD), and other certifying agencies. Refer to the raw data for the compounds impacted by the manual integration.

Method NWTPH-Gx, 09/17/2018:Manual integration of one or more chromatographic peaks was required to correct the integration performed by the automated data processing program. The manual integration was performed in accordance with ALS policy, which is consistent with the National Environmental Laboratory Accreditation Program (NELAP), Department of Defense (DOD), and other certifying agencies. Refer to the raw data for the compounds impacted by the manual integration.

Approved by _____ Date 10/25/2018

Chain of Custody

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CHAIN OF CUSTODY

K1808823

PG. 1 OF 2

Laboratory Information

Address: 1317 South 13th Ave., Kelso, WA 98626

Phone #: 360-577-7222 POC: Kurt Clarkson

COC #	Cooler # 1 of 2
Lab Quote #	Lab Job #:

Client / Reporting Information

Company Name	EA Engineering, Science, and Technology, Inc., PBC
Address	2200 6th Ave., Suite 707
City / State / Zip	Seattle / WA / 98121
Project Contact	Tim McCormack and per contract
Phone #	206-452-5350
Samplers's Name/Signature	GARRETT LEE

Project Information

Project Name	JBLM
Street	
City / State	Joint Base Lewis McChord / WA
Project #	6304305
Email	tmccormack@eaest.com, bnuding@eaest.com, and pacificchem@eaest.com
Purchase Order #	17578

Matrix Codes

W - Water
GW - Ground Water
SW - Surface Water
SO - Soil
OI - Oil
WP - Wipe
LIQ - Non-aqueous Liquid
AIR
DW - Drinking Water (Perchlorate Only)

Lab Sample ID	Sample ID	Collection Date	Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	ENCORE	NaHSO4	MEOH	NONE	Analytical Information: 8260C / VOC FP	8270D / SVOC	NWTPH-GX / TPH-GX	NWTPH-DX / TPH-DX	Notes
	FTP-1-20180912	12-Sep-2018	15:15	GL	GW	30	24							6	X	X	X	X	MS/MSD
	FTP-14-20180912	12-Sep-2018	12:35	GL	GW	5	5										X	X	
	FTP-15-20180912	12-Sep-2018	13:25	GL	GW	5	5										X	X	
	FTP-16-20180913	13-Sep-2018	7:45	GL	GW	5	5										X	X	
	TVR-815-2-20180913	13-Sep-2018	8:10	GL	GW	3	3								X				
	TVR-MTS-1-20180913	13-Sep-2018	9:23	GL	GW	3	3								X				
	TVR-MTS-2-20180913	13-Sep-2018	9:35	GL	GW	3	3								X				
	TVR-MTS-4-20180913	13-Sep-2018	11:30	GL	GW	3	3								X				
	TVR-TB-001-20180912	12-Sep-2018	15:15	GL	W	2	2								X				TRIP BLANK
	TVR-3-20180913	13-Sep-2018	11:05	GL	GW	3	3								X				
	TVR-3A-20180913	13-Sep-2018	11:15	GL	GW	3	3								X				

Turnaround Time (Business days)	Data Deliverable Information	Comments / Remarks
standard	Level IV deliverable, Equis EDD and per contract	Samples from Site IRP / Phase 0021H / Task 0021B. Samples split between 2 coolers: Cooler 1 contains VOCs and TPH-Dx, Cooler 2 contains SVOCs and TPH-Gx.

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	GARRETT LEE	9/14/18 10:45	1	2		2
3 3	Relinquished by:	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
5 5	Relinquished by:	Date Time:	Received By: 5	Custody Seal #	On Ice Y / N / Labels Match Coc? Y / N	Trip Blank Y / N / Cooler Temp. ____ oC

CHAIN OF CUSTODY

K1808923

Laboratory Information

Address: 1317 South 13th Ave., Kelso, WA 98626

Phone #: 360-577-7222 POC: Kurt Clarkson

COC #	Cooler # 1 of 2
Lab Quote #	Lab Job #:

Client / Reporting Information

Company Name	EA Engineering, Science, and Technology, Inc., PBC
Address	2200 6th Ave., Suite 707
City / State / Zip	Seattle / WA / 98121
Project Contact	Tim McCormack and per contract
Phone #	206-452-5350
Samplers's Name/Signature	GARRETT LEE

Project Information

Project Name	JBLM
Street	
City / State	Joint Base Lewis McChord / WA
Project #	6304305
Email	tmccormack@eaest.com, bnuding@eaest.com, and pacificchem@eaest.com
Purchase Order #	17578

Matrix Codes

W - Water
GW - Ground Water
SW - Surface Water
SO - Soil
OI - Oil
WP - Wipe
LIQ - Non-aqueous Liquid
AIR
DW - Drinking Water (Perchlorate Only)

Lab Sample ID	Sample ID	Collection Date	Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	ENCORE	NaHSO4	MEOH	NONE	Analytical Information: 8260C / VOC FP	8270D / SVOC	NWTPH-GX / TPH-GX	NWTPH-DX / TPH-DX	Notes
	TVR-5-20180913	13-Sep-2018	8:25	GL	GW	3	3								X				
	TVR-6-20180913	13-Sep-2018	9:09	GL	GW	3	3								X				
	TVR-7-20180913	13-Sep-2018	10:55	GL	GW	3	3								X				
	TVR-POMONA-20180913	13-Sep-2018	10:00	GL	GW	3	3								X				
	TVR-PAIC-20180913	13-Sep-2018	9:05	GL	GW	3	3								X				
	TVR-1-20180913	13-Sep-2018	8:45	GL	GW	3	3								X				

Turnaround Time (Business days): standard

Data Deliverable Information: Level IV deliverable, Equis EDD and per contract

Comments / Remarks: Samples from Site IRP / Phase 0021H / Task 0021B. Samples split between 2 coolers: Cooler 1 contains VOCs and TPH-Dx, Cooler 2 contains SVOCs and TPH-Gx.

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished By Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		9/14/18 1045	9-15-18 0820			
2	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
3						
4	Relinquished by:	Date Time:	Received By:	Custody Seal #	On Ice Y / N / Trip Blank Y / N / Cooler Temp.	
5					Labels Match Coc? Y / N	____ °C

PC KC

Cooler Receipt and Preservation Form

Client EA Engineering Service Request K18 08923

Received: 9-15-18 Opened: 9-15-18 By: DSP Unloaded: 9-15-18 By: DSP

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 2 TOP FRONT.
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID (NA)	Tracking Number NA	Filed
-0.3	-0.2	2.4	2.5	+0.1	351		7827 8911 4046	
1.7	1.9	2.9	3.1	+0.2	298		7827 8911 4057	
5.7	5.6	5.5	5.4	-0.1	371		7827 8911 4068	

4. Packing material: (*Inserts*) (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA (Y) N
   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
11. Were VOA vials received without headspace? *Indicate in the table below.* (NA) (Y) N
12. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____

Diesel and Residual Range Organics

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Client: EA Engineering, Science, and Technology **Service Request:** K1808923
Project: JBLM/6304305

Cover Page - Organic Analysis Data Package
Diesel and Residual Range Organics

Sample Name	Lab Code	Date Collected	Date Received
FTP-1-20180912	K1808923-001	09/12/2018	09/15/2018
FTP-14-20180912	K1808923-002	09/12/2018	09/15/2018
FTP-15-20180912	K1808923-003	09/12/2018	09/15/2018
FTP-16-20180913	K1808923-004	09/13/2018	09/15/2018
FTP-1-20180912	KWG1804852-1	09/12/2018	09/15/2018
FTP-1-20180912MS	KWG1804852-2	09/12/2018	09/15/2018
FTP-1-20180912DMS	KWG1804852-3	09/12/2018	09/15/2018

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/12/2018
Sample Matrix:	Ground water	**Date Received:**	09/15/2018

Diesel and Residual Range Organics

Sample Name:	FTP-1-20180912	**Units:**	ug/L
Lab Code:	K1808923-001	**Basis:**	NA
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	NWTPH-Dx		

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	**9200**	Y	280	23	13	1	09/26/18	10/04/18	KWG1804852	
Residual Range Organics (RRO)	**1500**	L	560	56	22	1	09/26/18	10/04/18	KWG1804852	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	95	50-150	10/04/18	Acceptable
n-Triacontane	99	50-150	10/04/18	Acceptable

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/12/2018
Sample Matrix:	Ground water	**Date Received:**	09/15/2018

Diesel and Residual Range Organics

Sample Name:	FTP-14-20180912	**Units:**	ug/L
Lab Code:	K1808923-002	**Basis:**	NA
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	NWTPH-Dx		

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	**200**	J	270	21	12	1	09/26/18	10/03/18	KWG1804852	*
Residual Range Organics (RRO)	**160**	J	530	53	20	1	09/26/18	10/03/18	KWG1804852	*

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	90	50-150	10/03/18	Acceptable
n-Triacontane	94	50-150	10/03/18	Acceptable

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/12/2018
Sample Matrix:	Ground water	**Date Received:**	09/15/2018

Diesel and Residual Range Organics

Sample Name:	FTP-15-20180912	**Units:**	ug/L
Lab Code:	K1808923-003	**Basis:**	NA
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	NWTPH-Dx		

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	**170**	J	280	22	12	1	09/26/18	10/03/18	KWG1804852	*
Residual Range Organics (RRO)	**190**	J	550	55	21	1	09/26/18	10/03/18	KWG1804852	*

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	97	50-150	10/03/18	Acceptable
n-Triacontane	101	50-150	10/03/18	Acceptable

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/13/2018
Sample Matrix:	Ground water	**Date Received:**	09/15/2018

Diesel and Residual Range Organics

Sample Name:	FTP-16-20180913	**Units:**	ug/L
Lab Code:	K1808923-004	**Basis:**	NA
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	NWTPH-Dx		

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	**180**	J	250	20	11	1	09/26/18	10/03/18	KWG1804852	*
Residual Range Organics (RRO)	**210**	J	500	50	19	1	09/26/18	10/03/18	KWG1804852	*

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	90	50-150	10/03/18	Acceptable
n-Triacontane	95	50-150	10/03/18	Acceptable

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Diesel and Residual Range Organics

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1804852-5	**Basis:**	NA
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	NWTPH-Dx		

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	**23**	J	250	20	11	1	09/26/18	10/03/18	KWG1804852	*
Residual Range Organics (RRO)	**61**	J	500	50	19	1	09/26/18	10/03/18	KWG1804852	*

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	94	50-150	10/03/18	Acceptable
n-Triacontane	98	50-150	10/03/18	Acceptable

Comments:

QA/QC Report

Client: EA Engineering, Science, and Technology **Service Request:** K1808923
Project: JBLM/6304305
Sample Matrix: Ground water

Surrogate Recovery Summary
Diesel and Residual Range Organics

Extraction Method: EPA 3510C **Units:** Percent
Analysis Method: NWTPH-Dx **Level:** Low

Sample Name	Lab Code	Sur1	Sur2
FTP-1-20180912	K1808923-001	95	99
FTP-14-20180912	K1808923-002	90	94
FTP-15-20180912	K1808923-003	97	101
FTP-16-20180913	K1808923-004	90	95
FTP-1-20180912DUP	KWG1804852-1	94	99
Method Blank	KWG1804852-5	94	98
FTP-1-20180912MS	KWG1804852-2	94	96
FTP-1-20180912DMS	KWG1804852-3	100	99
Lab Control Sample	KWG1804852-4	94	95

Surrogate Recovery Control Limits (%)

Sur1	o-Terphenyl	50-150
Sur2	n-Triacontane	50-150

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Extracted:**	09/26/2018
Sample Matrix:	Ground water	**Date Analyzed:**	10/04/2018

Matrix Spike/Duplicate Matrix Spike Summary
Diesel and Residual Range Organics

Sample Name:	FTP-1-20180912	**Units:**	ug/L
Lab Code:	K1808923-001	**Basis:**	NA
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	NWTPH-Dx	**Extraction Lot:**	KWG1804852

		FTP-1-20180912MS KWG1804852-2 Matrix Spike			FTP-1-20180912DMS KWG1804852-3 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Diesel Range Organics (DRO)	9200	12600	3720	90	12500	3400	97	28-176	0	30
Residual Range Organics (RRO)	1500	3590	1860	111	3480	1700	115	45-140	3	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Extracted:**	09/26/2018
Sample Matrix:	Ground water	**Date Analyzed:**	10/04/2018

Duplicate Sample Summary
Diesel and Residual Range Organics

Sample Name:	FTP-1-20180912	**Units:**	ug/L
Lab Code:	K1808923-001	**Basis:**	NA
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	NWTPH-Dx	**Extraction Lot:**	KWG1804852

				FTP-1-20180912DUP KWG1804852-1 Duplicate Sample			
Analyte Name	**LOQ**	**MDL**	**Sample Result**	**Result**	**Average**	**Relative Percent Difference**	**RPD Limit**
Diesel Range Organics (DRO)	280	13	9200	9400	9300	2	30
Residual Range Organics (RRO)	560	22	1500	1700	1600	9	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Extracted:**	09/26/2018
Sample Matrix:	Water	**Date Analyzed:**	10/03/2018

Lab Control Spike Summary
Diesel and Residual Range Organics

Extraction Method:	EPA 3510C	**Units:**	ug/L
Analysis Method:	NWTPH-Dx	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1804852

Lab Control Sample
KWG1804852-4
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Diesel Range Organics (DRO)	3160	3200	99	46-140
Residual Range Organics (RRO)	1650	1600	103	45-159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Extracted:**	09/26/2018
Sample Matrix:	Water	**Date Analyzed:**	10/03/2018
		Time Analyzed:	17:10

Method Blank Summary
Diesel and Residual Range Organics

Sample Name:	Method Blank	**Instrument ID:**	GC21
Lab Code:	KWG1804852-5	**File ID:**	J:\GC21\DATA\100318F\1003F125.D
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	NWTPH-Dx	**Extraction Lot:**	KWG1804852

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Lab Control Sample	KWG1804852-4	J:\GC21\DATA\100318F\1003F124.D	10/03/18	16:49
FTP-14-20180912	K1808923-002	J:\GC21\DATA\100318F\1003F126.D	10/03/18	17:32
FTP-15-20180912	K1808923-003	J:\GC21\DATA\100318F\1003F127.D	10/03/18	17:54
FTP-16-20180913	K1808923-004	J:\GC21\DATA\100318F\1003F128.D	10/03/18	18:16
FTP-1-20180912	K1808923-001	J:\GC21\DATA\100418F\1004F124.D	10/04/18	17:48
FTP-1-20180912DUP	KWG1804852-1	J:\GC21\DATA\100418F\1004F125.D	10/04/18	18:10
FTP-1-20180912MS	KWG1804852-2	J:\GC21\DATA\100418F\1004F126.D	10/04/18	18:32
FTP-1-20180912DMS	KWG1804852-3	J:\GC21\DATA\100418F\1004F127.D	10/04/18	18:54

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Extracted:**	09/26/2018
Sample Matrix:	Water	**Date Analyzed:**	10/03/2018
		Time Analyzed:	16:49

Lab Control Sample Summary
Diesel and Residual Range Organics

Sample Name:	Lab Control Sample	**Instrument ID:**	GC21
Lab Code:	KWG1804852-4	**File ID:**	J:\GC21\DATA\100318F\1003F124.D
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	NWTPH-Dx	**Extraction Lot:**	KWG1804852

This Lab Control Sample applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Method Blank	KWG1804852-5	J:\GC21\DATA\100318F\1003F125.D	10/03/18	17:10
FTP-14-20180912	K1808923-002	J:\GC21\DATA\100318F\1003F126.D	10/03/18	17:32
FTP-15-20180912	K1808923-003	J:\GC21\DATA\100318F\1003F127.D	10/03/18	17:54
FTP-16-20180913	K1808923-004	J:\GC21\DATA\100318F\1003F128.D	10/03/18	18:16
FTP-1-20180912	K1808923-001	J:\GC21\DATA\100418F\1004F124.D	10/04/18	17:48
FTP-1-20180912DUP	KWG1804852-1	J:\GC21\DATA\100418F\1004F125.D	10/04/18	18:10
FTP-1-20180912MS	KWG1804852-2	J:\GC21\DATA\100418F\1004F126.D	10/04/18	18:32
FTP-1-20180912DMS	KWG1804852-3	J:\GC21\DATA\100418F\1004F127.D	10/04/18	18:54

Client: EA Engineering, Science, and Technology **Service Request:** K1808923
Project: JBLM/6304305 **Calibration Date:** 08/20/2018

Initial Calibration Summary
Diesel and Residual Range Organics

Calibration ID: CAL15807 **Column:** ZB-1
Instrument ID: GC21

Level ID	File ID	Level ID	File ID
A	J:\GC21\DATA\082018F\082036.D	K	J:\GC21\DATA\082018F\082048.D
B	J:\GC21\DATA\082018F\082037.D	L	J:\GC21\DATA\082018F\082049.D
C	J:\GC21\DATA\082018F\082038.D	M	J:\GC21\DATA\082018F\082050.D
D	J:\GC21\DATA\082018F\082039.D	N	J:\GC21\DATA\082018F\082053.D
E	J:\GC21\DATA\082018F\082040.D	O	J:\GC21\DATA\082018F\082054.D
F	J:\GC21\DATA\082018F\082043.D	P	J:\GC21\DATA\082018F\082055.D
G	J:\GC21\DATA\082018F\082044.D	Q	J:\GC21\DATA\082018F\082056.D
H	J:\GC21\DATA\082018F\082045.D	R	J:\GC21\DATA\082018F\082057.D
I	J:\GC21\DATA\082018F\082046.D		
J	J:\GC21\DATA\082018F\082047.D		

Analyte Name	Level ID	Amt	RF	Level ID	Amt	RF	Level ID	Amt	RF	Level ID	Amt	RF	Level ID	Amt	RF
Diesel Range Organics (DRO)															
	F	20	1420	G	50	1130	H	200	1240	I	500	1160	J	2000	1290
	K	5000	1220	L	20000	1250	M	50000	1110						
Residual Range Organics (RRO)															
										N	50	665	O	200	633
	P	500	589	Q	2000	619	R	5000	605						
o-Terphenyl															
	F	1.0	1770	G	2.5	1520	H	10	1860	I	25	1770	J	100	1940
	K	250	1820												
n-Triacontane															
	F	1.0	1440	G	2.5	1230	H	10	1480	I	25	1410	J	100	1530
	K	250	1430												

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: EA Engineering, Science, and Technology **Service Request:** K1808923
Project: JBLM/6304305 **Calibration Date:** 08/20/2018

Initial Calibration Summary
Diesel and Residual Range Organics

Calibration ID: CAL15807 **Column:** ZB-1
Instrument ID: GC21

Analyte Name	Compound Type	Calibration Evaluation: Fit Type	Eval.	Eval. Result	Q	Control Criteria
Diesel Range Organics (DRO)	MS	AverageRF	% RSD	8.1		≤ 20
Residual Range Organics (RRO)	MS	AverageRF	% RSD	4.6		≤ 20
o-Terphenyl	SURR	AverageRF	% RSD	8.1		≤ 20
n-Triacontane	SURR	AverageRF	% RSD	7.1		≤ 20

Results flagged with an asterisk (*) indicate values outside control criteria.

QA/QC Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1808923
Calibration Date: 08/20/2018
Date Analyzed: 08/20/2018

Second Source Calibration Verification
Diesel and Residual Range Organics

Calibration Type: External Standard
Analysis Method: NWTPH-Dx

Calibration ID: CAL15807
Units: ppm

File ID: J:\GC21\DATA\082018F\082041.D
J:\GC21\DATA\082018F\082051.D
J:\GC21\DATA\082018F\082058.D

Column ID: ZB-1

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1000	1230	1260	3	NA	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	920	622	574	-8	NA	± 15 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

QA/QC Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1808923
Date Analyzed: 10/03/2018

Continuing Calibration Verification Summary
Diesel and Residual Range Organics

Calibration Type: External Standard
Analysis Method: NWTPH-Dx

Calibration Date: 08/20/2018
Calibration ID: CAL15807
Analysis Lot: KWG1804989
Units: ppm

File ID: J:\GC21\DATA\100318F\1003F121.D
J:\GC21\DATA\100318F\1003F122.D

Column ID: ZB-1

Analyte Name	Expected	Result	Average RF	CCV RF	%D		%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1200	1230	1450	18	*	NA	± 15	AverageRF
Residual Range Organics (RRO)	1000	1100	622	680	9		NA	± 15	AverageRF
o-Terphenyl	50	54	1780	1940	9		NA	± 15	AverageRF
n-Triacontane	50	54	1420	1520	7		NA	± 15	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1808923
Date Analyzed: 10/03/2018

Continuing Calibration Verification Summary
Diesel and Residual Range Organics

Calibration Type: External Standard
Analysis Method: NWTPH-Dx

Calibration Date: 08/20/2018
Calibration ID: CAL15807
Analysis Lot: KWG1804989
Units: ppm

File ID: J:\GC21\DATA\100318F\1003F136.D
J:\GC21\DATA\100318F\1003F137.D

Column ID: ZB-1

Analyte Name	Expected	Result	Average RF	CCV RF	%D		%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1200	1230	1430	17	*	NA	± 15	AverageRF
Residual Range Organics (RRO)	1000	1200	622	738	19	*	NA	± 15	AverageRF
o-Terphenyl	50	54	1780	1910	7		NA	± 15	AverageRF
n-Triacontane	50	56	1420	1590	12		NA	± 15	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

QA/QC Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Analyzed:**	10/04/2018

Continuing Calibration Verification Summary
Diesel and Residual Range Organics

Calibration Type:	External Standard	**Calibration Date:**	08/20/2018
Analysis Method:	NWTPH-Dx	**Calibration ID:**	CAL15807
		Analysis Lot:	KWG1805015
		Units:	ppm
File ID:	J:\GC21\DATA\100418F\1004F116.D J:\GC21\DATA\100418F\1004F117.D	**Column ID:**	ZB-1

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1100	1230	1360	11	NA	± 15	AverageRF
Residual Range Organics (RRO)	1000	1100	622	690	11	NA	± 15	AverageRF
o-Terphenyl	50	51	1780	1800	1	NA	± 15	AverageRF
n-Triacontane	50	53	1420	1510	6	NA	± 15	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

QA/QC Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1808923
Date Analyzed: 10/04/2018

Continuing Calibration Verification Summary
Diesel and Residual Range Organics

Calibration Type: External Standard
Analysis Method: NWTPH-Dx

Calibration Date: 08/20/2018
Calibration ID: CAL15807
Analysis Lot: KWG1805015
Units: ppm

File ID: J:\GC21\DATA\100418F\1004F130.D
J:\GC21\DATA\100418F\1004F131.D

Column ID: ZB-1

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1100	1230	1380	13	NA	± 15	AverageRF
Residual Range Organics (RRO)	1000	1200	622	718	15	NA	± 15	AverageRF
o-Terphenyl	50	51	1780	1810	2	NA	± 15	AverageRF
n-Triacontane	50	53	1420	1510	6	NA	± 15	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: EA Engineering, Science, and Technology **Service Request:** K1808923
Project: JBLM/6304305

Analysis Run Log
Diesel and Residual Range Organics

Analysis Method: NWTPH-Dx **Analysis Lot:** KWG1804989
Instrument ID: GC21
Column: ZB-1

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
1003F103.D	Continuing Calibration Verification	KWG1804989-1	10/3/2018	08:54		10/3/2018	09:10
1003F104.D	Continuing Calibration Verification	KWG1804989-1	10/3/2018	09:16		10/3/2018	09:32
1003F105.D	Instrument Blank	KWG1804989-5	10/3/2018	09:38		10/3/2018	09:54
1003F111.D	ZZZZZZ	ZZZZZZ	10/3/2018	12:05		10/3/2018	12:21
1003F112.D	ZZZZZZ	ZZZZZZ	10/3/2018	12:27		10/3/2018	12:43
1003F113.D	ZZZZZZ	ZZZZZZ	10/3/2018	12:49		10/3/2018	13:05
1003F114.D	ZZZZZZ	ZZZZZZ	10/3/2018	13:11		10/3/2018	13:27
1003F117.D	ZZZZZZ	ZZZZZZ	10/3/2018	14:16		10/3/2018	14:32
1003F119.D	ZZZZZZ	ZZZZZZ	10/3/2018	15:00		10/3/2018	15:16
1003F121.D	Continuing Calibration Verification	KWG1804989-2	10/3/2018	15:43		10/3/2018	15:59
1003F122.D	Continuing Calibration Verification	KWG1804989-2	10/3/2018	16:05		10/3/2018	16:21
1003F123.D	Instrument Blank	KWG1804989-6	10/3/2018	16:27		10/3/2018	16:43
1003F124.D	Lab Control Sample	KWG1804852-4	10/3/2018	16:49		10/3/2018	17:05
1003F125.D	Method Blank	KWG1804852-5	10/3/2018	17:10		10/3/2018	17:26
1003F126.D	FTP-14-20180912	K1808923-002	10/3/2018	17:32		10/3/2018	17:48
1003F127.D	FTP-15-20180912	K1808923-003	10/3/2018	17:54		10/3/2018	18:10
1003F128.D	FTP-16-20180913	K1808923-004	10/3/2018	18:16		10/3/2018	18:32
1003F131.D	ZZZZZZ	ZZZZZZ	10/3/2018	19:21		10/3/2018	19:37
1003F136.D	Continuing Calibration Verification	KWG1804989-3	10/3/2018	21:10		10/3/2018	21:26
1003F137.D	Continuing Calibration Verification	KWG1804989-3	10/3/2018	21:32		10/3/2018	21:48
1003F138.D	Instrument Blank	KWG1804989-7	10/3/2018	21:54		10/3/2018	22:10
1003F143.D	ZZZZZZ	ZZZZZZ	10/3/2018	23:43		10/3/2018	23:59
1003F150.D	Continuing Calibration Verification	KWG1804989-4	10/4/2018	02:15		10/4/2018	02:31
1003F151.D	Continuing Calibration Verification	KWG1804989-4	10/4/2018	02:37		10/4/2018	02:53
1003F152.D	Instrument Blank	KWG1804989-8	10/4/2018	02:58		10/4/2018	03:14

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

Client: EA Engineering, Science, and Technology **Service Request:** K1808923
Project: JBLM/6304305

Analysis Run Log
Diesel and Residual Range Organics

Analysis Method: NWTPH-Dx **Analysis Lot:** KWG1805015
Instrument ID: GC21
Column: ZB-1

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
1004F103.D	Continuing Calibration Verification	KWG1805015-1	10/4/2018	10:12		10/4/2018	10:28
1004F104.D	Continuing Calibration Verification	KWG1805015-1	10/4/2018	10:33		10/4/2018	10:49
1004F105.D	Instrument Blank	KWG1805015-6	10/4/2018	10:55		10/4/2018	11:11
1004F106.D	ZZZZZZ	ZZZZZZ	10/4/2018	11:17		10/4/2018	11:33
1004F107.D	ZZZZZZ	ZZZZZZ	10/4/2018	11:39		10/4/2018	11:55
1004F108.D	ZZZZZZ	ZZZZZZ	10/4/2018	12:01		10/4/2018	12:17
1004F109.D	ZZZZZZ	ZZZZZZ	10/4/2018	12:22		10/4/2018	12:38
1004F110.D	ZZZZZZ	ZZZZZZ	10/4/2018	12:44		10/4/2018	13:00
1004F111.D	ZZZZZZ	ZZZZZZ	10/4/2018	13:06		10/4/2018	13:22
1004F112.D	ZZZZZZ	ZZZZZZ	10/4/2018	13:28		10/4/2018	13:44
1004F113.D	ZZZZZZ	ZZZZZZ	10/4/2018	13:49		10/4/2018	14:05
1004F114.D	ZZZZZZ	ZZZZZZ	10/4/2018	14:11		10/4/2018	14:27
1004F115.D	ZZZZZZ	ZZZZZZ	10/4/2018	14:33		10/4/2018	14:49
1004F116.D	Continuing Calibration Verification	KWG1805015-2	10/4/2018	14:55		10/4/2018	15:11
1004F117.D	Continuing Calibration Verification	KWG1805015-2	10/4/2018	15:16		10/4/2018	15:32
1004F118.D	Instrument Blank	KWG1805015-7	10/4/2018	15:38		10/4/2018	15:54
1004F119.D	ZZZZZZ	ZZZZZZ	10/4/2018	16:00		10/4/2018	16:16
1004F120.D	ZZZZZZ	ZZZZZZ	10/4/2018	16:22		10/4/2018	16:38
1004F121.D	ZZZZZZ	ZZZZZZ	10/4/2018	16:43		10/4/2018	16:59
1004F122.D	ZZZZZZ	ZZZZZZ	10/4/2018	17:05		10/4/2018	17:21
1004F123.D	ZZZZZZ	ZZZZZZ	10/4/2018	17:27		10/4/2018	17:43
1004F124.D	FTP-1-20180912	K1808923-001	10/4/2018	17:48		10/4/2018	18:04
1004F125.D	FTP-1-20180912DUP	KWG1804852-1	10/4/2018	18:10		10/4/2018	18:26
1004F126.D	FTP-1-20180912MS	KWG1804852-2	10/4/2018	18:32		10/4/2018	18:48
1004F127.D	FTP-1-20180912DMS	KWG1804852-3	10/4/2018	18:54		10/4/2018	19:10
1004F128.D	ZZZZZZ	ZZZZZZ	10/4/2018	19:15		10/4/2018	19:31
1004F129.D	ZZZZZZ	ZZZZZZ	10/4/2018	19:37		10/4/2018	19:53
1004F130.D	Continuing Calibration Verification	KWG1805015-3	10/4/2018	19:59		10/4/2018	20:15
1004F131.D	Continuing Calibration Verification	KWG1805015-3	10/4/2018	20:21		10/4/2018	20:37
1004F132.D	Instrument Blank	KWG1805015-8	10/4/2018	20:43		10/4/2018	20:59
1004F133.D	ZZZZZZ	ZZZZZZ	10/4/2018	21:04		10/4/2018	21:20
1004F134.D	ZZZZZZ	ZZZZZZ	10/4/2018	21:26		10/4/2018	21:42
1004F135.D	ZZZZZZ	ZZZZZZ	10/4/2018	21:48		10/4/2018	22:04
1004F136.D	ZZZZZZ	ZZZZZZ	10/4/2018	22:10		10/4/2018	22:26
1004F137.D	ZZZZZZ	ZZZZZZ	10/4/2018	22:32		10/4/2018	22:48

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

Client: EA Engineering, Science, and Technology **Service Request:** K1808923
Project: JBLM/6304305

Analysis Run Log
Diesel and Residual Range Organics

Analysis Method: NWTPH-Dx **Analysis Lot:** KWG1805015
Instrument ID: GC21
Column: ZB-1

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
1004F138.D	ZZZZZZ	ZZZZZZ	10/4/2018	22:53		10/4/2018	23:09
1004F144.D	Continuing Calibration Verification	KWG1805015-4	10/5/2018	01:04		10/5/2018	01:20
1004F147.D	Instrument Blank	KWG1805015-9	10/5/2018	02:09		10/5/2018	02:25
1004F148.D	ZZZZZZ	ZZZZZZ	10/5/2018	02:31		10/5/2018	02:47
1004F149.D	ZZZZZZ	ZZZZZZ	10/5/2018	02:53		10/5/2018	03:09
1004F150.D	ZZZZZZ	ZZZZZZ	10/5/2018	03:15		10/5/2018	03:31
1004F151.D	ZZZZZZ	ZZZZZZ	10/5/2018	03:36		10/5/2018	03:52
1004F152.D	ZZZZZZ	ZZZZZZ	10/5/2018	03:58		10/5/2018	04:14
1004F153.D	ZZZZZZ	ZZZZZZ	10/5/2018	04:20		10/5/2018	04:36
1004F154.D	ZZZZZZ	ZZZZZZ	10/5/2018	04:42		10/5/2018	04:58
1004F155.D	ZZZZZZ	ZZZZZZ	10/5/2018	05:03		10/5/2018	05:19
1004F156.D	ZZZZZZ	ZZZZZZ	10/5/2018	05:25		10/5/2018	05:41
1004F157.D	ZZZZZZ	ZZZZZZ	10/5/2018	05:47		10/5/2018	06:03
1004F158.D	ZZZZZZ	ZZZZZZ	10/5/2018	06:09		10/5/2018	06:25
1004F159.D	Continuing Calibration Verification	KWG1805015-5	10/5/2018	06:30		10/5/2018	06:46
1004F161.D	Instrument Blank	KWG1805015-10	10/5/2018	07:14		10/5/2018	07:30

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

QA/QC Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Extracted: 09/26/2018

Extraction Prep Log
Diesel and Residual Range Organics

Extraction Method: EPA 3510C
Analysis Method: NWTPH-Dx

Extraction Lot: KWG1804852
Level: Low

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Volume	% Solids	Note
FTP-1-20180912	K1808923-001	09/12/18	09/15/18	450ml	1ml	NA	
FTP-14-20180912	K1808923-002	09/12/18	09/15/18	480ml	1ml	NA	
FTP-15-20180912	K1808923-003	09/12/18	09/15/18	460ml	1ml	NA	
FTP-16-20180913	K1808923-004	09/13/18	09/15/18	500ml	1ml	NA	
FTP-1-20180912DUP	KWG1804852-1	09/12/18	09/15/18	450ml	1ml	NA	
Method Blank	KWG1804852-5	NA	NA	500ml	1ml	NA	
FTP-1-20180912MS	KWG1804852-2	09/12/18	09/15/18	430ml	1ml	NA	
FTP-1-20180912DMS	KWG1804852-3	09/12/18	09/15/18	470ml	1ml	NA	
Lab Control Sample	KWG1804852-4	NA	NA	500ml	1ml	NA	

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

Gasoline Range Organics

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/12/18 15:15
Sample Matrix:	Ground Water	**Date Received:**	09/15/18 09:20
Sample Name:	FTP-1-20180912	**Units:**	ug/L
Lab Code:	K1808923-001	**Basis:**	NA

Volatile Petroleum Products Method for Soil and Water for the Northwest

Analysis Method: NWTPH-Gx
Prep Method: None

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Gasoline Range Organics-NWTPH	**1260**	250	25.0	12.0	1	09/17/18 10:37	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Difluorobenzene	98	50 - 150	09/17/18 10:37	

Analytical Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/12/18 12:35
Sample Matrix:	Ground Water	**Date Received:**	09/15/18 09:20
Sample Name:	FTP-14-20180912	**Units:**	ug/L
Lab Code:	K1808923-002	**Basis:**	NA

Volatile Petroleum Products Method for Soil and Water for the Northwest

Analysis Method: NWTPH-Gx
Prep Method: None

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Gasoline Range Organics-NWTPH	**32.7 J**	250	25.0	12.0	1	09/17/18 11:25	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Difluorobenzene	101	50 - 150	09/17/18 11:25	

Analytical Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/12/18 13:25
Sample Matrix:	Ground Water	**Date Received:**	09/15/18 09:20
Sample Name:	FTP-15-20180912	**Units:**	ug/L
Lab Code:	K1808923-003	**Basis:**	NA

Volatile Petroleum Products Method for Soil and Water for the Northwest

Analysis Method: NWTPH-Gx
Prep Method: None

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Gasoline Range Organics-NWTPH	**16.7 J**	250	25.0	12.0	1	09/17/18 11:49	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Difluorobenzene	100	50 - 150	09/17/18 11:49	

Analytical Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/13/18 07:45
Sample Matrix:	Ground Water	**Date Received:**	09/15/18 09:20
Sample Name:	FTP-16-20180913	**Units:**	ug/L
Lab Code:	K1808923-004	**Basis:**	NA

Volatile Petroleum Products Method for Soil and Water for the Northwest

Analysis Method: NWTPH-Gx
Prep Method: None

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Gasoline Range Organics-NWTPH	**12.9 J**	250	25.0	12.0	1	09/17/18 12:21	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Difluorobenzene	100	50 - 150	09/17/18 12:21	

Analytical Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ1812901-04	**Basis:**	NA

Volatile Petroleum Products Method for Soil and Water for the Northwest

Analysis Method: NWTPH-Gx
Prep Method: None

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Gasoline Range Organics-NWTPH	ND U	250	25.0	12.0	1	09/17/18 09:48	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Difluorobenzene	101	50 - 150	09/17/18 09:48	

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923

Project: JBLM/6304305

Sample Matrix: Ground Water

SURROGATE RECOVERY SUMMARY

Volatile Petroleum Products Method for Soil and Water for the Northwest

Analysis Method: NWTPH-Gx

Extraction Method: None

Sample Name	Lab Code	1,4-Difluorobenzene 50-150
FTP-1-20180912	K1808923-001	98
FTP-14-20180912	K1808923-002	101
FTP-15-20180912	K1808923-003	100
FTP-16-20180913	K1808923-004	100
FTP-1-20180912	KQ1812901-01	99
Method Blank	KQ1812901-04	101
Lab Control Sample	KQ1812901-05	106

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1808923
Project	JBLM/6304305	**Date Collected:**	09/12/18
Sample Matrix:	Ground Water	**Date Received:**	09/15/18
		Date Analyzed:	09/17/18

Replicate Sample Summary

Volatile Petroleum Products Method for Soil and Water for the Northwest

Sample Name:	FTP-1-20180912	**Units:**	ug/L
Lab Code:	K1808923-001	**Basis:**	NA

Analyte Name	Analysis Method	LOQ	LOD	MDL	Sample Result	Duplicate Sample KQ1812901-01 Result	Average	RPD	RPD Limit
Gasoline Range Organics-NWTPH	NWTPH-Gx	250	25.0	12.0	1260	1220	1240	4	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
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QA/QC Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Analyzed:**	09/17/18
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Volatile Petroleum Products Method for Soil and Water for the Northwest

Analysis Method:	NWTPH-Gx	**Units:**	ug/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	606882

Lab Control Sample
KQ1812901-05

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Gasoline Range Organics-NWTPH	488	500	98	80-119

ALS Group USA, Corp.
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QA/QC Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Analyzed:**	09/17/18 09:48
Sample Matrix:	Ground Water	**Date Extracted:**	

Method Blank Summary
Volatile Petroleum Products Method for Soil and Water for the Northwest

Sample Name:	Method Blank	**Instrument ID:**	K-GC-39
Lab Code:	KQ1812901-04	**File ID:**	J:\GC39\DATA\091718\0917F005.D\
Analysis Method:	NWTPH-Gx	**Analysis Lot:**	606882
Prep Method:	None		

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1812901-05	J:\GC39\DATA\091718\0917F006.D\	09/17/18 10:13
FTP-1-20180912	K1808923-001	J:\GC39\DATA\091718\0917F007.D\	09/17/18 10:37
FTP-1-20180912DUP	KQ1812901-01	J:\GC39\DATA\091718\0917F008.D\	09/17/18 11:01
FTP-14-20180912	K1808923-002	J:\GC39\DATA\091718\0917F009.D\	09/17/18 11:25
FTP-15-20180912	K1808923-003	J:\GC39\DATA\091718\0917F010.D\	09/17/18 11:49
FTP-16-20180913	K1808923-004	J:\GC39\DATA\091718\0917F011.D\	09/17/18 12:21

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Analyzed:**	09/17/18 10:13
Sample Matrix:	Ground Water	**Date Extracted:**	

Lab Control Sample Summary
Volatile Petroleum Products Method for Soil and Water for the Northwest

Sample Name:	Lab Control Sample	**Instrument ID:**	K-GC-39
Lab Code:	KQ1812901-05	**File ID:**	J:\GC39\DATA\091718\0917F006.D\
Analysis Method:	NWTPH-Gx	**Analysis Lot:**	606882
Prep Method:	None		

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1812901-04	J:\GC39\DATA\091718\0917F005.D\	09/17/18 09:48
FTP-1-20180912	K1808923-001	J:\GC39\DATA\091718\0917F007.D\	09/17/18 10:37
FTP-1-20180912DUP	KQ1812901-01	J:\GC39\DATA\091718\0917F008.D\	09/17/18 11:01
FTP-14-20180912	K1808923-002	J:\GC39\DATA\091718\0917F009.D\	09/17/18 11:25
FTP-15-20180912	K1808923-003	J:\GC39\DATA\091718\0917F010.D\	09/17/18 11:49
FTP-16-20180913	K1808923-004	J:\GC39\DATA\091718\0917F011.D\	09/17/18 12:21

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 6/14/2018

Initial Calibration Summary
Volatile Petroleum Products Method for Soil and Water for the Northwest

Calibration ID: KC1800428 **Signal ID:** DB-624
Instrument ID: K-GC-39

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800428-01	ICAL 1 50/20	J:\GC39\DATA\061418\0614F006.D	06/14/2018 11:32
02	KC1800428-02	ICAL 2 100/25	J:\GC39\DATA\061418\0614F007.D	06/14/2018 11:58
03	KC1800428-03	ICAL 3 200/50	J:\GC39\DATA\061418\0614F008.D	06/14/2018 12:22
04	KC1800428-04	ICAL 4 500/100	J:\GC39\DATA\061418\0614F009.D	06/14/2018 12:46
05	KC1800428-05	ICAL 5 1000/150	J:\GC39\DATA\061418\0614F010.D	06/14/2018 13:10
06	KC1800428-06	ICAL 6 5000	J:\GC39\DATA\061418\0614F011.D	06/14/2018 13:34
07	KC1800428-07	ICAL 7 10000	J:\GC39\DATA\061418\0614F012.D	06/14/2018 13:58

Analyte

1,4-Difluorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20.000	1.626E5	02	25.000	1.559E5	03	50.000	1.568E5	04	100.000	1.542E5
05	150.000	1.53E5									

Gasoline Range Organics-NWTPH

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	50.000	8.616E4	02	100.000	7.788E4	03	200.000	7.958E4	04	500.000	7.593E4
05	1000.000	7.773E4	06	5000.000	7.913E4	07	10000.000	8.156E4			

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 6/14/2018

Initial Calibration Summary
Volatile Petroleum Products Method for Soil and Water for the Northwest

Calibration ID: KC1800428 **Signal ID:** DB-624
Instrument ID: K-GC-39

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
1,4-Difluorobenzene	SURR	Average RF	% RSD	2.4	≤20	1.565E5	
Gasoline Range Organics-NWTPH	TRG	Average RF	% RSD	4.2	≤20	7.971E4	

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 6/14/2018

Initial Calibration Verification Summary
Volatile Petroleum Products Method for Soil and Water for the Northwest

Calibration ID: KC1800428 **Signal ID:** DB-624
Instrument ID: K-GC-39

#	Lab Code	Sample Name	File Location	Acquisition Date
08	KC1800428-08	ICV 500/100	J:\GC39\DATA\061418\0614F014.D	06/14/2018 14:46

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Gasoline Range Organics-NWTPH	500	571	7.971E4	9.108E4	14.26	±20	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
1,4-Difluorobenzene	100	97.9	1.565E5	1.532E5	-2.105	±20	Average RF

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Analyzed:**	09/17/18 09:01

Continuing Calibration Verification (CCV) Summary
Volatile Petroleum Products Method for Soil and Water for the Northwest

Analysis Method:	NWTPH-Gx	**Calibration Date:**	6/14/2018
File ID:	J:\GC39\DATA\091718\0917F003.D\	**Calibration ID:**	KC1800428
Signal ID:	DB-624	**Analysis Lot:**	606882
		Units:	ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Gasoline Range Organics-NWTPH	500	468	7.971E4	7.456E4	-6.5	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,4-Difluorobenzene	100	107	1.565E5	1.673E5	6.9	NA	±20	Average RF

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Analyzed:**	09/17/18 12:46

Continuing Calibration Verification (CCV) Summary
Volatile Petroleum Products Method for Soil and Water for the Northwest

Analysis Method:	NWTPH-Gx	**Calibration Date:**	6/14/2018
File ID:	J:\GC39\DATA\091718\0917F012.D\	**Calibration ID:**	KC1800428
Signal ID:	DB-624	**Analysis Lot:**	606882
		Units:	ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Gasoline Range Organics-NWTPH	500	481	7.971E4	7.675E4	-3.7	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,4-Difluorobenzene	100	103	1.565E5	1.605E5	2.6	NA	±20	Average RF

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:**K1808923
Project: JBLM/6304305

Analysis Run Log
Volatile Petroleum Products Method for Soil and Water for the Northwest

Analysis Method: NWTPH-Gx **Analysis Lot:**606882
Instrument ID:K-GC-39

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC39\DATA\091718\0917F003.D\	Continuing Calibration Verification	KQ1812901-02	9/17/2018	09:01:00	
J:\GC39\DATA\091718\0917F005.D\	Method Blank	KQ1812901-04	9/17/2018	09:48:00	
J:\GC39\DATA\091718\0917F006.D\	Lab Control Sample	KQ1812901-05	9/17/2018	10:13:00	
J:\GC39\DATA\091718\0917F007.D\	FTP-1-20180912	K1808923-001	9/17/2018	10:37:00	
J:\GC39\DATA\091718\0917F008.D\	FTP-1-20180912 DUP	KQ1812901-01	9/17/2018	11:01:00	
J:\GC39\DATA\091718\0917F009.D\	FTP-14-20180912	K1808923-002	9/17/2018	11:25:00	
J:\GC39\DATA\091718\0917F010.D\	FTP-15-20180912	K1808923-003	9/17/2018	11:49:00	
J:\GC39\DATA\091718\0917F011.D\	FTP-16-20180913	K1808923-004	9/17/2018	12:21:00	
J:\GC39\DATA\091718\0917F012.D\	Continuing Calibration Verification	KQ1812901-03	9/17/2018	12:46:00	

Volatile Organic Compounds

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Client: EA Engineering, Science, and Technology **Service Request:** K1808923
Project: JBLM/6304305

Cover Page - Organic Analysis Data Package
Volatile Organic Compounds

Sample Name	Lab Code	Date Collected	Date Received
FTP-1-20180912	K1808923-001	09/12/2018	09/15/2018
TVR-815-2-20180913	K1808923-005	09/13/2018	09/15/2018
TVR-MTS-1-20180913	K1808923-006	09/13/2018	09/15/2018
TVR-MTS-2-20180913	K1808923-007	09/13/2018	09/15/2018
TVR-MTS-4-20180913	K1808923-008	09/13/2018	09/15/2018
TVR-TB-001-20180912	K1808923-009	09/12/2018	09/15/2018
TVR-3-20180913	K1808923-010	09/13/2018	09/15/2018
TVR-3A-20180913	K1808923-011	09/13/2018	09/15/2018
TVR-5-20180913	K1808923-012	09/13/2018	09/15/2018
TVR-6-20180913	K1808923-013	09/13/2018	09/15/2018
TVR-7-20180913	K1808923-014	09/13/2018	09/15/2018
TVR-POMONA-20180913	K1808923-015	09/13/2018	09/15/2018
TVR-PAIC-20180913	K1808923-016	09/13/2018	09/15/2018
TVR-1-20180913	K1808923-017	09/13/2018	09/15/2018
FTP-1-20180912MS	KWG1805293-1	09/12/2018	09/15/2018
FTP-1-20180912DMS	KWG1805293-2	09/12/2018	09/15/2018

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/12/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: FTP-1-20180912
Lab Code: K1808923-001

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	09/25/18	09/25/18	KWG1805293	*
Chloromethane	ND	U	0.50	0.20	0.068	1	09/25/18	09/25/18	KWG1805293	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	09/25/18	09/25/18	KWG1805293	
Bromomethane	ND	U	0.50	0.30	0.16	1	09/25/18	09/25/18	KWG1805293	
Chloroethane	ND	U	0.50	0.20	0.16	1	09/25/18	09/25/18	KWG1805293	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	09/25/18	09/25/18	KWG1805293	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	09/25/18	09/25/18	KWG1805293	
Acetone	**9.6**	J	20	10	3.3	1	09/25/18	09/25/18	KWG1805293	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	09/25/18	09/25/18	KWG1805293	
Methylene Chloride	ND	U	2.0	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	09/25/18	09/25/18	KWG1805293	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	09/25/18	09/25/18	KWG1805293	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	09/25/18	09/25/18	KWG1805293	
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	09/25/18	09/25/18	KWG1805293	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	09/25/18	09/25/18	KWG1805293	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	09/25/18	09/25/18	KWG1805293	
Chloroform	ND	U	0.50	0.20	0.072	1	09/25/18	09/25/18	KWG1805293	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	09/25/18	09/25/18	KWG1805293	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	09/25/18	09/25/18	KWG1805293	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	09/25/18	09/25/18	KWG1805293	
Benzene	**2.8**		0.50	0.20	0.062	1	09/25/18	09/25/18	KWG1805293	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	09/25/18	09/25/18	KWG1805293	
Trichloroethene (TCE)	ND	U	0.50	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	09/25/18	09/25/18	KWG1805293	
Dibromomethane	ND	U	0.50	0.50	0.15	1	09/25/18	09/25/18	KWG1805293	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	09/25/18	09/25/18	KWG1805293	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	09/25/18	09/25/18	KWG1805293	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	09/25/18	09/25/18	KWG1805293	
Toluene	**0.28**	J	0.50	0.20	0.054	1	09/25/18	09/25/18	KWG1805293	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	09/25/18	09/25/18	KWG1805293	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	09/25/18	09/25/18	KWG1805293	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	09/25/18	09/25/18	KWG1805293	
2-Hexanone	ND	U	20	10	2.7	1	09/25/18	09/25/18	KWG1805293	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	09/25/18	09/25/18	KWG1805293	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	09/25/18	09/25/18	KWG1805293	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/12/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: FTP-1-20180912
Lab Code: K1808923-001

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
Chlorobenzene	ND	U	0.50	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
Ethylbenzene	**5.6**		0.50	0.10	0.050	1	09/25/18	09/25/18	KWG1805293	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	09/25/18	09/25/18	KWG1805293	
m,p-Xylenes	**0.14**	J	0.50	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
o-Xylene	**0.59**		0.50	0.20	0.074	1	09/25/18	09/25/18	KWG1805293	
Styrene	ND	U	0.50	0.20	0.089	1	09/25/18	09/25/18	KWG1805293	
Bromoform	ND	U	0.50	0.50	0.16	1	09/25/18	09/25/18	KWG1805293	*
Isopropylbenzene	**5.6**		2.0	0.20	0.051	1	09/25/18	09/25/18	KWG1805293	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	09/25/18	09/25/18	KWG1805293	
Bromobenzene	ND	U	2.0	0.20	0.12	1	09/25/18	09/25/18	KWG1805293	
n-Propylbenzene	**6.4**		2.0	0.20	0.054	1	09/25/18	09/25/18	KWG1805293	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	09/25/18	09/25/18	KWG1805293	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
1,3,5-Trimethylbenzene	**0.27**	J	2.0	0.20	0.089	1	09/25/18	09/25/18	KWG1805293	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	09/25/18	09/25/18	KWG1805293	
tert-Butylbenzene	**0.27**	J	2.0	0.20	0.059	1	09/25/18	09/25/18	KWG1805293	
1,2,4-Trimethylbenzene	**58**		2.0	0.20	0.069	1	09/25/18	09/25/18	KWG1805293	
sec-Butylbenzene	**2.9**		2.0	0.10	0.062	1	09/25/18	09/25/18	KWG1805293	
4-Isopropyltoluene	**3.9**		2.0	0.20	0.060	1	09/25/18	09/25/18	KWG1805293	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
1,4-Dichlorobenzene	**0.13**	J	0.50	0.30	0.12	1	09/25/18	09/25/18	KWG1805293	
n-Butylbenzene	**5.1**		2.0	0.10	0.054	1	09/25/18	09/25/18	KWG1805293	
1,2-Dichlorobenzene	**0.90**		0.50	0.20	0.12	1	09/25/18	09/25/18	KWG1805293	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	09/25/18	09/25/18	KWG1805293	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	09/25/18	09/25/18	KWG1805293	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
Naphthalene	**84**	D	20	3.0	0.88	10	09/25/18	09/25/18	KWG1805293	
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	09/25/18	09/25/18	KWG1805293	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/12/2018
Sample Matrix:	Ground water	**Date Received:**	09/15/2018

Volatile Organic Compounds

Sample Name:	FTP-1-20180912	**Units:**	ug/L
Lab Code:	K1808923-001	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	108	80-119	09/25/18	Acceptable
1,2-Dichloroethane-d4	92	81-118	09/25/18	Acceptable
Toluene-d8	100	89-112	09/25/18	Acceptable
4-Bromofluorobenzene	107	85-114	09/25/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-815-2-20180913
Lab Code: K1808923-005

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	09/25/18	09/25/18	KWG1805293	*
Chloromethane	ND	U	0.50	0.20	0.068	1	09/25/18	09/25/18	KWG1805293	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	09/25/18	09/25/18	KWG1805293	
Bromomethane	ND	U	0.50	0.30	0.16	1	09/25/18	09/25/18	KWG1805293	
Chloroethane	ND	U	0.50	0.20	0.16	1	09/25/18	09/25/18	KWG1805293	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	09/25/18	09/25/18	KWG1805293	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	09/25/18	09/25/18	KWG1805293	
Acetone	ND	U	20	10	3.3	1	09/25/18	09/25/18	KWG1805293	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	09/25/18	09/25/18	KWG1805293	
Methylene Chloride	ND	U	2.0	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	09/25/18	09/25/18	KWG1805293	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	09/25/18	09/25/18	KWG1805293	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	09/25/18	09/25/18	KWG1805293	
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	09/25/18	09/25/18	KWG1805293	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	09/25/18	09/25/18	KWG1805293	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	09/25/18	09/25/18	KWG1805293	
Chloroform	ND	U	0.50	0.20	0.072	1	09/25/18	09/25/18	KWG1805293	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	09/25/18	09/25/18	KWG1805293	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	09/25/18	09/25/18	KWG1805293	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	09/25/18	09/25/18	KWG1805293	
Benzene	ND	U	0.50	0.20	0.062	1	09/25/18	09/25/18	KWG1805293	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	09/25/18	09/25/18	KWG1805293	
Trichloroethene (TCE)	**1.0**		0.50	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	09/25/18	09/25/18	KWG1805293	
Dibromomethane	ND	U	0.50	0.50	0.15	1	09/25/18	09/25/18	KWG1805293	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	09/25/18	09/25/18	KWG1805293	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	09/25/18	09/25/18	KWG1805293	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	09/25/18	09/25/18	KWG1805293	
Toluene	ND	U	0.50	0.20	0.054	1	09/25/18	09/25/18	KWG1805293	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	09/25/18	09/25/18	KWG1805293	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	09/25/18	09/25/18	KWG1805293	
Tetrachloroethene (PCE)	**0.21**	J	0.50	0.20	0.099	1	09/25/18	09/25/18	KWG1805293	*
2-Hexanone	ND	U	20	10	2.7	1	09/25/18	09/25/18	KWG1805293	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	09/25/18	09/25/18	KWG1805293	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	09/25/18	09/25/18	KWG1805293	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-815-2-20180913
Lab Code: K1808923-005

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
Chlorobenzene	ND	U	0.50	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	09/25/18	09/25/18	KWG1805293	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	09/25/18	09/25/18	KWG1805293	
m,p-Xylenes	ND	U	0.50	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
o-Xylene	ND	U	0.50	0.20	0.074	1	09/25/18	09/25/18	KWG1805293	
Styrene	ND	U	0.50	0.20	0.089	1	09/25/18	09/25/18	KWG1805293	
Bromoform	ND	U	0.50	0.50	0.16	1	09/25/18	09/25/18	KWG1805293	*
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	09/25/18	09/25/18	KWG1805293	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	09/25/18	09/25/18	KWG1805293	
Bromobenzene	ND	U	2.0	0.20	0.12	1	09/25/18	09/25/18	KWG1805293	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	09/25/18	09/25/18	KWG1805293	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	09/25/18	09/25/18	KWG1805293	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	09/25/18	09/25/18	KWG1805293	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	09/25/18	09/25/18	KWG1805293	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	09/25/18	09/25/18	KWG1805293	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	09/25/18	09/25/18	KWG1805293	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	09/25/18	09/25/18	KWG1805293	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	09/25/18	09/25/18	KWG1805293	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
1,4-Dichlorobenzene	ND	U	0.50	0.30	0.12	1	09/25/18	09/25/18	KWG1805293	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	09/25/18	09/25/18	KWG1805293	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	09/25/18	09/25/18	KWG1805293	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	09/25/18	09/25/18	KWG1805293	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	09/25/18	09/25/18	KWG1805293	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
Naphthalene	ND	U	2.0	0.30	0.088	1	09/25/18	09/25/18	KWG1805293	
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	09/25/18	09/25/18	KWG1805293	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/13/2018
Sample Matrix:	Ground water	**Date Received:**	09/15/2018

Volatile Organic Compounds

Sample Name:	TVR-815-2-20180913	**Units:**	ug/L
Lab Code:	K1808923-005	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	112	80-119	09/25/18	Acceptable
1,2-Dichloroethane-d4	98	81-118	09/25/18	Acceptable
Toluene-d8	101	89-112	09/25/18	Acceptable
4-Bromofluorobenzene	108	85-114	09/25/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-MTS-1-20180913
Lab Code: K1808923-006

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	09/25/18	09/25/18	KWG1805293	*
Chloromethane	ND	U	0.50	0.20	0.068	1	09/25/18	09/25/18	KWG1805293	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	09/25/18	09/25/18	KWG1805293	
Bromomethane	ND	U	0.50	0.30	0.16	1	09/25/18	09/25/18	KWG1805293	
Chloroethane	ND	U	0.50	0.20	0.16	1	09/25/18	09/25/18	KWG1805293	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	09/25/18	09/25/18	KWG1805293	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	09/25/18	09/25/18	KWG1805293	
Acetone	ND	U	20	10	3.3	1	09/25/18	09/25/18	KWG1805293	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	09/25/18	09/25/18	KWG1805293	
Methylene Chloride	ND	U	2.0	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	09/25/18	09/25/18	KWG1805293	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	09/25/18	09/25/18	KWG1805293	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	09/25/18	09/25/18	KWG1805293	
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	09/25/18	09/25/18	KWG1805293	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	09/25/18	09/25/18	KWG1805293	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	09/25/18	09/25/18	KWG1805293	
Chloroform	ND	U	0.50	0.20	0.072	1	09/25/18	09/25/18	KWG1805293	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	09/25/18	09/25/18	KWG1805293	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	09/25/18	09/25/18	KWG1805293	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	09/25/18	09/25/18	KWG1805293	
Benzene	ND	U	0.50	0.20	0.062	1	09/25/18	09/25/18	KWG1805293	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	09/25/18	09/25/18	KWG1805293	
Trichloroethene (TCE)	**3.0**		0.50	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	09/25/18	09/25/18	KWG1805293	
Dibromomethane	ND	U	0.50	0.50	0.15	1	09/25/18	09/25/18	KWG1805293	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	09/25/18	09/25/18	KWG1805293	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	09/25/18	09/25/18	KWG1805293	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	09/25/18	09/25/18	KWG1805293	
Toluene	ND	U	0.50	0.20	0.054	1	09/25/18	09/25/18	KWG1805293	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	09/25/18	09/25/18	KWG1805293	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	09/25/18	09/25/18	KWG1805293	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	09/25/18	09/25/18	KWG1805293	
2-Hexanone	ND	U	20	10	2.7	1	09/25/18	09/25/18	KWG1805293	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	09/25/18	09/25/18	KWG1805293	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	09/25/18	09/25/18	KWG1805293	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-MTS-1-20180913
Lab Code: K1808923-006

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
Chlorobenzene	ND	U	0.50	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	09/25/18	09/25/18	KWG1805293	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	09/25/18	09/25/18	KWG1805293	
m,p-Xylenes	ND	U	0.50	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
o-Xylene	ND	U	0.50	0.20	0.074	1	09/25/18	09/25/18	KWG1805293	
Styrene	ND	U	0.50	0.20	0.089	1	09/25/18	09/25/18	KWG1805293	
Bromoform	ND	U	0.50	0.50	0.16	1	09/25/18	09/25/18	KWG1805293	*
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	09/25/18	09/25/18	KWG1805293	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	09/25/18	09/25/18	KWG1805293	
Bromobenzene	ND	U	2.0	0.20	0.12	1	09/25/18	09/25/18	KWG1805293	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	09/25/18	09/25/18	KWG1805293	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	09/25/18	09/25/18	KWG1805293	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	09/25/18	09/25/18	KWG1805293	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	09/25/18	09/25/18	KWG1805293	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	09/25/18	09/25/18	KWG1805293	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	09/25/18	09/25/18	KWG1805293	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	09/25/18	09/25/18	KWG1805293	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	09/25/18	09/25/18	KWG1805293	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
1,4-Dichlorobenzene	ND	U	0.50	0.30	0.12	1	09/25/18	09/25/18	KWG1805293	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	09/25/18	09/25/18	KWG1805293	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	09/25/18	09/25/18	KWG1805293	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	09/25/18	09/25/18	KWG1805293	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	09/25/18	09/25/18	KWG1805293	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
Naphthalene	ND	U	2.0	0.30	0.088	1	09/25/18	09/25/18	KWG1805293	
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	09/25/18	09/25/18	KWG1805293	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/13/2018
Sample Matrix:	Ground water	**Date Received:**	09/15/2018

Volatile Organic Compounds

Sample Name:	TVR-MTS-1-20180913	**Units:**	ug/L
Lab Code:	K1808923-006	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	100	80-119	09/25/18	Acceptable
1,2-Dichloroethane-d4	97	81-118	09/25/18	Acceptable
Toluene-d8	95	89-112	09/25/18	Acceptable
4-Bromofluorobenzene	105	85-114	09/25/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-MTS-2-20180913
Lab Code: K1808923-007

Units: ug/L
Basis: NA

Extraction Method: EPA 5030B
Analysis Method: 8260C

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	09/25/18	09/25/18	KWG1805293	*
Chloromethane	ND	U	0.50	0.20	0.068	1	09/25/18	09/25/18	KWG1805293	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	09/25/18	09/25/18	KWG1805293	
Bromomethane	ND	U	0.50	0.30	0.16	1	09/25/18	09/25/18	KWG1805293	
Chloroethane	ND	U	0.50	0.20	0.16	1	09/25/18	09/25/18	KWG1805293	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	09/25/18	09/25/18	KWG1805293	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	09/25/18	09/25/18	KWG1805293	
Acetone	ND	U	20	10	3.3	1	09/25/18	09/25/18	KWG1805293	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	09/25/18	09/25/18	KWG1805293	
Methylene Chloride	ND	U	2.0	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	09/25/18	09/25/18	KWG1805293	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	09/25/18	09/25/18	KWG1805293	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	09/25/18	09/25/18	KWG1805293	
cis-1,2-Dichloroethene	**0.19**	J	0.50	0.20	0.067	1	09/25/18	09/25/18	KWG1805293	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	09/25/18	09/25/18	KWG1805293	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	09/25/18	09/25/18	KWG1805293	
Chloroform	ND	U	0.50	0.20	0.072	1	09/25/18	09/25/18	KWG1805293	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	09/25/18	09/25/18	KWG1805293	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	09/25/18	09/25/18	KWG1805293	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	09/25/18	09/25/18	KWG1805293	
Benzene	ND	U	0.50	0.20	0.062	1	09/25/18	09/25/18	KWG1805293	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	09/25/18	09/25/18	KWG1805293	
Trichloroethene (TCE)	**11**		0.50	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	09/25/18	09/25/18	KWG1805293	
Dibromomethane	ND	U	0.50	0.50	0.15	1	09/25/18	09/25/18	KWG1805293	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	09/25/18	09/25/18	KWG1805293	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	09/25/18	09/25/18	KWG1805293	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	09/25/18	09/25/18	KWG1805293	
Toluene	ND	U	0.50	0.20	0.054	1	09/25/18	09/25/18	KWG1805293	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	09/25/18	09/25/18	KWG1805293	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	09/25/18	09/25/18	KWG1805293	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	09/25/18	09/25/18	KWG1805293	
2-Hexanone	ND	U	20	10	2.7	1	09/25/18	09/25/18	KWG1805293	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	09/25/18	09/25/18	KWG1805293	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	09/25/18	09/25/18	KWG1805293	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-MTS-2-20180913
Lab Code: K1808923-007

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
Chlorobenzene	ND	U	0.50	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	09/25/18	09/25/18	KWG1805293	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	09/25/18	09/25/18	KWG1805293	
m,p-Xylenes	ND	U	0.50	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
o-Xylene	ND	U	0.50	0.20	0.074	1	09/25/18	09/25/18	KWG1805293	
Styrene	ND	U	0.50	0.20	0.089	1	09/25/18	09/25/18	KWG1805293	
Bromoform	ND	U	0.50	0.50	0.16	1	09/25/18	09/25/18	KWG1805293	*
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	09/25/18	09/25/18	KWG1805293	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	09/25/18	09/25/18	KWG1805293	
Bromobenzene	ND	U	2.0	0.20	0.12	1	09/25/18	09/25/18	KWG1805293	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	09/25/18	09/25/18	KWG1805293	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	09/25/18	09/25/18	KWG1805293	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	09/25/18	09/25/18	KWG1805293	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	09/25/18	09/25/18	KWG1805293	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	09/25/18	09/25/18	KWG1805293	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	09/25/18	09/25/18	KWG1805293	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	09/25/18	09/25/18	KWG1805293	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	09/25/18	09/25/18	KWG1805293	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
1,4-Dichlorobenzene	ND	U	0.50	0.30	0.12	1	09/25/18	09/25/18	KWG1805293	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	09/25/18	09/25/18	KWG1805293	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	09/25/18	09/25/18	KWG1805293	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	09/25/18	09/25/18	KWG1805293	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	09/25/18	09/25/18	KWG1805293	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
Naphthalene	ND	U	2.0	0.30	0.088	1	09/25/18	09/25/18	KWG1805293	
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	09/25/18	09/25/18	KWG1805293	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/13/2018
Sample Matrix:	Ground water	**Date Received:**	09/15/2018

Volatile Organic Compounds

Sample Name:	TVR-MTS-2-20180913	**Units:**	ug/L
Lab Code:	K1808923-007	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	106	80-119	09/25/18	Acceptable
1,2-Dichloroethane-d4	99	81-118	09/25/18	Acceptable
Toluene-d8	99	89-112	09/25/18	Acceptable
4-Bromofluorobenzene	110	85-114	09/25/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-MTS-4-20180913
Lab Code: K1808923-008

Units: ug/L
Basis: NA

Extraction Method: EPA 5030B
Analysis Method: 8260C

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	09/25/18	09/25/18	KWG1805293	*
Chloromethane	ND	U	0.50	0.20	0.068	1	09/25/18	09/25/18	KWG1805293	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	09/25/18	09/25/18	KWG1805293	
Bromomethane	ND	U	0.50	0.30	0.16	1	09/25/18	09/25/18	KWG1805293	
Chloroethane	ND	U	0.50	0.20	0.16	1	09/25/18	09/25/18	KWG1805293	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	09/25/18	09/25/18	KWG1805293	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	09/25/18	09/25/18	KWG1805293	
Acetone	ND	U	20	10	3.3	1	09/25/18	09/25/18	KWG1805293	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	09/25/18	09/25/18	KWG1805293	
Methylene Chloride	ND	U	2.0	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	09/25/18	09/25/18	KWG1805293	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	09/25/18	09/25/18	KWG1805293	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	09/25/18	09/25/18	KWG1805293	
cis-1,2-Dichloroethene	**0.19**	J	0.50	0.20	0.067	1	09/25/18	09/25/18	KWG1805293	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	09/25/18	09/25/18	KWG1805293	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	09/25/18	09/25/18	KWG1805293	
Chloroform	ND	U	0.50	0.20	0.072	1	09/25/18	09/25/18	KWG1805293	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	09/25/18	09/25/18	KWG1805293	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	09/25/18	09/25/18	KWG1805293	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	09/25/18	09/25/18	KWG1805293	
Benzene	ND	U	0.50	0.20	0.062	1	09/25/18	09/25/18	KWG1805293	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	09/25/18	09/25/18	KWG1805293	
Trichloroethene (TCE)	**5.0**		0.50	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	09/25/18	09/25/18	KWG1805293	
Dibromomethane	ND	U	0.50	0.50	0.15	1	09/25/18	09/25/18	KWG1805293	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	09/25/18	09/25/18	KWG1805293	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	09/25/18	09/25/18	KWG1805293	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	09/25/18	09/25/18	KWG1805293	
Toluene	ND	U	0.50	0.20	0.054	1	09/25/18	09/25/18	KWG1805293	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	09/25/18	09/25/18	KWG1805293	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	09/25/18	09/25/18	KWG1805293	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	09/25/18	09/25/18	KWG1805293	
2-Hexanone	ND	U	20	10	2.7	1	09/25/18	09/25/18	KWG1805293	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	09/25/18	09/25/18	KWG1805293	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	09/25/18	09/25/18	KWG1805293	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-MTS-4-20180913
Lab Code: K1808923-008

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
Chlorobenzene	ND	U	0.50	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	09/25/18	09/25/18	KWG1805293	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	09/25/18	09/25/18	KWG1805293	
m,p-Xylenes	ND	U	0.50	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
o-Xylene	ND	U	0.50	0.20	0.074	1	09/25/18	09/25/18	KWG1805293	
Styrene	ND	U	0.50	0.20	0.089	1	09/25/18	09/25/18	KWG1805293	
Bromoform	ND	U	0.50	0.50	0.16	1	09/25/18	09/25/18	KWG1805293	*
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	09/25/18	09/25/18	KWG1805293	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	09/25/18	09/25/18	KWG1805293	
Bromobenzene	ND	U	2.0	0.20	0.12	1	09/25/18	09/25/18	KWG1805293	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	09/25/18	09/25/18	KWG1805293	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	09/25/18	09/25/18	KWG1805293	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	09/25/18	09/25/18	KWG1805293	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	09/25/18	09/25/18	KWG1805293	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	09/25/18	09/25/18	KWG1805293	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	09/25/18	09/25/18	KWG1805293	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	09/25/18	09/25/18	KWG1805293	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	09/25/18	09/25/18	KWG1805293	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
1,4-Dichlorobenzene	ND	U	0.50	0.30	0.12	1	09/25/18	09/25/18	KWG1805293	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	09/25/18	09/25/18	KWG1805293	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	09/25/18	09/25/18	KWG1805293	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	09/25/18	09/25/18	KWG1805293	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	09/25/18	09/25/18	KWG1805293	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
Naphthalene	ND	U	2.0	0.30	0.088	1	09/25/18	09/25/18	KWG1805293	
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	09/25/18	09/25/18	KWG1805293	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/13/2018
Sample Matrix:	Ground water	**Date Received:**	09/15/2018

Volatile Organic Compounds

Sample Name:	TVR-MTS-4-20180913	**Units:**	ug/L
Lab Code:	K1808923-008	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	113	80-119	09/25/18	Acceptable
1,2-Dichloroethane-d4	97	81-118	09/25/18	Acceptable
Toluene-d8	101	89-112	09/25/18	Acceptable
4-Bromofluorobenzene	104	85-114	09/25/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/12/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-TB-001-20180912
Lab Code: K1808923-009

Units: ug/L
Basis: NA

Extraction Method: EPA 5030B
Analysis Method: 8260C

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	09/25/18	09/25/18	KWG1805293	*
Chloromethane	ND	U	0.50	0.20	0.068	1	09/25/18	09/25/18	KWG1805293	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	09/25/18	09/25/18	KWG1805293	
Bromomethane	ND	U	0.50	0.30	0.16	1	09/25/18	09/25/18	KWG1805293	
Chloroethane	ND	U	0.50	0.20	0.16	1	09/25/18	09/25/18	KWG1805293	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	09/25/18	09/25/18	KWG1805293	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	09/25/18	09/25/18	KWG1805293	
Acetone	ND	U	20	10	3.3	1	09/25/18	09/25/18	KWG1805293	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	09/25/18	09/25/18	KWG1805293	
Methylene Chloride	**0.18**	J	2.0	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	09/25/18	09/25/18	KWG1805293	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	09/25/18	09/25/18	KWG1805293	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	09/25/18	09/25/18	KWG1805293	
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	09/25/18	09/25/18	KWG1805293	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	09/25/18	09/25/18	KWG1805293	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	09/25/18	09/25/18	KWG1805293	
Chloroform	ND	U	0.50	0.20	0.072	1	09/25/18	09/25/18	KWG1805293	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	09/25/18	09/25/18	KWG1805293	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	09/25/18	09/25/18	KWG1805293	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	09/25/18	09/25/18	KWG1805293	
Benzene	ND	U	0.50	0.20	0.062	1	09/25/18	09/25/18	KWG1805293	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	09/25/18	09/25/18	KWG1805293	
Trichloroethene (TCE)	ND	U	0.50	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	09/25/18	09/25/18	KWG1805293	
Dibromomethane	ND	U	0.50	0.50	0.15	1	09/25/18	09/25/18	KWG1805293	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	09/25/18	09/25/18	KWG1805293	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	09/25/18	09/25/18	KWG1805293	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	09/25/18	09/25/18	KWG1805293	
Toluene	**0.17**	J	0.50	0.20	0.054	1	09/25/18	09/25/18	KWG1805293	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	09/25/18	09/25/18	KWG1805293	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	09/25/18	09/25/18	KWG1805293	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	09/25/18	09/25/18	KWG1805293	
2-Hexanone	ND	U	20	10	2.7	1	09/25/18	09/25/18	KWG1805293	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	09/25/18	09/25/18	KWG1805293	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	09/25/18	09/25/18	KWG1805293	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/12/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-TB-001-20180912
Lab Code: K1808923-009

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
Chlorobenzene	ND	U	0.50	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	09/25/18	09/25/18	KWG1805293	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	09/25/18	09/25/18	KWG1805293	
m,p-Xylenes	ND	U	0.50	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
o-Xylene	ND	U	0.50	0.20	0.074	1	09/25/18	09/25/18	KWG1805293	
Styrene	ND	U	0.50	0.20	0.089	1	09/25/18	09/25/18	KWG1805293	
Bromoform	ND	U	0.50	0.50	0.16	1	09/25/18	09/25/18	KWG1805293	*
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	09/25/18	09/25/18	KWG1805293	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	09/25/18	09/25/18	KWG1805293	
Bromobenzene	ND	U	2.0	0.20	0.12	1	09/25/18	09/25/18	KWG1805293	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	09/25/18	09/25/18	KWG1805293	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	09/25/18	09/25/18	KWG1805293	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	09/25/18	09/25/18	KWG1805293	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	09/25/18	09/25/18	KWG1805293	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	09/25/18	09/25/18	KWG1805293	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	09/25/18	09/25/18	KWG1805293	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	09/25/18	09/25/18	KWG1805293	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	09/25/18	09/25/18	KWG1805293	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
1,4-Dichlorobenzene	ND	U	0.50	0.30	0.12	1	09/25/18	09/25/18	KWG1805293	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	09/25/18	09/25/18	KWG1805293	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	09/25/18	09/25/18	KWG1805293	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	09/25/18	09/25/18	KWG1805293	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	09/25/18	09/25/18	KWG1805293	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
Naphthalene	ND	U	2.0	0.30	0.088	1	09/25/18	09/25/18	KWG1805293	
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	09/25/18	09/25/18	KWG1805293	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/12/2018
Sample Matrix:	Ground water	**Date Received:**	09/15/2018

Volatile Organic Compounds

Sample Name:	TVR-TB-001-20180912	**Units:**	ug/L
Lab Code:	K1808923-009	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	113	80-119	09/25/18	Acceptable
1,2-Dichloroethane-d4	98	81-118	09/25/18	Acceptable
Toluene-d8	99	89-112	09/25/18	Acceptable
4-Bromofluorobenzene	110	85-114	09/25/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-3-20180913
Lab Code: K1808923-010

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	09/26/18	09/26/18	KWG1805293	*
Chloromethane	ND	U	0.50	0.20	0.068	1	09/26/18	09/26/18	KWG1805293	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	09/26/18	09/26/18	KWG1805293	
Bromomethane	ND	U	0.50	0.30	0.16	1	09/26/18	09/26/18	KWG1805293	
Chloroethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	09/26/18	09/26/18	KWG1805293	
Acetone	ND	U	20	10	3.3	1	09/26/18	09/26/18	KWG1805293	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	09/26/18	09/26/18	KWG1805293	
Methylene Chloride	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	09/26/18	09/26/18	KWG1805293	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	09/26/18	09/26/18	KWG1805293	
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	09/26/18	09/26/18	KWG1805293	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	09/26/18	09/26/18	KWG1805293	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Chloroform	ND	U	0.50	0.20	0.072	1	09/26/18	09/26/18	KWG1805293	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	09/26/18	09/26/18	KWG1805293	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
Benzene	ND	U	0.50	0.20	0.062	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	09/26/18	09/26/18	KWG1805293	
Trichloroethene (TCE)	**2.6**		0.50	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	09/26/18	09/26/18	KWG1805293	
Dibromomethane	ND	U	0.50	0.50	0.15	1	09/26/18	09/26/18	KWG1805293	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	09/26/18	09/26/18	KWG1805293	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	09/26/18	09/26/18	KWG1805293	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	09/26/18	09/26/18	KWG1805293	
Toluene	ND	U	0.50	0.20	0.054	1	09/26/18	09/26/18	KWG1805293	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	09/26/18	09/26/18	KWG1805293	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	09/26/18	09/26/18	KWG1805293	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	09/26/18	09/26/18	KWG1805293	
2-Hexanone	ND	U	20	10	2.7	1	09/26/18	09/26/18	KWG1805293	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	09/26/18	09/26/18	KWG1805293	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	09/26/18	09/26/18	KWG1805293	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-3-20180913
Lab Code: K1808923-010

Units: ug/L
Basis: NA

Extraction Method: EPA 5030B
Analysis Method: 8260C

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
Chlorobenzene	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	09/26/18	09/26/18	KWG1805293	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	09/26/18	09/26/18	KWG1805293	
m,p-Xylenes	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
o-Xylene	ND	U	0.50	0.20	0.074	1	09/26/18	09/26/18	KWG1805293	
Styrene	ND	U	0.50	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
Bromoform	ND	U	0.50	0.50	0.16	1	09/26/18	09/26/18	KWG1805293	*
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	09/26/18	09/26/18	KWG1805293	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Bromobenzene	ND	U	2.0	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	09/26/18	09/26/18	KWG1805293	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	09/26/18	09/26/18	KWG1805293	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	09/26/18	09/26/18	KWG1805293	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	09/26/18	09/26/18	KWG1805293	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	09/26/18	09/26/18	KWG1805293	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	09/26/18	09/26/18	KWG1805293	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	09/26/18	09/26/18	KWG1805293	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,4-Dichlorobenzene	ND	U	0.50	0.30	0.12	1	09/26/18	09/26/18	KWG1805293	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	09/26/18	09/26/18	KWG1805293	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	09/26/18	09/26/18	KWG1805293	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
Naphthalene	ND	U	2.0	0.30	0.088	1	09/26/18	09/26/18	KWG1805293	
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	09/26/18	09/26/18	KWG1805293	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/13/2018
Sample Matrix:	Ground water	**Date Received:**	09/15/2018

Volatile Organic Compounds

Sample Name:	TVR-3-20180913	**Units:**	ug/L
Lab Code:	K1808923-010	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	120	80-119	09/26/18	Outside Control Limits
1,2-Dichloroethane-d4	99	81-118	09/26/18	Acceptable
Toluene-d8	97	89-112	09/26/18	Acceptable
4-Bromofluorobenzene	105	85-114	09/26/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-3A-20180913
Lab Code: K1808923-011

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	09/26/18	09/26/18	KWG1805293	*
Chloromethane	ND	U	0.50	0.20	0.068	1	09/26/18	09/26/18	KWG1805293	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	09/26/18	09/26/18	KWG1805293	
Bromomethane	ND	U	0.50	0.30	0.16	1	09/26/18	09/26/18	KWG1805293	
Chloroethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	09/26/18	09/26/18	KWG1805293	
Acetone	ND	U	20	10	3.3	1	09/26/18	09/26/18	KWG1805293	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	09/26/18	09/26/18	KWG1805293	
Methylene Chloride	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	09/26/18	09/26/18	KWG1805293	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	09/26/18	09/26/18	KWG1805293	
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	09/26/18	09/26/18	KWG1805293	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	09/26/18	09/26/18	KWG1805293	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Chloroform	ND	U	0.50	0.20	0.072	1	09/26/18	09/26/18	KWG1805293	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	09/26/18	09/26/18	KWG1805293	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
Benzene	ND	U	0.50	0.20	0.062	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	09/26/18	09/26/18	KWG1805293	
Trichloroethene (TCE)	**2.4**		0.50	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	09/26/18	09/26/18	KWG1805293	
Dibromomethane	ND	U	0.50	0.50	0.15	1	09/26/18	09/26/18	KWG1805293	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	09/26/18	09/26/18	KWG1805293	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	09/26/18	09/26/18	KWG1805293	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	09/26/18	09/26/18	KWG1805293	
Toluene	ND	U	0.50	0.20	0.054	1	09/26/18	09/26/18	KWG1805293	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	09/26/18	09/26/18	KWG1805293	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	09/26/18	09/26/18	KWG1805293	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	09/26/18	09/26/18	KWG1805293	
2-Hexanone	ND	U	20	10	2.7	1	09/26/18	09/26/18	KWG1805293	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	09/26/18	09/26/18	KWG1805293	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	09/26/18	09/26/18	KWG1805293	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-3A-20180913
Lab Code: K1808923-011

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
Chlorobenzene	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	09/26/18	09/26/18	KWG1805293	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	09/26/18	09/26/18	KWG1805293	
m,p-Xylenes	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
o-Xylene	ND	U	0.50	0.20	0.074	1	09/26/18	09/26/18	KWG1805293	
Styrene	ND	U	0.50	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
Bromoform	ND	U	0.50	0.50	0.16	1	09/26/18	09/26/18	KWG1805293	*
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	09/26/18	09/26/18	KWG1805293	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Bromobenzene	ND	U	2.0	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	09/26/18	09/26/18	KWG1805293	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	09/26/18	09/26/18	KWG1805293	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	09/26/18	09/26/18	KWG1805293	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	09/26/18	09/26/18	KWG1805293	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	09/26/18	09/26/18	KWG1805293	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	09/26/18	09/26/18	KWG1805293	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	09/26/18	09/26/18	KWG1805293	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,4-Dichlorobenzene	ND	U	0.50	0.30	0.12	1	09/26/18	09/26/18	KWG1805293	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	09/26/18	09/26/18	KWG1805293	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	09/26/18	09/26/18	KWG1805293	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
Naphthalene	ND	U	2.0	0.30	0.088	1	09/26/18	09/26/18	KWG1805293	
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	09/26/18	09/26/18	KWG1805293	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/13/2018
Sample Matrix:	Ground water	**Date Received:**	09/15/2018

Volatile Organic Compounds

Sample Name:	TVR-3A-20180913	**Units:**	ug/L
Lab Code:	K1808923-011	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	111	80-119	09/26/18	Acceptable
1,2-Dichloroethane-d4	98	81-118	09/26/18	Acceptable
Toluene-d8	98	89-112	09/26/18	Acceptable
4-Bromofluorobenzene	107	85-114	09/26/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-5-20180913
Lab Code: K1808923-012

Units: ug/L
Basis: NA

Extraction Method: EPA 5030B
Analysis Method: 8260C

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	09/26/18	09/26/18	KWG1805293	*
Chloromethane	ND	U	0.50	0.20	0.068	1	09/26/18	09/26/18	KWG1805293	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	09/26/18	09/26/18	KWG1805293	
Bromomethane	ND	U	0.50	0.30	0.16	1	09/26/18	09/26/18	KWG1805293	
Chloroethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	09/26/18	09/26/18	KWG1805293	
Acetone	ND	U	20	10	3.3	1	09/26/18	09/26/18	KWG1805293	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	09/26/18	09/26/18	KWG1805293	
Methylene Chloride	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	09/26/18	09/26/18	KWG1805293	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	09/26/18	09/26/18	KWG1805293	
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	09/26/18	09/26/18	KWG1805293	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	09/26/18	09/26/18	KWG1805293	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Chloroform	ND	U	0.50	0.20	0.072	1	09/26/18	09/26/18	KWG1805293	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	09/26/18	09/26/18	KWG1805293	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
Benzene	ND	U	0.50	0.20	0.062	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	09/26/18	09/26/18	KWG1805293	
Trichloroethene (TCE)	ND	U	0.50	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	09/26/18	09/26/18	KWG1805293	
Dibromomethane	ND	U	0.50	0.50	0.15	1	09/26/18	09/26/18	KWG1805293	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	09/26/18	09/26/18	KWG1805293	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	09/26/18	09/26/18	KWG1805293	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	09/26/18	09/26/18	KWG1805293	
Toluene	ND	U	0.50	0.20	0.054	1	09/26/18	09/26/18	KWG1805293	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	09/26/18	09/26/18	KWG1805293	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	09/26/18	09/26/18	KWG1805293	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	09/26/18	09/26/18	KWG1805293	
2-Hexanone	ND	U	20	10	2.7	1	09/26/18	09/26/18	KWG1805293	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	09/26/18	09/26/18	KWG1805293	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	09/26/18	09/26/18	KWG1805293	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-5-20180913
Lab Code: K1808923-012

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
Chlorobenzene	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	09/26/18	09/26/18	KWG1805293	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	09/26/18	09/26/18	KWG1805293	
m,p-Xylenes	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
o-Xylene	ND	U	0.50	0.20	0.074	1	09/26/18	09/26/18	KWG1805293	
Styrene	ND	U	0.50	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
Bromoform	ND	U	0.50	0.50	0.16	1	09/26/18	09/26/18	KWG1805293	*
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	09/26/18	09/26/18	KWG1805293	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Bromobenzene	ND	U	2.0	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	09/26/18	09/26/18	KWG1805293	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	09/26/18	09/26/18	KWG1805293	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	09/26/18	09/26/18	KWG1805293	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	09/26/18	09/26/18	KWG1805293	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	09/26/18	09/26/18	KWG1805293	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	09/26/18	09/26/18	KWG1805293	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	09/26/18	09/26/18	KWG1805293	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,4-Dichlorobenzene	ND	U	0.50	0.30	0.12	1	09/26/18	09/26/18	KWG1805293	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	09/26/18	09/26/18	KWG1805293	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	09/26/18	09/26/18	KWG1805293	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
Naphthalene	ND	U	2.0	0.30	0.088	1	09/26/18	09/26/18	KWG1805293	
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	09/26/18	09/26/18	KWG1805293	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/13/2018
Sample Matrix:	Ground water	**Date Received:**	09/15/2018

Volatile Organic Compounds

Sample Name:	TVR-5-20180913	**Units:**	ug/L
Lab Code:	K1808923-012	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	116	80-119	09/26/18	Acceptable
1,2-Dichloroethane-d4	98	81-118	09/26/18	Acceptable
Toluene-d8	99	89-112	09/26/18	Acceptable
4-Bromofluorobenzene	108	85-114	09/26/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-6-20180913
Lab Code: K1808923-013

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	09/26/18	09/26/18	KWG1805293	*
Chloromethane	ND	U	0.50	0.20	0.068	1	09/26/18	09/26/18	KWG1805293	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	09/26/18	09/26/18	KWG1805293	
Bromomethane	ND	U	0.50	0.30	0.16	1	09/26/18	09/26/18	KWG1805293	
Chloroethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	09/26/18	09/26/18	KWG1805293	
Acetone	ND	U	20	10	3.3	1	09/26/18	09/26/18	KWG1805293	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	09/26/18	09/26/18	KWG1805293	
Methylene Chloride	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	09/26/18	09/26/18	KWG1805293	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	09/26/18	09/26/18	KWG1805293	
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	09/26/18	09/26/18	KWG1805293	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	09/26/18	09/26/18	KWG1805293	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Chloroform	ND	U	0.50	0.20	0.072	1	09/26/18	09/26/18	KWG1805293	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	09/26/18	09/26/18	KWG1805293	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
Benzene	ND	U	0.50	0.20	0.062	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	09/26/18	09/26/18	KWG1805293	
Trichloroethene (TCE)	**1.2**		0.50	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	09/26/18	09/26/18	KWG1805293	
Dibromomethane	ND	U	0.50	0.50	0.15	1	09/26/18	09/26/18	KWG1805293	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	09/26/18	09/26/18	KWG1805293	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	09/26/18	09/26/18	KWG1805293	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	09/26/18	09/26/18	KWG1805293	
Toluene	ND	U	0.50	0.20	0.054	1	09/26/18	09/26/18	KWG1805293	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	09/26/18	09/26/18	KWG1805293	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	09/26/18	09/26/18	KWG1805293	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	09/26/18	09/26/18	KWG1805293	
2-Hexanone	ND	U	20	10	2.7	1	09/26/18	09/26/18	KWG1805293	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	09/26/18	09/26/18	KWG1805293	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	09/26/18	09/26/18	KWG1805293	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-6-20180913
Lab Code: K1808923-013

Units: ug/L
Basis: NA

Extraction Method: EPA 5030B
Analysis Method: 8260C

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
Chlorobenzene	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	09/26/18	09/26/18	KWG1805293	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	09/26/18	09/26/18	KWG1805293	
m,p-Xylenes	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
o-Xylene	ND	U	0.50	0.20	0.074	1	09/26/18	09/26/18	KWG1805293	
Styrene	ND	U	0.50	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
Bromoform	ND	U	0.50	0.50	0.16	1	09/26/18	09/26/18	KWG1805293	*
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	09/26/18	09/26/18	KWG1805293	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Bromobenzene	ND	U	2.0	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	09/26/18	09/26/18	KWG1805293	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	09/26/18	09/26/18	KWG1805293	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	09/26/18	09/26/18	KWG1805293	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	09/26/18	09/26/18	KWG1805293	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	09/26/18	09/26/18	KWG1805293	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	09/26/18	09/26/18	KWG1805293	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	09/26/18	09/26/18	KWG1805293	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,4-Dichlorobenzene	ND	U	0.50	0.30	0.12	1	09/26/18	09/26/18	KWG1805293	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	09/26/18	09/26/18	KWG1805293	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	09/26/18	09/26/18	KWG1805293	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
Naphthalene	ND	U	2.0	0.30	0.088	1	09/26/18	09/26/18	KWG1805293	
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	09/26/18	09/26/18	KWG1805293	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/13/2018
Sample Matrix:	Ground water	**Date Received:**	09/15/2018

Volatile Organic Compounds

Sample Name:	TVR-6-20180913	**Units:**	ug/L
Lab Code:	K1808923-013	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	116	80-119	09/26/18	Acceptable
1,2-Dichloroethane-d4	98	81-118	09/26/18	Acceptable
Toluene-d8	98	89-112	09/26/18	Acceptable
4-Bromofluorobenzene	105	85-114	09/26/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-7-20180913
Lab Code: K1808923-014

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	09/26/18	09/26/18	KWG1805293	*
Chloromethane	ND	U	0.50	0.20	0.068	1	09/26/18	09/26/18	KWG1805293	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	09/26/18	09/26/18	KWG1805293	
Bromomethane	ND	U	0.50	0.30	0.16	1	09/26/18	09/26/18	KWG1805293	
Chloroethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	09/26/18	09/26/18	KWG1805293	
Acetone	ND	U	20	10	3.3	1	09/26/18	09/26/18	KWG1805293	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	09/26/18	09/26/18	KWG1805293	
Methylene Chloride	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	09/26/18	09/26/18	KWG1805293	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	09/26/18	09/26/18	KWG1805293	
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	09/26/18	09/26/18	KWG1805293	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	09/26/18	09/26/18	KWG1805293	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Chloroform	ND	U	0.50	0.20	0.072	1	09/26/18	09/26/18	KWG1805293	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	09/26/18	09/26/18	KWG1805293	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
Benzene	ND	U	0.50	0.20	0.062	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	09/26/18	09/26/18	KWG1805293	
Trichloroethene (TCE)	**5.9**		0.50	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	09/26/18	09/26/18	KWG1805293	
Dibromomethane	ND	U	0.50	0.50	0.15	1	09/26/18	09/26/18	KWG1805293	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	09/26/18	09/26/18	KWG1805293	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	09/26/18	09/26/18	KWG1805293	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	09/26/18	09/26/18	KWG1805293	
Toluene	ND	U	0.50	0.20	0.054	1	09/26/18	09/26/18	KWG1805293	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	09/26/18	09/26/18	KWG1805293	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	09/26/18	09/26/18	KWG1805293	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	09/26/18	09/26/18	KWG1805293	
2-Hexanone	ND	U	20	10	2.7	1	09/26/18	09/26/18	KWG1805293	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	09/26/18	09/26/18	KWG1805293	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	09/26/18	09/26/18	KWG1805293	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-7-20180913
Lab Code: K1808923-014

Units: ug/L
Basis: NA

Extraction Method: EPA 5030B
Analysis Method: 8260C

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
Chlorobenzene	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	09/26/18	09/26/18	KWG1805293	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	09/26/18	09/26/18	KWG1805293	
m,p-Xylenes	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
o-Xylene	ND	U	0.50	0.20	0.074	1	09/26/18	09/26/18	KWG1805293	
Styrene	ND	U	0.50	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
Bromoform	ND	U	0.50	0.50	0.16	1	09/26/18	09/26/18	KWG1805293	*
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	09/26/18	09/26/18	KWG1805293	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Bromobenzene	ND	U	2.0	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	09/26/18	09/26/18	KWG1805293	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	09/26/18	09/26/18	KWG1805293	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	09/26/18	09/26/18	KWG1805293	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	09/26/18	09/26/18	KWG1805293	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	09/26/18	09/26/18	KWG1805293	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	09/26/18	09/26/18	KWG1805293	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	09/26/18	09/26/18	KWG1805293	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,4-Dichlorobenzene	ND	U	0.50	0.30	0.12	1	09/26/18	09/26/18	KWG1805293	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	09/26/18	09/26/18	KWG1805293	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	09/26/18	09/26/18	KWG1805293	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
Naphthalene	ND	U	2.0	0.30	0.088	1	09/26/18	09/26/18	KWG1805293	
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	09/26/18	09/26/18	KWG1805293	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/13/2018
Sample Matrix:	Ground water	**Date Received:**	09/15/2018

Volatile Organic Compounds

Sample Name:	TVR-7-20180913	**Units:**	ug/L
Lab Code:	K1808923-014	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	117	80-119	09/26/18	Acceptable
1,2-Dichloroethane-d4	101	81-118	09/26/18	Acceptable
Toluene-d8	98	89-112	09/26/18	Acceptable
4-Bromofluorobenzene	105	85-114	09/26/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-POMONA-20180913
Lab Code: K1808923-015

Units: ug/L
Basis: NA

Extraction Method: EPA 5030B
Analysis Method: 8260C

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	09/26/18	09/26/18	KWG1805293	*
Chloromethane	ND	U	0.50	0.20	0.068	1	09/26/18	09/26/18	KWG1805293	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	09/26/18	09/26/18	KWG1805293	
Bromomethane	ND	U	0.50	0.30	0.16	1	09/26/18	09/26/18	KWG1805293	
Chloroethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	09/26/18	09/26/18	KWG1805293	
Acetone	ND	U	20	10	3.3	1	09/26/18	09/26/18	KWG1805293	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	09/26/18	09/26/18	KWG1805293	
Methylene Chloride	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	09/26/18	09/26/18	KWG1805293	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	09/26/18	09/26/18	KWG1805293	
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	09/26/18	09/26/18	KWG1805293	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	09/26/18	09/26/18	KWG1805293	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Chloroform	ND	U	0.50	0.20	0.072	1	09/26/18	09/26/18	KWG1805293	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	09/26/18	09/26/18	KWG1805293	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
Benzene	ND	U	0.50	0.20	0.062	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	09/26/18	09/26/18	KWG1805293	
Trichloroethene (TCE)	ND	U	0.50	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	09/26/18	09/26/18	KWG1805293	
Dibromomethane	ND	U	0.50	0.50	0.15	1	09/26/18	09/26/18	KWG1805293	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	09/26/18	09/26/18	KWG1805293	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	09/26/18	09/26/18	KWG1805293	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	09/26/18	09/26/18	KWG1805293	
Toluene	ND	U	0.50	0.20	0.054	1	09/26/18	09/26/18	KWG1805293	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	09/26/18	09/26/18	KWG1805293	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	09/26/18	09/26/18	KWG1805293	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	09/26/18	09/26/18	KWG1805293	
2-Hexanone	ND	U	20	10	2.7	1	09/26/18	09/26/18	KWG1805293	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	09/26/18	09/26/18	KWG1805293	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	09/26/18	09/26/18	KWG1805293	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-POMONA-20180913
Lab Code: K1808923-015

Units: ug/L
Basis: NA

Extraction Method: EPA 5030B
Analysis Method: 8260C

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
Chlorobenzene	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	09/26/18	09/26/18	KWG1805293	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	09/26/18	09/26/18	KWG1805293	
m,p-Xylenes	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
o-Xylene	ND	U	0.50	0.20	0.074	1	09/26/18	09/26/18	KWG1805293	
Styrene	ND	U	0.50	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
Bromoform	ND	U	0.50	0.50	0.16	1	09/26/18	09/26/18	KWG1805293	*
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	09/26/18	09/26/18	KWG1805293	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Bromobenzene	ND	U	2.0	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	09/26/18	09/26/18	KWG1805293	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	09/26/18	09/26/18	KWG1805293	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	09/26/18	09/26/18	KWG1805293	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	09/26/18	09/26/18	KWG1805293	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	09/26/18	09/26/18	KWG1805293	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	09/26/18	09/26/18	KWG1805293	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	09/26/18	09/26/18	KWG1805293	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,4-Dichlorobenzene	ND	U	0.50	0.30	0.12	1	09/26/18	09/26/18	KWG1805293	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	09/26/18	09/26/18	KWG1805293	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	09/26/18	09/26/18	KWG1805293	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
Naphthalene	ND	U	2.0	0.30	0.088	1	09/26/18	09/26/18	KWG1805293	
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	09/26/18	09/26/18	KWG1805293	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/13/2018
Sample Matrix:	Ground water	**Date Received:**	09/15/2018

Volatile Organic Compounds

Sample Name:	TVR-POMONA-20180913	**Units:**	ug/L
Lab Code:	K1808923-015	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	121	80-119	09/26/18	Outside Control Limits
1,2-Dichloroethane-d4	107	81-118	09/26/18	Acceptable
Toluene-d8	103	89-112	09/26/18	Acceptable
4-Bromofluorobenzene	107	85-114	09/26/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-PAIC-20180913
Lab Code: K1808923-016

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	09/26/18	09/26/18	KWG1805293	*
Chloromethane	ND	U	0.50	0.20	0.068	1	09/26/18	09/26/18	KWG1805293	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	09/26/18	09/26/18	KWG1805293	
Bromomethane	ND	U	0.50	0.30	0.16	1	09/26/18	09/26/18	KWG1805293	
Chloroethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	09/26/18	09/26/18	KWG1805293	
Acetone	**4.2**	J	20	10	3.3	1	09/26/18	09/26/18	KWG1805293	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	09/26/18	09/26/18	KWG1805293	
Methylene Chloride	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	09/26/18	09/26/18	KWG1805293	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	09/26/18	09/26/18	KWG1805293	
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	09/26/18	09/26/18	KWG1805293	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	09/26/18	09/26/18	KWG1805293	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Chloroform	ND	U	0.50	0.20	0.072	1	09/26/18	09/26/18	KWG1805293	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	09/26/18	09/26/18	KWG1805293	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
Benzene	ND	U	0.50	0.20	0.062	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	09/26/18	09/26/18	KWG1805293	
Trichloroethene (TCE)	ND	U	0.50	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	09/26/18	09/26/18	KWG1805293	
Dibromomethane	ND	U	0.50	0.50	0.15	1	09/26/18	09/26/18	KWG1805293	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	09/26/18	09/26/18	KWG1805293	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	09/26/18	09/26/18	KWG1805293	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	09/26/18	09/26/18	KWG1805293	
Toluene	ND	U	0.50	0.20	0.054	1	09/26/18	09/26/18	KWG1805293	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	09/26/18	09/26/18	KWG1805293	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	09/26/18	09/26/18	KWG1805293	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	09/26/18	09/26/18	KWG1805293	
2-Hexanone	ND	U	20	10	2.7	1	09/26/18	09/26/18	KWG1805293	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	09/26/18	09/26/18	KWG1805293	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	09/26/18	09/26/18	KWG1805293	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-PAIC-20180913
Lab Code: K1808923-016

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
Chlorobenzene	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	09/26/18	09/26/18	KWG1805293	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	09/26/18	09/26/18	KWG1805293	
m,p-Xylenes	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
o-Xylene	ND	U	0.50	0.20	0.074	1	09/26/18	09/26/18	KWG1805293	
Styrene	ND	U	0.50	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
Bromoform	ND	U	0.50	0.50	0.16	1	09/26/18	09/26/18	KWG1805293	*
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	09/26/18	09/26/18	KWG1805293	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Bromobenzene	ND	U	2.0	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	09/26/18	09/26/18	KWG1805293	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	09/26/18	09/26/18	KWG1805293	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	09/26/18	09/26/18	KWG1805293	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	09/26/18	09/26/18	KWG1805293	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	09/26/18	09/26/18	KWG1805293	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	09/26/18	09/26/18	KWG1805293	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	09/26/18	09/26/18	KWG1805293	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,4-Dichlorobenzene	ND	U	0.50	0.30	0.12	1	09/26/18	09/26/18	KWG1805293	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	09/26/18	09/26/18	KWG1805293	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	09/26/18	09/26/18	KWG1805293	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
Naphthalene	ND	U	2.0	0.30	0.088	1	09/26/18	09/26/18	KWG1805293	
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	09/26/18	09/26/18	KWG1805293	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/13/2018
Sample Matrix:	Ground water	**Date Received:**	09/15/2018

Volatile Organic Compounds

Sample Name:	TVR-PAIC-20180913	**Units:**	ug/L
Lab Code:	K1808923-016	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	119	80-119	09/26/18	Acceptable
1,2-Dichloroethane-d4	103	81-118	09/26/18	Acceptable
Toluene-d8	102	89-112	09/26/18	Acceptable
4-Bromofluorobenzene	105	85-114	09/26/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-1-20180913
Lab Code: K1808923-017

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	09/26/18	09/26/18	KWG1805293	*
Chloromethane	ND	U	0.50	0.20	0.068	1	09/26/18	09/26/18	KWG1805293	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	09/26/18	09/26/18	KWG1805293	
Bromomethane	ND	U	0.50	0.30	0.16	1	09/26/18	09/26/18	KWG1805293	
Chloroethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	09/26/18	09/26/18	KWG1805293	
Acetone	ND	U	20	10	3.3	1	09/26/18	09/26/18	KWG1805293	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	09/26/18	09/26/18	KWG1805293	
Methylene Chloride	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	09/26/18	09/26/18	KWG1805293	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	09/26/18	09/26/18	KWG1805293	
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	09/26/18	09/26/18	KWG1805293	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	09/26/18	09/26/18	KWG1805293	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Chloroform	ND	U	0.50	0.20	0.072	1	09/26/18	09/26/18	KWG1805293	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	09/26/18	09/26/18	KWG1805293	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	09/26/18	09/26/18	KWG1805293	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
Benzene	ND	U	0.50	0.20	0.062	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	09/26/18	09/26/18	KWG1805293	
Trichloroethene (TCE)	**8.1**		0.50	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	09/26/18	09/26/18	KWG1805293	
Dibromomethane	ND	U	0.50	0.50	0.15	1	09/26/18	09/26/18	KWG1805293	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	09/26/18	09/26/18	KWG1805293	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	09/26/18	09/26/18	KWG1805293	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	09/26/18	09/26/18	KWG1805293	
Toluene	ND	U	0.50	0.20	0.054	1	09/26/18	09/26/18	KWG1805293	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	09/26/18	09/26/18	KWG1805293	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	09/26/18	09/26/18	KWG1805293	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	09/26/18	09/26/18	KWG1805293	
2-Hexanone	ND	U	20	10	2.7	1	09/26/18	09/26/18	KWG1805293	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	09/26/18	09/26/18	KWG1805293	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	09/26/18	09/26/18	KWG1805293	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: 09/13/2018
Date Received: 09/15/2018

Volatile Organic Compounds

Sample Name: TVR-1-20180913
Lab Code: K1808923-017

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
Chlorobenzene	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	09/26/18	09/26/18	KWG1805293	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	09/26/18	09/26/18	KWG1805293	
m,p-Xylenes	ND	U	0.50	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
o-Xylene	ND	U	0.50	0.20	0.074	1	09/26/18	09/26/18	KWG1805293	
Styrene	ND	U	0.50	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
Bromoform	ND	U	0.50	0.50	0.16	1	09/26/18	09/26/18	KWG1805293	*
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	09/26/18	09/26/18	KWG1805293	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	09/26/18	09/26/18	KWG1805293	
Bromobenzene	ND	U	2.0	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	09/26/18	09/26/18	KWG1805293	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	09/26/18	09/26/18	KWG1805293	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	09/26/18	09/26/18	KWG1805293	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	09/26/18	09/26/18	KWG1805293	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	09/26/18	09/26/18	KWG1805293	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	09/26/18	09/26/18	KWG1805293	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	09/26/18	09/26/18	KWG1805293	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	09/26/18	09/26/18	KWG1805293	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	09/26/18	09/26/18	KWG1805293	
1,4-Dichlorobenzene	ND	U	0.50	0.30	0.12	1	09/26/18	09/26/18	KWG1805293	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	09/26/18	09/26/18	KWG1805293	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	09/26/18	09/26/18	KWG1805293	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	09/26/18	09/26/18	KWG1805293	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	09/26/18	09/26/18	KWG1805293	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	09/26/18	09/26/18	KWG1805293	
Naphthalene	ND	U	2.0	0.30	0.088	1	09/26/18	09/26/18	KWG1805293	
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	09/26/18	09/26/18	KWG1805293	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/13/2018
Sample Matrix:	Ground water	**Date Received:**	09/15/2018

Volatile Organic Compounds

Sample Name:	TVR-1-20180913	**Units:**	ug/L
Lab Code:	K1808923-017	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	116	80-119	09/26/18	Acceptable
1,2-Dichloroethane-d4	99	81-118	09/26/18	Acceptable
Toluene-d8	99	89-112	09/26/18	Acceptable
4-Bromofluorobenzene	110	85-114	09/26/18	Acceptable

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: NA
Date Received: NA

Volatile Organic Compounds

Sample Name: Method Blank
Lab Code: KWG1805293-4

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.20	0.13	1	09/25/18	09/25/18	KWG1805293	*
Chloromethane	ND	U	0.50	0.20	0.068	1	09/25/18	09/25/18	KWG1805293	
Vinyl Chloride	ND	U	0.50	0.10	0.075	1	09/25/18	09/25/18	KWG1805293	
Bromomethane	ND	U	0.50	0.30	0.16	1	09/25/18	09/25/18	KWG1805293	
Chloroethane	ND	U	0.50	0.20	0.16	1	09/25/18	09/25/18	KWG1805293	
Trichlorofluoromethane	ND	U	0.50	0.20	0.12	1	09/25/18	09/25/18	KWG1805293	
1,1-Dichloroethene	ND	U	0.50	0.20	0.080	1	09/25/18	09/25/18	KWG1805293	
Acetone	ND	U	20	10	3.3	1	09/25/18	09/25/18	KWG1805293	
Carbon Disulfide	ND	U	0.50	0.20	0.069	1	09/25/18	09/25/18	KWG1805293	
Methylene Chloride	**0.17**	J	2.0	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
Methyl tert-Butyl Ether	ND	U	0.50	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
trans-1,2-Dichloroethene	ND	U	0.50	0.20	0.072	1	09/25/18	09/25/18	KWG1805293	
1,1-Dichloroethane	ND	U	0.50	0.20	0.077	1	09/25/18	09/25/18	KWG1805293	
2,2-Dichloropropane	ND	U	0.50	0.20	0.065	1	09/25/18	09/25/18	KWG1805293	
cis-1,2-Dichloroethene	ND	U	0.50	0.20	0.067	1	09/25/18	09/25/18	KWG1805293	
2-Butanone (MEK)	ND	U	20	4.0	1.9	1	09/25/18	09/25/18	KWG1805293	
Bromochloromethane	ND	U	0.50	0.20	0.16	1	09/25/18	09/25/18	KWG1805293	
Chloroform	ND	U	0.50	0.20	0.072	1	09/25/18	09/25/18	KWG1805293	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.20	0.075	1	09/25/18	09/25/18	KWG1805293	
Carbon Tetrachloride	ND	U	0.50	0.20	0.096	1	09/25/18	09/25/18	KWG1805293	
1,1-Dichloropropene	ND	U	0.50	0.20	0.089	1	09/25/18	09/25/18	KWG1805293	
Benzene	ND	U	0.50	0.20	0.062	1	09/25/18	09/25/18	KWG1805293	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.15	0.080	1	09/25/18	09/25/18	KWG1805293	
Trichloroethene (TCE)	ND	U	0.50	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
1,2-Dichloropropane	ND	U	0.50	0.20	0.095	1	09/25/18	09/25/18	KWG1805293	
Dibromomethane	ND	U	0.50	0.50	0.15	1	09/25/18	09/25/18	KWG1805293	
Bromodichloromethane	ND	U	0.50	0.30	0.091	1	09/25/18	09/25/18	KWG1805293	
cis-1,3-Dichloropropene	ND	U	0.50	0.20	0.18	1	09/25/18	09/25/18	KWG1805293	
4-Methyl-2-pentanone (MIBK)	ND	U	20	10	2.6	1	09/25/18	09/25/18	KWG1805293	
Toluene	ND	U	0.50	0.20	0.054	1	09/25/18	09/25/18	KWG1805293	
trans-1,3-Dichloropropene	ND	U	0.50	0.20	0.068	1	09/25/18	09/25/18	KWG1805293	
1,1,2-Trichloroethane	ND	U	0.50	0.40	0.14	1	09/25/18	09/25/18	KWG1805293	
Tetrachloroethene (PCE)	ND	U	0.50	0.20	0.099	1	09/25/18	09/25/18	KWG1805293	
2-Hexanone	ND	U	20	10	2.7	1	09/25/18	09/25/18	KWG1805293	
1,3-Dichloropropane	ND	U	0.50	0.30	0.14	1	09/25/18	09/25/18	KWG1805293	
Dibromochloromethane	ND	U	0.50	0.50	0.14	1	09/25/18	09/25/18	KWG1805293	

Comments:

Analytical Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Collected: NA
Date Received: NA

Volatile Organic Compounds

Sample Name: Method Blank
Lab Code: KWG1805293-4

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	2.0	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
Chlorobenzene	ND	U	0.50	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
Ethylbenzene	ND	U	0.50	0.10	0.050	1	09/25/18	09/25/18	KWG1805293	
1,1,1,2-Tetrachloroethane	ND	U	0.50	0.20	0.11	1	09/25/18	09/25/18	KWG1805293	
m,p-Xylenes	ND	U	0.50	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
o-Xylene	ND	U	0.50	0.20	0.074	1	09/25/18	09/25/18	KWG1805293	
Styrene	ND	U	0.50	0.20	0.089	1	09/25/18	09/25/18	KWG1805293	
Bromoform	ND	U	0.50	0.50	0.16	1	09/25/18	09/25/18	KWG1805293	*
Isopropylbenzene	ND	U	2.0	0.20	0.051	1	09/25/18	09/25/18	KWG1805293	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.20	0.16	1	09/25/18	09/25/18	KWG1805293	
Bromobenzene	ND	U	2.0	0.20	0.12	1	09/25/18	09/25/18	KWG1805293	
n-Propylbenzene	ND	U	2.0	0.20	0.054	1	09/25/18	09/25/18	KWG1805293	
1,2,3-Trichloropropane	ND	U	0.50	0.50	0.20	1	09/25/18	09/25/18	KWG1805293	
2-Chlorotoluene	ND	U	2.0	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
1,3,5-Trimethylbenzene	ND	U	2.0	0.20	0.089	1	09/25/18	09/25/18	KWG1805293	
4-Chlorotoluene	ND	U	2.0	0.20	0.13	1	09/25/18	09/25/18	KWG1805293	
tert-Butylbenzene	ND	U	2.0	0.20	0.059	1	09/25/18	09/25/18	KWG1805293	
1,2,4-Trimethylbenzene	ND	U	2.0	0.20	0.069	1	09/25/18	09/25/18	KWG1805293	
sec-Butylbenzene	ND	U	2.0	0.10	0.062	1	09/25/18	09/25/18	KWG1805293	
4-Isopropyltoluene	ND	U	2.0	0.20	0.060	1	09/25/18	09/25/18	KWG1805293	
1,3-Dichlorobenzene	ND	U	0.50	0.20	0.10	1	09/25/18	09/25/18	KWG1805293	
1,4-Dichlorobenzene	ND	U	0.50	0.30	0.12	1	09/25/18	09/25/18	KWG1805293	
n-Butylbenzene	ND	U	2.0	0.10	0.054	1	09/25/18	09/25/18	KWG1805293	
1,2-Dichlorobenzene	ND	U	0.50	0.20	0.12	1	09/25/18	09/25/18	KWG1805293	
1,2-Dibromo-3-chloropropane	ND	U	2.0	0.80	0.22	1	09/25/18	09/25/18	KWG1805293	
1,2,4-Trichlorobenzene	ND	U	2.0	0.30	0.096	1	09/25/18	09/25/18	KWG1805293	
Hexachlorobutadiene	ND	U	2.0	0.30	0.11	1	09/25/18	09/25/18	KWG1805293	
Naphthalene	ND	U	2.0	0.30	0.088	1	09/25/18	09/25/18	KWG1805293	
1,2,3-Trichlorobenzene	ND	U	2.0	0.40	0.11	1	09/25/18	09/25/18	KWG1805293	

* See Case Narrative

Comments:

Analytical Results

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	NA
Sample Matrix:	Ground water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1805293-4	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	112	80-119	09/25/18	Acceptable
1,2-Dichloroethane-d4	96	81-118	09/25/18	Acceptable
Toluene-d8	102	89-112	09/25/18	Acceptable
4-Bromofluorobenzene	107	85-114	09/25/18	Acceptable

Comments:

QA/QC Report

Client: EA Engineering, Science, and Technology **Service Request:** K1808923
Project: JBLM/6304305
Sample Matrix: Ground water

Surrogate Recovery Summary
Volatile Organic Compounds

Extraction Method: EPA 5030B **Units:** Percent
Analysis Method: 8260C **Level:** Low

Sample Name	Lab Code	Sur1		Sur2	Sur3	Sur4
FTP-1-20180912	K1808923-001	108		92	100	107
TVR-815-2-20180913	K1808923-005	112		98	101	108
TVR-MTS-1-20180913	K1808923-006	100		97	95	105
TVR-MTS-2-20180913	K1808923-007	106		99	99	110
TVR-MTS-4-20180913	K1808923-008	113		97	101	104
TVR-TB-001-20180912	K1808923-009	113		98	99	110
TVR-3-20180913	K1808923-010	120	*	99	97	105
TVR-3A-20180913	K1808923-011	111		98	98	107
TVR-5-20180913	K1808923-012	116		98	99	108
TVR-6-20180913	K1808923-013	116		98	98	105
TVR-7-20180913	K1808923-014	117		101	98	105
TVR-POMONA-20180913	K1808923-015	121	*	107	103	107
TVR-PAIC-20180913	K1808923-016	119		103	102	105
TVR-1-20180913	K1808923-017	116		99	99	110
Method Blank	KWG1805293-4	112		96	102	107
FTP-1-20180912MS	KWG1805293-1	119		105	106	105
FTP-1-20180912DMS	KWG1805293-2	107		91	106	108
Lab Control Sample	KWG1805293-3	108		94	103	112

Surrogate Recovery Control Limits (%)

Sur1	=	Dibromofluoromethane	80-119
Sur2	=	1,2-Dichloroethane-d4	81-118
Sur3	=	Toluene-d8	89-112
Sur4	=	4-Bromofluorobenzene	85-114

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Analyzed:**	09/25/2018
		Time Analyzed:	18:10

Internal Standard Area and RT Summary
Volatile Organic Compounds

File ID:	J:\MS46\DATA\092518\0925F016.D	**Lab Code:**	KWG1805294-2
Instrument ID:	MS46	**Analysis Lot:**	KWG1805294
Analysis Method:	8260C		

		Fluorobenzene		Chlorobenzene-d5		1,4-Dichlorobenzene-d4	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Result ==>	189,500	6.58	74,587	10.03	62,873	12.60
	Upper Limit ==>	379,000	6.75	149,174	10.20	125,746	12.77
	Lower Limit ==>	94,750	6.41	37,294	9.86	31,437	12.43
Associated Analyses							
Continuing Calibration VerificationCCV	KWG1805294-2	128,114	6.57	49,489	10.03	49,062	12.60
Lab Control Sample	KWG1805293-3	126,237	6.58	49,338	10.03	48,785	12.60
FTP-1-20180912MS	KWG1805293-1	125,773	6.58	53,386	10.03	49,207	12.60
FTP-1-20180912DMS	KWG1805293-2	131,985	6.58	54,580	10.03	51,436	12.60
Method Blank	KWG1805293-4	122,479	6.58	47,399	10.03	47,125	12.60
TVR-TB-001-20180912	K1808923-009	122,278	6.58	46,009	10.03	45,965	12.60
FTP-1-20180912	K1808923-001	121,468	6.58	50,198	10.03	50,757	12.60
FTP-1-20180912DL	K1808923-001	127,353	6.58	50,122	10.03	51,194	12.60
TVR-815-2-20180913	K1808923-005	122,486	6.58	48,573	10.03	48,026	12.60
TVR-MTS-1-20180913	K1808923-006	125,951	6.58	46,524	10.03	44,496	12.60
TVR-MTS-2-20180913	K1808923-007	119,326	6.58	45,280	10.03	44,168	12.60
TVR-MTS-4-20180913	K1808923-008	114,397	6.58	45,348	10.03	43,126	12.60
TVR-3-20180913	K1808923-010	115,857	6.58	44,831	10.03	43,700	12.60
TVR-3A-20180913	K1808923-011	116,910	6.58	45,113	10.03	43,327	12.60
TVR-5-20180913	K1808923-012	113,702	6.58	43,454	10.03	42,028	12.60
TVR-6-20180913	K1808923-013	108,211	6.58	42,567	10.03	42,251	12.60
TVR-7-20180913	K1808923-014	110,778	6.58	44,121	10.03	42,527	12.60
TVR-POMONA-20180913	K1808923-015	104,916	6.58	41,652	10.03	41,892	12.60
TVR-PAIC-20180913	K1808923-016	107,453	6.58	43,320	10.03	40,998	12.60
TVR-1-20180913	K1808923-017	108,956	6.58	41,956	10.03	40,874	12.60

Results flagged with an asterisk (*) indicate values outside control criteria.

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Extracted:**	09/25/2018
Sample Matrix:	Ground water	**Date Analyzed:**	09/25/2018

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	FTP-1-20180912	**Units:**	ug/L
Lab Code:	K1808923-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C	**Extraction Lot:**	KWG1805293

		FTP-1-20180912MS KWG1805293-1 Matrix Spike			FTP-1-20180912DMS KWG1805293-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dichlorodifluoromethane	ND	11.3	10.0	113	10.4	10.0	104	32-152	8	20
Chloromethane	ND	10.6	10.0	106	10.2	10.0	102	50-139	4	20
Vinyl Chloride	ND	11.6	10.0	116	11.1	10.0	111	58-137	4	20
Bromomethane	ND	12.8	10.0	128	12.8	10.0	128	53-141	0	20
Chloroethane	ND	13.9	10.0	139 *	13.0	10.0	130	60-138	7	20
Trichlorofluoromethane	ND	11.7	10.0	117	10.4	10.0	104	65-141	12	20
1,1-Dichloroethene	ND	15.3	10.0	153 *	12.2	10.0	122	71-131	22 *	20
Acetone	9.6	69.2	50.0	119	58.0	50.0	97	39-160	18	20
Carbon Disulfide	ND	26.1	20.0	131	19.2	20.0	96	64-133	31 *	20
Methylene Chloride	ND	10.2	10.0	102	9.49	10.0	95	74-124	7	20
Methyl tert-Butyl Ether	ND	10.9	10.0	109	10.8	10.0	108	71-124	1	20
trans-1,2-Dichloroethene	ND	11.6	10.0	116	10.4	10.0	104	75-124	11	20
1,1-Dichloroethane	ND	10.3	10.0	103	10.0	10.0	100	77-125	3	20
2,2-Dichloropropane	ND	12.3	10.0	123	11.4	10.0	114	60-139	8	20
cis-1,2-Dichloroethene	ND	12.0	10.0	120	11.2	10.0	112	78-123	7	20
2-Butanone (MEK)	ND	53.6	50.0	107	55.9	50.0	112	56-143	4	20
Bromochloromethane	ND	12.9	10.0	129 *	10.9	10.0	109	78-123	17	20
Chloroform	ND	12.1	10.0	121	9.81	10.0	98	79-124	21 *	20
1,1,1-Trichloroethane (TCA)	ND	13.2	10.0	132 *	10.7	10.0	107	74-131	21 *	20
Carbon Tetrachloride	ND	13.1	10.0	131	11.2	10.0	112	72-136	15	20
1,1-Dichloropropene	ND	12.5	10.0	125	10.6	10.0	106	79-125	17	20
Benzene	2.8	14.5	10.0	116	13.1	10.0	103	79-120	10	20
1,2-Dichloroethane (EDC)	ND	10.4	10.0	104	9.58	10.0	96	73-128	8	20
Trichloroethene (TCE)	ND	11.7	10.0	117	10.7	10.0	107	79-123	9	20
1,2-Dichloropropane	ND	10.3	10.0	103	9.44	10.0	94	78-122	8	20
Dibromomethane	ND	11.2	10.0	112	10.9	10.0	109	79-123	2	20
Bromodichloromethane	ND	10.8	10.0	108	9.96	10.0	100	79-125	8	20
cis-1,3-Dichloropropene	ND	10.4	10.0	104	10.2	10.0	102	75-124	2	20
4-Methyl-2-pentanone (MIBK)	ND	49.9	50.0	100	50.3	50.0	101	67-130	1	20
Toluene	0.28	11.9	10.0	116	11.2	10.0	109	80-121	6	20
trans-1,3-Dichloropropene	ND	9.92	10.0	99	10.2	10.0	102	73-127	3	20
1,1,2-Trichloroethane	ND	10.7	10.0	107	10.6	10.0	106	80-119	1	20
Tetrachloroethene (PCE)	ND	13.5	10.0	135 *	12.7	10.0	127	74-129	6	20

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Extracted:**	09/25/2018
Sample Matrix:	Ground water	**Date Analyzed:**	09/25/2018

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	FTP-1-20180912	**Units:**	ug/L
Lab Code:	K1808923-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C	**Extraction Lot:**	KWG1805293

		FTP-1-20180912MS KWG1805293-1 Matrix Spike			FTP-1-20180912DMS KWG1805293-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
2-Hexanone	ND	56.2	50.0	112	59.9	50.0	120	57-139	6	20
1,3-Dichloropropane	ND	10.1	10.0	101	10.3	10.0	103	80-119	1	20
Dibromochloromethane	ND	10.6	10.0	106	10.6	10.0	106	74-126	0	20
1,2-Dibromoethane (EDB)	ND	11.1	10.0	111	11.1	10.0	111	77-121	1	20
Chlorobenzene	ND	11.7	10.0	117	11.4	10.0	114	82-118	2	20
Ethylbenzene	5.6	17.6	10.0	120	16.7	10.0	111	79-121	5	20
1,1,1,2-Tetrachloroethane	ND	11.8	10.0	118	11.5	10.0	115	78-124	3	20
m,p-Xylenes	0.14	24.7	20.0	123 *	24.3	20.0	121	80-121	2	20
o-Xylene	0.59	11.9	10.0	113	12.1	10.0	115	78-122	2	20
Styrene	ND	9.66	10.0	97	10.2	10.0	102	78-123	5	20
Bromoform	ND	12.3	10.0	123	12.4	10.0	124	66-130	1	20
Isopropylbenzene	5.6	17.8	10.0	122	17.4	10.0	118	72-131	2	20
1,1,2,2-Tetrachloroethane	ND	9.79	10.0	98	9.84	10.0	98	71-121	1	20
Bromobenzene	ND	11.4	10.0	114	11.1	10.0	111	80-120	2	20
n-Propylbenzene	6.4	17.4	10.0	110	16.4	10.0	100	76-126	6	20
1,2,3-Trichloropropane	ND	11.0	10.0	110	11.1	10.0	111	73-122	0	20
2-Chlorotoluene	ND	10.4	10.0	104	9.87	10.0	99	79-122	5	20
1,3,5-Trimethylbenzene	0.27	11.3	10.0	111	10.9	10.0	106	75-124	4	20
4-Chlorotoluene	ND	10.6	10.0	106	10.1	10.0	101	78-122	5	20
tert-Butylbenzene	0.27	11.8	10.0	115	11.3	10.0	110	78-124	5	20
1,2,4-Trimethylbenzene	58	68.9	10.0	110 #	65.6	10.0	76 #	76-124	5	20
sec-Butylbenzene	2.9	14.4	10.0	115	13.5	10.0	107	77-126	6	20
4-Isopropyltoluene	3.9	16.5	10.0	126	15.3	10.0	114	77-127	7	20
1,3-Dichlorobenzene	ND	11.4	10.0	114	10.9	10.0	109	80-119	5	20
1,4-Dichlorobenzene	0.13	11.6	10.0	115	10.7	10.0	106	79-118	8	20
n-Butylbenzene	5.1	16.3	10.0	113	15.1	10.0	101	75-128	8	20
1,2-Dichlorobenzene	0.90	12.5	10.0	116	11.5	10.0	106	80-119	8	20
1,2-Dibromo-3-chloropropane	ND	13.0	10.0	130 *	14.3	10.0	143 *	62-128	10	20
1,2,4-Trichlorobenzene	ND	14.1	10.0	141 *	13.2	10.0	132 *	69-130	7	20
Hexachlorobutadiene	ND	13.4	10.0	134	11.9	10.0	119	66-134	12	20
Naphthalene	84	117E	10.0	329 #	117E	10.0	327 #	61-128	0	20
1,2,3-Trichlorobenzene	ND	15.2	10.0	152 *	14.3	10.0	143 *	69-129	6	20

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Extracted:**	09/25/2018
Sample Matrix:	Ground water	**Date Analyzed:**	09/25/2018

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	8260C	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1805293

Lab Control Sample
KWG1805293-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dichlorodifluoromethane	8.43	10.0	84	32-152
Chloromethane	9.61	10.0	96	50-139
Vinyl Chloride	10.6	10.0	106	58-137
Bromomethane	11.4	10.0	114	53-141
Chloroethane	11.7	10.0	117	60-138
Trichlorofluoromethane	7.63	10.0	76	65-141
1,1-Dichloroethene	10.1	10.0	101	71-131
Acetone	43.0	50.0	86	39-160
Carbon Disulfide	17.1	20.0	85	64-133
Methylene Chloride	9.69	10.0	97	74-124
Methyl tert-Butyl Ether	10.1	10.0	101	71-124
trans-1,2-Dichloroethene	9.85	10.0	99	75-124
1,1-Dichloroethane	9.23	10.0	92	77-125
2,2-Dichloropropane	9.95	10.0	100	60-139
cis-1,2-Dichloroethene	10.9	10.0	109	78-123
2-Butanone (MEK)	50.6	50.0	101	56-143
Bromochloromethane	10.9	10.0	109	78-123
Chloroform	9.69	10.0	97	79-124
1,1,1-Trichloroethane (TCA)	9.77	10.0	98	74-131
Carbon Tetrachloride	10.3	10.0	103	72-136
1,1-Dichloropropene	9.23	10.0	92	79-125
Benzene	9.70	10.0	97	79-120
1,2-Dichloroethane (EDC)	9.65	10.0	97	73-128
Trichloroethene (TCE)	9.87	10.0	99	79-123
1,2-Dichloropropane	9.39	10.0	94	78-122
Dibromomethane	10.7	10.0	107	79-123
Bromodichloromethane	10.1	10.0	101	79-125
cis-1,3-Dichloropropene	9.96	10.0	100	75-124
4-Methyl-2-pentanone (MIBK)	42.7	50.0	85	67-130
Toluene	10.1	10.0	101	80-121
trans-1,3-Dichloropropene	10.2	10.0	102	73-127
1,1,2-Trichloroethane	10.7	10.0	107	80-119
Tetrachloroethene (PCE)	12.1	10.0	121	74-129
2-Hexanone	44.4	50.0	89	57-139
1,3-Dichloropropane	10.3	10.0	103	80-119

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Extracted: 09/25/2018
Date Analyzed: 09/25/2018

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1805293

Lab Control Sample
KWG1805293-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec		%Rec Limits
Dibromochloromethane	11.3	10.0	113		74-126
1,2-Dibromoethane (EDB)	11.4	10.0	114		77-121
Chlorobenzene	11.5	10.0	115		82-118
Ethylbenzene	11.1	10.0	111		79-121
1,1,1,2-Tetrachloroethane	12.3	10.0	123		78-124
m,p-Xylenes	23.6	20.0	118		80-121
o-Xylene	10.9	10.0	109		78-122
Styrene	9.73	10.0	97		78-123
Bromoform	13.1	10.0	131	*	66-130
Isopropylbenzene	11.3	10.0	113		72-131
1,1,2,2-Tetrachloroethane	9.33	10.0	93		71-121
Bromobenzene	10.9	10.0	109		80-120
n-Propylbenzene	9.44	10.0	94		76-126
1,2,3-Trichloropropane	9.89	10.0	99		73-122
2-Chlorotoluene	9.72	10.0	97		79-122
1,3,5-Trimethylbenzene	9.98	10.0	100		75-124
4-Chlorotoluene	9.83	10.0	98		78-122
tert-Butylbenzene	9.90	10.0	99		78-124
1,2,4-Trimethylbenzene	10.3	10.0	103		76-124
sec-Butylbenzene	10.0	10.0	100		77-126
4-Isopropyltoluene	10.5	10.0	105		77-127
1,3-Dichlorobenzene	10.7	10.0	107		80-119
1,4-Dichlorobenzene	10.7	10.0	107		79-118
n-Butylbenzene	9.25	10.0	93		75-128
1,2-Dichlorobenzene	10.6	10.0	106		80-119
1,2-Dibromo-3-chloropropane	10.4	10.0	104		62-128
1,2,4-Trichlorobenzene	10.5	10.0	105		69-130
Hexachlorobutadiene	10.9	10.0	109		66-134
Naphthalene	9.31	10.0	93		61-128
1,2,3-Trichlorobenzene	11.6	10.0	116		69-129

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Extracted:**	09/25/2018
Sample Matrix:	Ground water	**Date Analyzed:**	09/25/2018
		Time Analyzed:	20:48

Method Blank Summary
Volatile Organic Compounds

Sample Name:	Method Blank	**Instrument ID:**	MS46
Lab Code:	KWG1805293-4	**File ID:**	J:\MS46\DATA\092518\0925F022.D
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C	**Extraction Lot:**	KWG1805293

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Lab Control Sample	KWG1805293-3	J:\MS46\DATA\092518\0925F017.D	09/25/18	18:36
FTP-1-20180912MS	KWG1805293-1	J:\MS46\DATA\092518\0925F018.D	09/25/18	19:02
FTP-1-20180912DMS	KWG1805293-2	J:\MS46\DATA\092518\0925F019.D	09/25/18	19:29
TVR-TB-001-20180912	K1808923-009	J:\MS46\DATA\092518\0925F023.D	09/25/18	21:14
FTP-1-20180912	K1808923-001	J:\MS46\DATA\092518\0925F024.D	09/25/18	21:41
FTP-1-20180912	K1808923-001	J:\MS46\DATA\092518\0925F025.D	09/25/18	22:07
TVR-815-2-20180913	K1808923-005	J:\MS46\DATA\092518\0925F026.D	09/25/18	22:33
TVR-MTS-1-20180913	K1808923-006	J:\MS46\DATA\092518\0925F027.D	09/25/18	22:59
TVR-MTS-2-20180913	K1808923-007	J:\MS46\DATA\092518\0925F028.D	09/25/18	23:26
TVR-MTS-4-20180913	K1808923-008	J:\MS46\DATA\092518\0925F029.D	09/25/18	23:52
TVR-3-20180913	K1808923-010	J:\MS46\DATA\092518\0925F030.D	09/26/18	00:18
TVR-3A-20180913	K1808923-011	J:\MS46\DATA\092518\0925F031.D	09/26/18	00:45
TVR-5-20180913	K1808923-012	J:\MS46\DATA\092518\0925F032.D	09/26/18	01:11
TVR-6-20180913	K1808923-013	J:\MS46\DATA\092518\0925F033.D	09/26/18	01:38
TVR-7-20180913	K1808923-014	J:\MS46\DATA\092518\0925F034.D	09/26/18	02:04
TVR-POMONA-20180913	K1808923-015	J:\MS46\DATA\092518\0925F035.D	09/26/18	02:30
TVR-PAIC-20180913	K1808923-016	J:\MS46\DATA\092518\0925F036.D	09/26/18	02:57
TVR-1-20180913	K1808923-017	J:\MS46\DATA\092518\0925F037.D	09/26/18	03:23

QA/QC Report

Client:	EA Engineering, Science, and Technology	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Extracted:**	09/25/2018
Sample Matrix:	Ground water	**Date Analyzed:**	09/25/2018
		Time Analyzed:	18:36

Lab Control Sample Summary
Volatile Organic Compounds

Sample Name:	Lab Control Sample	**Instrument ID:**	MS46
Lab Code:	KWG1805293-3	**File ID:**	J:\MS46\DATA\092518\0925F017.D
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C	**Extraction Lot:**	KWG1805293

This Lab Control Sample applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
FTP-1-20180912MS	KWG1805293-1	J:\MS46\DATA\092518\0925F018.D	09/25/18	19:02
FTP-1-20180912DMS	KWG1805293-2	J:\MS46\DATA\092518\0925F019.D	09/25/18	19:29
Method Blank	KWG1805293-4	J:\MS46\DATA\092518\0925F022.D	09/25/18	20:48
TVR-TB-001-20180912	K1808923-009	J:\MS46\DATA\092518\0925F023.D	09/25/18	21:14
FTP-1-20180912	K1808923-001	J:\MS46\DATA\092518\0925F024.D	09/25/18	21:41
FTP-1-20180912	K1808923-001	J:\MS46\DATA\092518\0925F025.D	09/25/18	22:07
TVR-815-2-20180913	K1808923-005	J:\MS46\DATA\092518\0925F026.D	09/25/18	22:33
TVR-MTS-1-20180913	K1808923-006	J:\MS46\DATA\092518\0925F027.D	09/25/18	22:59
TVR-MTS-2-20180913	K1808923-007	J:\MS46\DATA\092518\0925F028.D	09/25/18	23:26
TVR-MTS-4-20180913	K1808923-008	J:\MS46\DATA\092518\0925F029.D	09/25/18	23:52
TVR-3-20180913	K1808923-010	J:\MS46\DATA\092518\0925F030.D	09/26/18	00:18
TVR-3A-20180913	K1808923-011	J:\MS46\DATA\092518\0925F031.D	09/26/18	00:45
TVR-5-20180913	K1808923-012	J:\MS46\DATA\092518\0925F032.D	09/26/18	01:11
TVR-6-20180913	K1808923-013	J:\MS46\DATA\092518\0925F033.D	09/26/18	01:38
TVR-7-20180913	K1808923-014	J:\MS46\DATA\092518\0925F034.D	09/26/18	02:04
TVR-POMONA-20180913	K1808923-015	J:\MS46\DATA\092518\0925F035.D	09/26/18	02:30
TVR-PAIC-20180913	K1808923-016	J:\MS46\DATA\092518\0925F036.D	09/26/18	02:57
TVR-1-20180913	K1808923-017	J:\MS46\DATA\092518\0925F037.D	09/26/18	03:23

QA/QC Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1808923
Date Analyzed: 09/25/2018
Time Analyzed: 16:56

Tune Summary
Volatile Organic Compounds

File ID: J:\MS46\DATA\092518\0925F014.D
Instrument ID: GCMS46
Column:

Analysis Method: 8260C
Analysis Lot: KWG1805294

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
96	95	5	9	8.2	625	PASS
173	174	0	2	1.0	78	PASS
174	95	50	120	101.6	7739	PASS
50	95	15	40	15.2	1155	PASS
75	95	30	60	46.0	3500	PASS
95	95	100	100	100.0	7616	PASS
175	174	5	9	8.7	672	PASS
176	174	95	101	98.2	7599	PASS
177	176	5	9	6.3	478	PASS

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed	Q
Continuing Calibration Verification	KWG1805294-2	J:\MS46\DATA\092518\0925F016.D	09/25/2018	18:10	
Lab Control Sample	KWG1805293-3	J:\MS46\DATA\092518\0925F017.D	09/25/2018	18:36	
FTP-1-20180912MS	KWG1805293-1	J:\MS46\DATA\092518\0925F018.D	09/25/2018	19:02	
FTP-1-20180912DMS	KWG1805293-2	J:\MS46\DATA\092518\0925F019.D	09/25/2018	19:29	
Method Blank	KWG1805293-4	J:\MS46\DATA\092518\0925F022.D	09/25/2018	20:48	
TVR-TB-001-20180912	K1808923-009	J:\MS46\DATA\092518\0925F023.D	09/25/2018	21:14	
FTP-1-20180912	K1808923-001	J:\MS46\DATA\092518\0925F024.D	09/25/2018	21:41	
FTP-1-20180912	K1808923-001	J:\MS46\DATA\092518\0925F025.D	09/25/2018	22:07	
TVR-815-2-20180913	K1808923-005	J:\MS46\DATA\092518\0925F026.D	09/25/2018	22:33	
TVR-MTS-1-20180913	K1808923-006	J:\MS46\DATA\092518\0925F027.D	09/25/2018	22:59	
TVR-MTS-2-20180913	K1808923-007	J:\MS46\DATA\092518\0925F028.D	09/25/2018	23:26	
TVR-MTS-4-20180913	K1808923-008	J:\MS46\DATA\092518\0925F029.D	09/25/2018	23:52	
TVR-3-20180913	K1808923-010	J:\MS46\DATA\092518\0925F030.D	09/26/2018	00:18	
TVR-3A-20180913	K1808923-011	J:\MS46\DATA\092518\0925F031.D	09/26/2018	00:45	
TVR-5-20180913	K1808923-012	J:\MS46\DATA\092518\0925F032.D	09/26/2018	01:11	
TVR-6-20180913	K1808923-013	J:\MS46\DATA\092518\0925F033.D	09/26/2018	01:38	
TVR-7-20180913	K1808923-014	J:\MS46\DATA\092518\0925F034.D	09/26/2018	02:04	
TVR-POMONA-20180913	K1808923-015	J:\MS46\DATA\092518\0925F035.D	09/26/2018	02:30	
TVR-PAIC-20180913	K1808923-016	J:\MS46\DATA\092518\0925F036.D	09/26/2018	02:57	
TVR-1-20180913	K1808923-017	J:\MS46\DATA\092518\0925F037.D	09/26/2018	03:23	
Continuing Calibration Verification	KWG1805294-3	J:\MS46\DATA\092518\0925F038.D	09/26/2018	03:49	

Results flagged with an asterisk (*) indicate the analysis performed outside specified tune window

Client: EA Engineering, Science, and Technology **Service Request:** K1808923
Project: JBLM/6304305 **Calibration Date:** 07/07/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15776 **Column:** MS
Instrument ID: MS46

Level ID	File ID	Level ID	File ID
A	J:\MS46\DATA\070718\0707F004.D	G	J:\MS46\DATA\070718\0707F010.D
B	J:\MS46\DATA\070718\0707F005.D	H	J:\MS46\DATA\070718\0707F011.D
C	J:\MS46\DATA\070718\0707F006.D	I	J:\MS46\DATA\070718\0707F012.D
D	J:\MS46\DATA\070718\0707F007.D	J	J:\MS46\DATA\070718\0707F013.D
E	J:\MS46\DATA\070718\0707F008.D	K	J:\MS46\DATA\070718\0707F014.D
F	J:\MS46\DATA\070718\0707F009.D		

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
Dichlorodifluoromethane							C	0.50	0.415	D	1.0	0.417	E	2.0	0.370
	F	5.0	0.406	G	10	0.412	H	20	0.297	I	40	0.389	J	60	0.385
	K	80	0.352												
Chloromethane							C	0.50	0.354	D	1.0	0.368	E	2.0	0.300
	F	5.0	0.302	G	10	0.313	H	20	0.269	I	40	0.301	J	60	0.300
	K	80	0.289												
Vinyl Chloride	A	0.10	0.384	B	0.20	0.427	C	0.50	0.354	D	1.0	0.375	E	2.0	0.298
	F	5.0	0.347	G	10	0.352	H	20	0.271	I	40	0.342	J	60	0.342
	K	80	0.317												
Bromomethane							C	0.50	0.238	D	1.0	0.226	E	2.0	0.196
	F	5.0	0.174	G	10	0.183	H	20	0.168	I	40	0.194	J	60	0.204
	K	80	0.203												
Chloroethane							C	0.50	0.226	D	1.0	0.243	E	2.0	0.200
	F	5.0	0.198	G	10	0.211	H	20	0.171	I	40	0.198	J	60	0.196
	K	80	0.182												
Trichlorofluoromethane	A	0.10	0.561	B	0.20	0.572	C	0.50	0.548	D	1.0	0.620	E	2.0	0.485
	F	5.0	0.526	G	10	0.522	H	20	0.407	I	40	0.504	J	60	0.491
	K	80	0.455												
1,1-Dichloroethene				B	0.20	0.295	C	0.50	0.246	D	1.0	0.239	E	2.0	0.209
	F	5.0	0.222	G	10	0.241	H	20	0.190	I	40	0.234	J	60	0.228
	K	80	0.213												
Acetone							C	20	0.0422	D	40	0.0415	E	80	0.0357
	F	100	0.0322	G	200	0.0357	H	400	0.0340	I	800	0.0378	J	1600	0.0356
	K	2000	0.0338												
Carbon Disulfide							C	0.50	0.748	D	1.0	0.816	E	2.0	0.682
	F	5.0	0.719	G	10	0.761	H	20	0.619	I	40	0.767	J	60	0.761
	K	80	0.713												
Methylene Chloride							C	0.50	0.301	D	1.0	0.312	E	2.0	0.261
	F	5.0	0.259	G	10	0.261	H	20	0.257	I	40	0.260	J	60	0.253
	K	80	0.244												

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology **Service Request:** K1808923
Project: JBLM/6304305 **Calibration Date:** 07/07/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15776 **Column:** MS
Instrument ID: MS46

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
Methyl tert-Butyl Ether				B	0.40	0.591	C	1.0	0.566	D	2.0	0.575	E	4.0	0.534
	F	10	0.540	G	20	0.576	H	40	0.605	I	80	0.615	J	120	0.617
	K	160	0.593												
trans-1,2-Dichloroethene							C	0.50	0.280	D	1.0	0.287	E	2.0	0.260
	F	5.0	0.258	G	10	0.266	H	20	0.234	I	40	0.271	J	60	0.266
	K	80	0.254												
1,1-Dichloroethane				B	0.20	0.550	C	0.50	0.517	D	1.0	0.504	E	2.0	0.459
	F	5.0	0.472	G	10	0.488	H	20	0.448	I	40	0.483	J	60	0.461
	K	80	0.458												
2,2-Dichloropropane							C	0.50	0.391	D	1.0	0.459	E	2.0	0.353
	F	5.0	0.399	G	10	0.402	H	20	0.341	I	40	0.404	J	60	0.396
	K	80	0.379												
cis-1,2-Dichloroethene				B	0.20	0.262	C	0.50	0.290	D	1.0	0.288	E	2.0	0.257
	F	5.0	0.264	G	10	0.274	H	20	0.267	I	40	0.276	J	60	0.271
	K	80	0.270												
2-Butanone (MEK)							C	20	0.0157	D	40	0.0176	E	80	0.0141
	F	100	0.0142	G	200	0.0155	H	400	0.0159	I	800	0.0173	J	1600	0.0161
	K	2000	0.0159												
Bromochloromethane							C	0.50	0.137	D	1.0	0.154	E	2.0	0.133
	F	5.0	0.120	G	10	0.126	H	20	0.122	I	40	0.114	J	60	0.107
	K	80	0.107												
Chloroform	A	0.10	0.497	B	0.20	0.536	C	0.50	0.559	D	1.0	0.578	E	2.0	0.494
	F	5.0	0.484	G	10	0.504	H	20	0.484	I	40	0.494	J	60	0.479
	K	80	0.464												
1,1,1-Trichloroethane (TCA)							C	0.50	0.501	D	1.0	0.523	E	2.0	0.397
	F	5.0	0.449	G	10	0.458	H	20	0.373	I	40	0.452	J	60	0.446
	K	80	0.423												
Carbon Tetrachloride				B	0.20	0.390	C	0.50	0.457	D	1.0	0.456	E	2.0	0.371
	F	5.0	0.409	G	10	0.422	H	20	0.328	I	40	0.415	J	60	0.419
	K	80	0.391												
1,1-Dichloropropene							C	0.50	0.348	D	1.0	0.396	E	2.0	0.345
	F	5.0	0.381	G	10	0.394	H	20	0.316	I	40	0.397	J	60	0.396
	K	80	0.375												
Benzene				B	0.20	1.08	C	0.50	1.02	D	1.0	1.09	E	2.0	0.987
	F	5.0	1.02	G	10	1.09	H	20	0.996	I	40	1.08	J	60	1.08
	K	80	1.02												

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology **Service Request:** K1808923
Project: JBLM/6304305 **Calibration Date:** 07/07/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15776 **Column:** MS
Instrument ID: MS46

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
1,2-Dichloroethane (EDC)				B	0.20	0.307	C	0.50	0.359	D	1.0	0.358	E	2.0	0.351
	F	5.0	0.320	G	10	0.331	H	20	0.338	I	40	0.332	J	60	0.329
	K	80	0.312												
Trichloroethene (TCE)				B	0.20	0.328	C	0.50	0.305	D	1.0	0.294	E	2.0	0.257
	F	5.0	0.266	G	10	0.283	H	20	0.240	I	40	0.283	J	60	0.285
	K	80	0.266												
1,2-Dichloropropane							C	0.50	0.252	D	1.0	0.287	E	2.0	0.271
	F	5.0	0.252	G	10	0.273	H	20	0.261	I	40	0.269	J	60	0.277
	K	80	0.256												
Dibromomethane							C	0.50	0.142	D	1.0	0.163	E	2.0	0.150
	F	5.0	0.134	G	10	0.147	H	20	0.146	I	40	0.145	J	60	0.147
	K	80	0.135												
Bromodichloromethane				B	0.20	0.386	C	0.50	0.402	D	1.0	0.413	E	2.0	0.356
	F	5.0	0.331	G	10	0.355	H	20	0.363	I	40	0.349	J	60	0.362
	K	80	0.340												
cis-1,3-Dichloropropene				B	0.20	0.413	C	0.50	0.384	D	1.0	0.442	E	2.0	0.394
	F	5.0	0.373	G	10	0.422	H	20	0.430	I	40	0.430	J	60	0.438
	K	80	0.425												
4-Methyl-2-pentanone (MIBK)							C	20	0.0574	D	40	0.0645	E	80	0.0581
	F	100	0.0574	G	200	0.0664	H	400	0.0681	I	800	0.0701	J	1600	0.0688
	K	2000	0.0654												
Toluene							C	0.50	0.604	D	1.0	0.666	E	2.0	0.615
	F	5.0	0.631	G	10	0.662	H	20	0.610	I	40	0.665	J	60	0.668
	K	80	0.639												
trans-1,3-Dichloropropene							C	0.50	0.696	D	1.0	0.858	E	2.0	0.817
	F	5.0	0.811	G	10	0.906	H	20	0.874	I	40	0.913	J	60	0.905
	K	80	0.896												
1,1,2-Trichloroethane				B	0.20	0.436	C	0.50	0.381	D	1.0	0.463	E	2.0	0.439
	F	5.0	0.448	G	10	0.460	H	20	0.431	I	40	0.449	J	60	0.438
	K	80	0.429												
Tetrachloroethene (PCE)							C	0.50	0.606	D	1.0	0.653	E	2.0	0.546
	F	5.0	0.596	G	10	0.637	H	20	0.492	I	40	0.608	J	60	0.609
	K	80	0.600												
2-Hexanone							C	20	0.0409	D	40	0.0454	E	80	0.0448
	F	100	0.0439	G	200	0.0514	H	400	0.0478	I	800	0.0518	J	1600	0.0502
	K	2400	0.0407												

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology **Service Request:** K1808923
Project: JBLM/6304305 **Calibration Date:** 07/07/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15776 **Column:** MS
Instrument ID: MS46

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
1,3-Dichloropropane							C	0.50	0.893	D	1.0	0.943	E	2.0	0.925
	F	5.0	0.882	G	10	0.928	H	20	0.888	I	40	0.912	J	60	0.900
	K	80	0.886												
Dibromochloromethane							C	0.50	0.679	D	1.0	0.689	E	2.0	0.639
	F	5.0	0.635	G	10	0.680	H	20	0.651	I	40	0.675	J	60	0.660
	K	80	0.651												
1,2-Dibromoethane (EDB)							C	0.50	0.501	D	1.0	0.530	E	2.0	0.457
	F	5.0	0.464	G	10	0.508	H	20	0.489	I	40	0.512	J	60	0.491
	K	80	0.481												
Chlorobenzene				B	0.20	1.59	C	0.50	1.73	D	1.0	1.72	E	2.0	1.63
	F	5.0	1.70	G	10	1.78	H	20	1.60	I	40	1.75	J	60	1.71
	K	80	1.68												
Ethylbenzene							C	0.50	0.935	D	1.0	0.877	E	2.0	0.841
	F	5.0	0.917	G	10	0.994	H	20	0.816	I	40	0.947	J	60	0.943
	K	80	0.923												
1,1,1,2-Tetrachloroethane							C	0.50	0.637	D	1.0	0.651	E	2.0	0.599
	F	5.0	0.629	G	10	0.683	H	20	0.629	I	40	0.658	J	60	0.646
	K	80	0.636												
m,p-Xylenes				B	0.40	0.912	C	1.0	0.970	D	2.0	1.00	E	4.0	0.997
	F	10	1.10	G	20	1.18	H	40	1.02	I	80	1.17	J	120	1.16
	K	160	1.12												
o-Xylene							C	0.50	1.05	D	1.0	1.01	E	2.0	0.897
	F	5.0	0.985	G	10	1.09	H	20	0.979	I	40	1.10	J	60	1.09
	K	80	1.06												
Styrene							C	0.50	0.812	D	1.0	0.916	E	2.0	0.839
	F	5.0	0.906	G	10	1.05	H	20	0.985	I	40	1.04	J	60	1.03
	K	80	1.01												
Bromoform							C	0.50	0.346	D	1.0	0.375	E	2.0	0.370
	F	5.0	0.359	G	10	0.387	H	20	0.366	I	40	0.385	J	60	0.382
	K	80	0.366												
Isopropylbenzene							C	0.50	2.27	D	1.0	2.59	E	2.0	2.44
	F	5.0	2.75	G	10	3.02	H	20	2.49	I	40	2.99	J	60	2.96
	K	80	2.87												
1,1,2,2-Tetrachloroethane							C	0.50	0.664	D	1.0	0.635	E	2.0	0.659
	F	5.0	0.642	G	10	0.666	H	20	0.636	I	40	0.636	J	60	0.638
	K	80	0.629												

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† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology **Service Request:** K1808923
Project: JBLM/6304305 **Calibration Date:** 07/07/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15776 **Column:** MS
Instrument ID: MS46

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
Bromobenzene							C	0.50	0.781	D	1.0	0.794	E	2.0	0.788
	F	5.0	0.803	G	10	0.866	H	20	0.777	I	40	0.820	J	60	0.822
	K	80	0.822												
n-Propylbenzene							C	0.50	3.52	D	1.0	3.56	E	2.0	3.43
	F	5.0	3.87	G	10	4.26	H	20	3.53	I	40	4.18	J	60	4.19
	K	80	4.12												
1,2,3-Trichloropropane							C	0.50	0.177	D	1.0	0.218	E	2.0	0.186
	F	5.0	0.214	G	10	0.212	H	20	0.190	I	40	0.199	J	60	0.197
	K	80	0.191												
2-Chlorotoluene				B	0.20	2.23	C	0.50	2.17	D	1.0	2.10	E	2.0	2.09
	F	5.0	2.29	G	10	2.43	H	20	2.10	I	40	2.33	J	60	2.34
	K	80	2.29												
1,3,5-Trimethylbenzene							C	0.50	2.18	D	1.0	2.37	E	2.0	2.25
	F	5.0	2.58	G	10	2.82	H	20	2.42	I	40	2.75	J	60	2.77
	K	80	2.72												
4-Chlorotoluene							C	0.50	2.01	D	1.0	2.09	E	2.0	2.11
	F	5.0	2.34	G	10	2.56	H	20	2.23	I	40	2.42	J	60	2.43
	K	80	2.39												
tert-Butylbenzene							C	0.50	1.88	D	1.0	2.11	E	2.0	2.02
	F	5.0	2.23	G	10	2.43	H	20	2.00	I	40	2.38	J	60	2.41
	K	80	2.35												
1,2,4-Trimethylbenzene							C	0.50	2.00	D	1.0	2.16	E	2.0	2.23
	F	5.0	2.46	G	10	2.76	H	20	2.41	I	40	2.71	J	60	2.72
	K	80	2.65												
sec-Butylbenzene							C	0.50	2.68	D	1.0	2.88	E	2.0	2.87
	F	5.0	3.27	G	10	3.57	H	20	2.98	I	40	3.48	J	60	3.55
	K	80	3.45												
4-Isopropyltoluene							C	0.50	2.15	D	1.0	2.20	E	2.0	2.17
	F	5.0	2.57	G	10	2.76	H	20	2.45	I	40	2.83	J	60	2.87
	K	80	2.83												
1,3-Dichlorobenzene				B	0.20	1.58	C	0.50	1.42	D	1.0	1.47	E	2.0	1.41
	F	5.0	1.49	G	10	1.57	H	20	1.43	I	40	1.52	J	60	1.51
	K	80	1.50												
1,4-Dichlorobenzene				B	0.20	1.61	C	0.50	1.54	D	1.0	1.47	E	2.0	1.51
	F	5.0	1.49	G	10	1.55	H	20	1.45	I	40	1.53	J	60	1.51
	K	80	1.50												

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† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology **Service Request:** K1808923
Project: JBLM/6304305 **Calibration Date:** 07/07/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15776 **Column:** MS
Instrument ID: MS46

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
n-Butylbenzene							C	0.50	1.96	D	1.0	2.08	E	2.0	2.01
	F	5.0	2.29	G	10	2.50	H	20	2.25	I	40	2.65	J	60	2.67
	K	80	2.66												
1,2-Dichlorobenzene				B	0.20	1.30	C	0.50	1.40	D	1.0	1.29	E	2.0	1.29
	F	5.0	1.32	G	10	1.38	H	20	1.31	I	40	1.36	J	60	1.35
	K	80	1.35												
1,2-Dibromo-3-chloropropane													E	2.0	0.0834
	F	5.0	0.0810	G	10	0.0842	H	20	0.0756	I	40	0.0820	J	60	0.0797
	K	80	0.0836												
1,2,4-Trichlorobenzene							C	0.50	0.662	D	1.0	0.717	E	2.0	0.618
	F	5.0	0.718	G	10	0.760	H	20	0.756	I	40	0.821	J	60	0.844
	K	80	0.858												
Hexachlorobutadiene							C	0.50	0.356	D	1.0	0.383	E	2.0	0.368
	F	5.0	0.391	G	10	0.404	H	20	0.369	I	40	0.424	J	60	0.430
	K	80	0.421												
Naphthalene							C	0.50	1.11	D	1.0	1.21	E	2.0	1.14
	F	5.0	1.20	G	10	1.36	H	20	1.33	I	40	1.53	J	60	1.57
	K	80	1.58												
1,2,3-Trichlorobenzene							C	0.50	0.601	D	1.0	0.565	E	2.0	0.567
	F	5.0	0.570	G	10	0.623	H	20	0.606	I	40	0.689	J	60	0.689
	K	80	0.696												
Dibromofluoromethane										D	4.0	0.284	E	6.0	0.252
	F	8.0	0.251	G	10	0.266	H	12	0.276	I	14	0.239	J	16	0.244
	K	20	0.254												
1,2-Dichloroethane-d4										D	4.0	0.343	E	6.0	0.297
	F	8.0	0.279	G	10	0.293	H	12	0.293	I	14	0.269	J	16	0.272
	K	20	0.264												
Toluene-d8										D	4.0	1.02	E	6.0	0.824
	F	8.0	0.912	G	10	0.988	H	12	1.04	I	14	0.829	J	16	0.884
	K	20	0.958												
4-Bromofluorobenzene										D	4.0	0.786	E	6.0	0.729
	F	8.0	0.750	G	10	0.840	H	12	0.820	I	14	0.748	J	16	0.762
	K	20	0.781												

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† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology **Service Request:** K1808923
Project: JBLM/6304305 **Calibration Date:** 07/07/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15776 **Column:** MS
Instrument ID: MS46

Analyte Name	Compound Type	Calibration Evaluation: Fit Type	Eval.	Eval. Result	Q	Control Criteria	RRF Evaluation: Average RRF	Q	Minimum RRF
Dichlorodifluoromethane	MS	Linear	R2	0.994		≥ 0.990	0.382		0.100
Chloromethane	MS	AverageRF	% RSD	10.0		≤ 15	0.311		0.100
Vinyl Chloride	MS	AverageRF	% RSD	12.1		≤ 15	0.346		0.100
Bromomethane	MS	AverageRF	% RSD	11.5		≤ 15	0.198		0.100
Chloroethane	MS	AverageRF	% RSD	10.6		≤ 15	0.203		0.100
Trichlorofluoromethane	MS	AverageRF	% RSD	11.3		≤ 15	0.517		0.100
1,1-Dichloroethene	MS	AverageRF	% RSD	12.1		≤ 15	0.232		.100
Acetone	MS	Quadratic	COD	0.999		≥ 0.990	0.0365		0.01
Carbon Disulfide	MS	AverageRF	% RSD	7.8		≤ 15	0.732		0.100
Methylene Chloride	MS	AverageRF	% RSD	8.5		≤ 15	0.268		0.100
Methyl tert-Butyl Ether	MS	AverageRF	% RSD	5.0		≤ 15	0.581		0.100
trans-1,2-Dichloroethene	MS	AverageRF	% RSD	5.9		≤ 15	0.264		0.100
1,1-Dichloroethane	MS	AverageRF	% RSD	6.6		≤ 15	0.484		.200
2,2-Dichloropropane	MS	AverageRF	% RSD	8.6		≤ 15	0.392		0.01
cis-1,2-Dichloroethene	MS	AverageRF	% RSD	3.9		≤ 15	0.272		0.100
2-Butanone (MEK)	MS	AverageRF	% RSD	7.4		≤ 15	0.0158		0.01
Bromochloromethane	MS	AverageRF	% RSD	12.3		≤ 15	0.124		0.01
Chloroform	MS	AverageRF	% RSD	7.0		≤ 15	0.507		0.200
1,1,1-Trichloroethane (TCA)	MS	AverageRF	% RSD	10.4		≤ 15	0.447		.100
Carbon Tetrachloride	MS	AverageRF	% RSD	9.5		≤ 15	0.406		0.100
1,1-Dichloropropene	MS	AverageRF	% RSD	7.9		≤ 15	0.372		0.01
Benzene	MS	AverageRF	% RSD	3.9		≤ 15	1.05		0.500
1,2-Dichloroethane (EDC)	MS	AverageRF	% RSD	5.4		≤ 15	0.334		0.100
Trichloroethene (TCE)	MS	AverageRF	% RSD	9.0		≤ 15	0.281		0.200
1,2-Dichloropropane	MS	AverageRF	% RSD	4.5		≤ 15	0.266		0.100
Dibromomethane	MS	AverageRF	% RSD	6.0		≤ 15	0.146		0.01
Bromodichloromethane	MS	AverageRF	% RSD	7.2		≤ 15	0.366		0.200
cis-1,3-Dichloropropene	MS	AverageRF	% RSD	5.7		≤ 15	0.415		0.200
4-Methyl-2-pentanone (MIBK)	MS	AverageRF	% RSD	7.9		≤ 15	0.0640		0.01
Toluene	MS	AverageRF	% RSD	4.1		≤ 15	0.640		0.400
trans-1,3-Dichloropropene	MS	AverageRF	% RSD	8.2		≤ 15	0.853		0.100
1,1,2-Trichloroethane	MS	AverageRF	% RSD	5.2		≤ 15	0.438		.100
Tetrachloroethene (PCE)	MS	AverageRF	% RSD	8.1		≤ 15	0.594		0.200
2-Hexanone	MS	AverageRF	% RSD	9.1		≤ 15	0.0463		0.015
1,3-Dichloropropane	MS	AverageRF	% RSD	2.4		≤ 15	0.906		0.01
Dibromochloromethane	MS	AverageRF	% RSD	2.9		≤ 15	0.662		0.100
1,2-Dibromoethane (EDB)	MS	AverageRF	% RSD	4.7		≤ 15	0.493		0.100
Chlorobenzene	MS	AverageRF	% RSD	3.8		≤ 15	1.69		0.500
Ethylbenzene	MS	AverageRF	% RSD	6.1		≤ 15	0.910		0.100
1,1,1,2-Tetrachloroethane	MS	AverageRF	% RSD	3.6		≤ 15	0.641		.01
m,p-Xylenes	MS	AverageRF	% RSD	8.9		≤ 15	1.06		0.100
o-Xylene	MS	AverageRF	% RSD	6.5		≤ 15	1.03		0.300

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† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology **Service Request:** K1808923
Project: JBLM/6304305 **Calibration Date:** 07/07/2018

Initial Calibration Summary
Volatile Organic Compounds

Calibration ID: CAL15776 **Column:** MS
Instrument ID: MS46

		Calibration Evaluation					RRF Evaluation		
Analyte Name	**Compound Type**	**Fit Type**	**Eval.**	**Eval. Result**	**Q**	**Control Criteria**	**Average RRF**	**Q**	**Minimum RRF**
Styrene	MS	AverageRF	% RSD	9.3		≤ 15	0.954		0.300
Bromoform	MS	AverageRF	% RSD	3.6		≤ 15	0.371		0.100
Isopropylbenzene	MS	AverageRF	% RSD	10.1		≤ 15	2.71		0.100
1,1,2,2-Tetrachloroethane	MS	AverageRF	% RSD	2.2		≤ 15	0.645		.300
Bromobenzene	MS	AverageRF	% RSD	3.4		≤ 15	0.808		0.01
n-Propylbenzene	MS	AverageRF	% RSD	8.9		≤ 15	3.85		0.01
1,2,3-Trichloropropane	MS	AverageRF	% RSD	7.0		≤ 15	0.198		0.01
2-Chlorotoluene	MS	AverageRF	% RSD	5.4		≤ 15	2.24		0.01
1,3,5-Trimethylbenzene	MS	AverageRF	% RSD	9.6		≤ 15	2.54		0.01
4-Chlorotoluene	MS	AverageRF	% RSD	8.1		≤ 15	2.29		0.01
tert-Butylbenzene	MS	AverageRF	% RSD	9.2		≤ 15	2.20		0.01
1,2,4-Trimethylbenzene	MS	AverageRF	% RSD	11.3		≤ 15	2.45		0.01
sec-Butylbenzene	MS	AverageRF	% RSD	10.7		≤ 15	3.19		0.01
4-Isopropyltoluene	MS	AverageRF	% RSD	12.0		≤ 15	2.54		0.01
1,3-Dichlorobenzene	MS	AverageRF	% RSD	3.9		≤ 15	1.49		0.600
1,4-Dichlorobenzene	MS	AverageRF	% RSD	3.1		≤ 15	1.51		0.500
n-Butylbenzene	MS	AverageRF	% RSD	12.2		≤ 15	2.34		0.01
1,2-Dichlorobenzene	MS	AverageRF	% RSD	2.8		≤ 15	1.33		0.400
1,2-Dibromo-3-chloropropane	MS	AverageRF	% RSD	3.7		≤ 15	0.0814		0.025
1,2,4-Trichlorobenzene	MS	AverageRF	% RSD	10.9		≤ 15	0.751		0.200
Hexachlorobutadiene	MS	AverageRF	% RSD	6.9		≤ 15	0.394		0.01
Naphthalene	MS	AverageRF	% RSD	13.9		≤ 15	1.34		0.01
1,2,3-Trichlorobenzene	MS	AverageRF	% RSD	8.8		≤ 15	0.623		0.01
Dibromofluoromethane	SURR	AverageRF	% RSD	6.0		≤ 15	0.258		0.01
1,2-Dichloroethane-d4	SURR	AverageRF	% RSD	8.8		≤ 15	0.289		0.01
Toluene-d8	SURR	AverageRF	% RSD	8.8		≤ 15	0.931		0.01
4-Bromofluorobenzene	SURR	AverageRF	% RSD	4.9		≤ 15	0.777		0.01

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† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1808923
Calibration Date: 07/07/2018
Date Analyzed: 07/07/2018

Second Source Calibration Verification
Volatile Organic Compounds

Calibration Type: Internal Standard
Analysis Method: 8260C

Calibration ID: CAL15776
Units: PPB

File ID: J:\MS46\DATA\070718\0707F017.D

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Dichlorodifluoromethane	10	8.1	0.382	0.302	NA	-19	± 20 %	Linear
Chloromethane	10	9.4	0.311	0.292	-6	NA	± 20 %	AverageRF
Vinyl Chloride	10	8.9	0.346	0.307	-11	NA	± 20 %	AverageRF
Bromomethane	10	9.4	0.198	0.186	-6	NA	± 20 %	AverageRF
Chloroethane	10	9.3	0.203	0.188	-7	NA	± 20 %	AverageRF
Trichlorofluoromethane	10	8.8	0.517	0.455	-12	NA	± 20 %	AverageRF
1,1-Dichloroethene	10	11	0.232	0.250	8	NA	± 20 %	AverageRF
Carbon Disulfide	20	20	0.732	0.726	-1	NA	± 20 %	AverageRF
Methylene Chloride	10	9.9	0.268	0.265	-1	NA	± 20 %	AverageRF
Methyl tert-Butyl Ether	10	11	0.581	0.636	9	NA	± 20 %	AverageRF
trans-1,2-Dichloroethene	10	10	0.264	0.273	3	NA	± 20 %	AverageRF
1,1-Dichloroethane	10	11	0.484	0.508	5	NA	± 20 %	AverageRF
2,2-Dichloropropane	10	11	0.392	0.431	10	NA	± 20 %	AverageRF
cis-1,2-Dichloroethene	10	11	0.272	0.296	9	NA	± 20 %	AverageRF
2-Butanone (MEK)	50	50	0.0158	0.0158	0	NA	± 20 %	AverageRF
Bromochloromethane	10	10	0.124	0.126	1	NA	± 20 %	AverageRF
Chloroform	10	9.6	0.507	0.487	-4	NA	± 20 %	AverageRF
1,1,1-Trichloroethane (TCA)	10	9.9	0.447	0.444	-1	NA	± 20 %	AverageRF
Carbon Tetrachloride	10	10	0.406	0.418	3	NA	± 20 %	AverageRF
1,1-Dichloropropene	10	11	0.372	0.394	6	NA	± 20 %	AverageRF
Benzene	10	10	1.05	1.06	1	NA	± 20 %	AverageRF
1,2-Dichloroethane (EDC)	10	10	0.334	0.334	0	NA	± 20 %	AverageRF
Trichloroethene (TCE)	10	10	0.281	0.292	4	NA	± 20 %	AverageRF
1,2-Dichloropropane	10	10	0.266	0.275	3	NA	± 20 %	AverageRF
Dibromomethane	10	11	0.146	0.156	7	NA	± 20 %	AverageRF
Bromodichloromethane	10	10	0.366	0.377	3	NA	± 20 %	AverageRF
cis-1,3-Dichloropropene	10	10	0.415	0.432	4	NA	± 20 %	AverageRF
4-Methyl-2-pentanone (MIBK)	50	49	0.0640	0.0631	-1	NA	± 20 %	AverageRF
Toluene	10	11	0.640	0.688	8	NA	± 20 %	AverageRF
trans-1,3-Dichloropropene	10	10	0.853	0.873	2	NA	± 20 %	AverageRF
1,1,2-Trichloroethane	10	10	0.438	0.455	4	NA	± 20 %	AverageRF
Tetrachloroethene (PCE)	10	11	0.594	0.631	6	NA	± 20 %	AverageRF
2-Hexanone	50	52	0.0463	0.0478	3	NA	± 20 %	AverageRF
1,3-Dichloropropane	10	10	0.906	0.939	4	NA	± 20 %	AverageRF
Dibromochloromethane	10	9.7	0.662	0.643	-3	NA	± 20 %	AverageRF
1,2-Dibromoethane (EDB)	10	10	0.493	0.508	3	NA	± 20 %	AverageRF
Chlorobenzene	10	11	1.69	1.81	7	NA	± 20 %	AverageRF
Ethylbenzene	10	11	0.910	0.986	8	NA	± 20 %	AverageRF
1,1,1,2-Tetrachloroethane	10	10	0.641	0.664	4	NA	± 20 %	AverageRF
m,p-Xylenes	20	23	1.06	1.23	16	NA	± 20 %	AverageRF

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Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1808923
Calibration Date: 07/07/2018
Date Analyzed: 07/07/2018

Second Source Calibration Verification
Volatile Organic Compounds

Calibration Type: Internal Standard
Analysis Method: 8260C

Calibration ID: CAL15776
Units: PPB

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
o-Xylene	10	11	1.03	1.10	7	NA	± 20 %	AverageRF
Styrene	10	11	0.954	1.06	11	NA	± 20 %	AverageRF
Bromoform	10	10	0.371	0.385	4	NA	± 20 %	AverageRF
Isopropylbenzene	10	11	2.71	3.06	13	NA	± 20 %	AverageRF
1,1,2,2-Tetrachloroethane	10	10	0.645	0.675	5	NA	± 20 %	AverageRF
Bromobenzene	10	11	0.808	0.875	8	NA	± 20 %	AverageRF
n-Propylbenzene	10	11	3.85	4.40	14	NA	± 20 %	AverageRF
1,2,3-Trichloropropane	10	10	0.198	0.207	5	NA	± 20 %	AverageRF
2-Chlorotoluene	10	11	2.24	2.47	10	NA	± 20 %	AverageRF
1,3,5-Trimethylbenzene	10	11	2.54	2.86	13	NA	± 20 %	AverageRF
4-Chlorotoluene	10	11	2.29	2.59	13	NA	± 20 %	AverageRF
tert-Butylbenzene	10	11	2.20	2.50	13	NA	± 20 %	AverageRF
1,2,4-Trimethylbenzene	10	12	2.45	2.88	17	NA	± 20 %	AverageRF
sec-Butylbenzene	10	12	3.19	3.67	15	NA	± 20 %	AverageRF
4-Isopropyltoluene	10	12	2.54	2.95	16	NA	± 20 %	AverageRF
1,3-Dichlorobenzene	10	11	1.49	1.65	10	NA	± 20 %	AverageRF
1,4-Dichlorobenzene	10	11	1.51	1.59	5	NA	± 20 %	AverageRF
n-Butylbenzene	10	11	2.34	2.64	13	NA	± 20 %	AverageRF
1,2-Dichlorobenzene	10	11	1.33	1.42	7	NA	± 20 %	AverageRF
1,2-Dibromo-3-chloropropane	10	9.7	0.0814	0.0791	-3	NA	± 20 %	AverageRF
1,2,4-Trichlorobenzene	10	11	0.751	0.809	8	NA	± 20 %	AverageRF
Hexachlorobutadiene	10	11	0.394	0.419	6	NA	± 20 %	AverageRF
Naphthalene	10	10	1.34	1.38	3	NA	± 20 %	AverageRF
1,2,3-Trichlorobenzene	10	10	0.623	0.653	5	NA	± 20 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1808923
Date Analyzed: 09/25/2018

Continuing Calibration Verification Summary
Volatile Organic Compounds

Calibration Type: Internal Standard
Analysis Method: 8260C

Calibration Date: 07/07/2018
Calibration ID: CAL15776
Analysis Lot: KWG1805294
Units: PPB

File ID: J:\MS46\DATA\092518\0925F016.D

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D		%Drift		Criteria	Curve Fit
Dichlorodifluoromethane	10	7.7	0.100	0.382	0.289	NA		-23	*	± 20	Linear
Chloromethane	10	8.7	0.100	0.311	0.269	-13		NA		± 20	AverageRF
Vinyl Chloride	10	10	0.100	0.346	0.353	2		NA		± 20	AverageRF
Bromomethane	10	13	0.100	0.198	0.267	35	*	NA		± 20	AverageRF
Chloroethane	10	12	0.100	0.203	0.249	23	*	NA		± 20	AverageRF
Trichlorofluoromethane	10	12	0.100	0.517	0.621	20		NA		± 20	AverageRF
1,1-Dichloroethene	10	13	.100	0.232	0.299	29	*	NA		± 20	AverageRF
Acetone	200	200	0.01	0.0365	0.0358	NA		-2		± 20	Quadratic
Carbon Disulfide	10	11	0.100	0.732	0.837	14		NA		± 20	AverageRF
Methylene Chloride	10	9.8	0.100	0.268	0.262	-2		NA		± 20	AverageRF
Methyl tert-Butyl Ether	20	18	0.100	0.581	0.509	-12		NA		± 20	AverageRF
trans-1,2-Dichloroethene	10	11	0.100	0.264	0.279	6		NA		± 20	AverageRF
1,1-Dichloroethane	10	9.8	.200	0.484	0.474	-2		NA		± 20	AverageRF
2,2-Dichloropropane	10	11	0.01	0.392	0.424	8		NA		± 20	AverageRF
cis-1,2-Dichloroethene	10	11	0.100	0.272	0.310	14		NA		± 20	AverageRF
2-Butanone (MEK)	200	180	0.01	0.0158	0.0146	-8		NA		± 20	AverageRF
Bromochloromethane	10	11	0.01	0.124	0.141	13		NA		± 20	AverageRF
Chloroform	10	11	0.200	0.507	0.557	10		NA		± 20	AverageRF
1,1,1-Trichloroethane (TCA)	10	11	.100	0.447	0.474	6		NA		± 20	AverageRF
Carbon Tetrachloride	10	11	0.100	0.406	0.462	14		NA		± 20	AverageRF
1,1-Dichloropropene	10	10	0.01	0.372	0.374	0		NA		± 20	AverageRF
Benzene	10	10	0.500	1.05	1.05	0		NA		± 20	AverageRF
1,2-Dichloroethane (EDC)	10	9.3	0.100	0.334	0.310	-7		NA		± 20	AverageRF
Trichloroethene (TCE)	10	10	0.200	0.281	0.285	2		NA		± 20	AverageRF
1,2-Dichloropropane	10	9.4	0.100	0.266	0.250	-6		NA		± 20	AverageRF
Dibromomethane	10	9.9	0.01	0.146	0.144	-1		NA		± 20	AverageRF
Bromodichloromethane	10	9.5	0.200	0.366	0.347	-5		NA		± 20	AverageRF
cis-1,3-Dichloropropene	10	9.8	0.200	0.415	0.406	-2		NA		± 20	AverageRF
4-Methyl-2-pentanone (MIBK)	200	160	0.01	0.0640	0.0521	-19		NA		± 20	AverageRF
Toluene	10	10	0.400	0.640	0.668	4		NA		± 20	AverageRF
trans-1,3-Dichloropropene	10	10	0.100	0.853	0.886	4		NA		± 20	AverageRF
1,1,2-Trichloroethane	10	10	.100	0.438	0.443	1		NA		± 20	AverageRF
Tetrachloroethene (PCE)	10	13	0.200	0.594	0.799	35	*	NA		± 20	AverageRF
2-Hexanone	200	180	0.015	0.0463	0.0408	-12		NA		± 20	AverageRF
1,3-Dichloropropane	10	9.8	0.01	0.906	0.885	-2		NA		± 20	AverageRF
Dibromochloromethane	10	11	0.100	0.662	0.743	12		NA		± 20	AverageRF
1,2-Dibromoethane (EDB)	10	11	0.100	0.493	0.528	7		NA		± 20	AverageRF
Chlorobenzene	10	12	0.500	1.69	1.97	17		NA		± 20	AverageRF
Ethylbenzene	10	12	0.100	0.910	1.05	15		NA		± 20	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1808923
Date Analyzed: 09/25/2018

Continuing Calibration Verification Summary
Volatile Organic Compounds

Calibration Type: Internal Standard
Analysis Method: 8260C

Calibration Date: 07/07/2018
Calibration ID: CAL15776
Analysis Lot: KWG1805294
Units: PPB

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D		%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	10	12	.01	0.641	0.767	20		NA	± 20	AverageRF
m,p-Xylenes	20	24	0.100	1.06	1.28	20		NA	± 20	AverageRF
o-Xylene	10	11	0.300	1.03	1.15	12		NA	± 20	AverageRF
Styrene	10	10	0.300	0.954	0.985	3		NA	± 20	AverageRF
Bromoform	10	12	0.100	0.371	0.433	17		NA	± 20	AverageRF
Isopropylbenzene	10	12	0.100	2.71	3.19	18		NA	± 20	AverageRF
1,1,2,2-Tetrachloroethane	10	8.1	.300	0.645	0.520	-19		NA	± 20	AverageRF
Bromobenzene	10	10	0.01	0.808	0.833	3		NA	± 20	AverageRF
n-Propylbenzene	10	9.7	0.01	3.85	3.75	-3		NA	± 20	AverageRF
1,2,3-Trichloropropane	10	8.7	0.01	0.198	0.173	-13		NA	± 20	AverageRF
2-Chlorotoluene	10	9.7	0.01	2.24	2.17	-3		NA	± 20	AverageRF
1,3,5-Trimethylbenzene	10	10	0.01	2.54	2.60	2		NA	± 20	AverageRF
4-Chlorotoluene	10	10	0.01	2.29	2.29	0		NA	± 20	AverageRF
tert-Butylbenzene	10	10	0.01	2.20	2.26	3		NA	± 20	AverageRF
1,2,4-Trimethylbenzene	10	10	0.01	2.45	2.56	4		NA	± 20	AverageRF
sec-Butylbenzene	10	10	0.01	3.19	3.24	2		NA	± 20	AverageRF
4-Isopropyltoluene	10	11	0.01	2.54	2.68	6		NA	± 20	AverageRF
1,3-Dichlorobenzene	10	11	0.600	1.49	1.61	8		NA	± 20	AverageRF
1,4-Dichlorobenzene	10	10	0.500	1.51	1.57	4		NA	± 20	AverageRF
n-Butylbenzene	10	9.8	0.01	2.34	2.29	-2		NA	± 20	AverageRF
1,2-Dichlorobenzene	10	10	0.400	1.33	1.36	2		NA	± 20	AverageRF
1,2-Dibromo-3-chloropropane	10	9.5	0.025	0.0814	0.0769	-5		NA	± 20	AverageRF
1,2,4-Trichlorobenzene	10	11	0.200	0.751	0.806	7		NA	± 20	AverageRF
Hexachlorobutadiene	10	13	0.01	0.394	0.496	26	*	NA	± 20	AverageRF
Naphthalene	10	8.9	0.01	1.34	1.20	-11		NA	± 20	AverageRF
1,2,3-Trichlorobenzene	10	11	0.01	0.623	0.685	10		NA	± 20	AverageRF
Dibromofluoromethane	10	11	0.01	0.258	0.277	7		NA	± 20	AverageRF
1,2-Dichloroethane-d4	10	9.1	0.01	0.289	0.263	-9		NA	± 20	AverageRF
Toluene-d8	10	10	0.01	0.931	0.976	5		NA	± 20	AverageRF
4-Bromofluorobenzene	10	11	0.01	0.777	0.857	10		NA	± 20	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1808923
Date Analyzed: 09/26/2018

Continuing Calibration Verification Summary
Volatile Organic Compounds

Calibration Type: Internal Standard
Analysis Method: 8260C

Calibration Date: 07/07/2018
Calibration ID: CAL15776
Analysis Lot: KWG1805294
Units: PPB

File ID: J:\MS46\DATA\092518\0925F038.D

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Dichlorodifluoromethane	10	5.8	0.100	0.382	0.218	NA	-42	± 50 %	Linear
Chloromethane	10	7.9	0.100	0.311	0.245	-21	NA	± 50 %	AverageRF
Vinyl Chloride	10	9.0	0.100	0.346	0.311	-10	NA	± 50 %	AverageRF
Bromomethane	10	13	0.100	0.198	0.251	26	NA	± 50 %	AverageRF
Chloroethane	10	10	0.100	0.203	0.208	3	NA	± 50 %	AverageRF
Trichlorofluoromethane	10	10	0.100	0.517	0.517	0	NA	± 50 %	AverageRF
1,1-Dichloroethene	10	9.2	.100	0.232	0.213	-8	NA	± 50 %	AverageRF
Acetone	200	190	0.01	0.0365	0.0346	NA	-6	± 50 %	Quadratic
Carbon Disulfide	10	8.1	0.100	0.732	0.589	-20	NA	± 50 %	AverageRF
Methylene Chloride	10	9.5	0.100	0.268	0.254	-5	NA	± 50 %	AverageRF
Methyl tert-Butyl Ether	20	19	0.100	0.581	0.538	-7	NA	± 50 %	AverageRF
trans-1,2-Dichloroethene	10	9.3	0.100	0.264	0.245	-7	NA	± 50 %	AverageRF
1,1-Dichloroethane	10	8.5	.200	0.484	0.409	-16	NA	± 50 %	AverageRF
2,2-Dichloropropane	10	8.3	0.01	0.392	0.324	-17	NA	± 50 %	AverageRF
cis-1,2-Dichloroethene	10	10	0.100	0.272	0.277	2	NA	± 50 %	AverageRF
2-Butanone (MEK)	200	220	0.01	0.0158	0.0171	8	NA	± 50 %	AverageRF
Bromochloromethane	10	11	0.01	0.124	0.139	12	NA	± 50 %	AverageRF
Chloroform	10	9.8	0.200	0.507	0.498	-2	NA	± 50 %	AverageRF
1,1,1-Trichloroethane (TCA)	10	9.1	.100	0.447	0.408	-9	NA	± 50 %	AverageRF
Carbon Tetrachloride	10	9.4	0.100	0.406	0.382	-6	NA	± 50 %	AverageRF
1,1-Dichloropropene	10	8.7	0.01	0.372	0.325	-13	NA	± 50 %	AverageRF
Benzene	10	9.4	0.500	1.05	0.989	-6	NA	± 50 %	AverageRF
1,2-Dichloroethane (EDC)	10	9.5	0.100	0.334	0.318	-5	NA	± 50 %	AverageRF
Trichloroethene (TCE)	10	9.8	0.200	0.281	0.274	-2	NA	± 50 %	AverageRF
1,2-Dichloropropane	10	9.1	0.100	0.266	0.242	-9	NA	± 50 %	AverageRF
Dibromomethane	10	10	0.01	0.146	0.150	3	NA	± 50 %	AverageRF
Bromodichloromethane	10	9.7	0.200	0.366	0.355	-3	NA	± 50 %	AverageRF
cis-1,3-Dichloropropene	10	9.4	0.200	0.415	0.390	-6	NA	± 50 %	AverageRF
4-Methyl-2-pentanone (MIBK)	200	190	0.01	0.0640	0.0603	-6	NA	± 50 %	AverageRF
Toluene	10	10	0.400	0.640	0.643	0	NA	± 50 %	AverageRF
trans-1,3-Dichloropropene	10	10	0.100	0.853	0.853	0	NA	± 50 %	AverageRF
1,1,2-Trichloroethane	10	10	.100	0.438	0.459	5	NA	± 50 %	AverageRF
Tetrachloroethene (PCE)	10	11	0.200	0.594	0.674	13	NA	± 50 %	AverageRF
2-Hexanone	200	200	0.015	0.0463	0.0472	2	NA	± 50 %	AverageRF
1,3-Dichloropropane	10	10	0.01	0.906	0.911	1	NA	± 50 %	AverageRF
Dibromochloromethane	10	11	0.100	0.662	0.755	14	NA	± 50 %	AverageRF
1,2-Dibromoethane (EDB)	10	11	0.100	0.493	0.543	10	NA	± 50 %	AverageRF
Chlorobenzene	10	11	0.500	1.69	1.85	9	NA	± 50 %	AverageRF
Ethylbenzene	10	10	0.100	0.910	0.949	4	NA	± 50 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305

Service Request: K1808923
Date Analyzed: 09/26/2018

Continuing Calibration Verification Summary
Volatile Organic Compounds

Calibration Type: Internal Standard
Analysis Method: 8260C

Calibration Date: 07/07/2018
Calibration ID: CAL15776
Analysis Lot: KWG1805294
Units: PPB

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	10	12	.01	0.641	0.749	17	NA	± 50 %	AverageRF
m,p-Xylenes	20	22	0.100	1.06	1.15	8	NA	± 50 %	AverageRF
o-Xylene	10	10	0.300	1.03	1.07	4	NA	± 50 %	AverageRF
Styrene	10	9.3	0.300	0.954	0.890	-7	NA	± 50 %	AverageRF
Bromoform	10	13	0.100	0.371	0.471	27	NA	± 50 %	AverageRF
Isopropylbenzene	10	10	0.100	2.71	2.80	3	NA	± 50 %	AverageRF
1,1,2,2-Tetrachloroethane	10	8.3	.300	0.645	0.536	-17	NA	± 50 %	AverageRF
Bromobenzene	10	11	0.01	0.808	0.854	6	NA	± 50 %	AverageRF
n-Propylbenzene	10	8.7	0.01	3.85	3.36	-13	NA	± 50 %	AverageRF
1,2,3-Trichloropropane	10	9.9	0.01	0.198	0.196	-1	NA	± 50 %	AverageRF
2-Chlorotoluene	10	9.1	0.01	2.24	2.03	-9	NA	± 50 %	AverageRF
1,3,5-Trimethylbenzene	10	9.4	0.01	2.54	2.39	-6	NA	± 50 %	AverageRF
4-Chlorotoluene	10	9.4	0.01	2.29	2.16	-6	NA	± 50 %	AverageRF
tert-Butylbenzene	10	9.3	0.01	2.20	2.04	-7	NA	± 50 %	AverageRF
1,2,4-Trimethylbenzene	10	9.7	0.01	2.45	2.37	-4	NA	± 50 %	AverageRF
sec-Butylbenzene	10	9.3	0.01	3.19	2.96	-7	NA	± 50 %	AverageRF
4-Isopropyltoluene	10	9.5	0.01	2.54	2.40	-5	NA	± 50 %	AverageRF
1,3-Dichlorobenzene	10	10	0.600	1.49	1.54	3	NA	± 50 %	AverageRF
1,4-Dichlorobenzene	10	10	0.500	1.51	1.56	3	NA	± 50 %	AverageRF
n-Butylbenzene	10	8.4	0.01	2.34	1.97	-16	NA	± 50 %	AverageRF
1,2-Dichlorobenzene	10	10	0.400	1.33	1.40	5	NA	± 50 %	AverageRF
1,2-Dibromo-3-chloropropane	10	11	0.025	0.0814	0.0930	14	NA	± 50 %	AverageRF
1,2,4-Trichlorobenzene	10	11	0.200	0.751	0.796	6	NA	± 50 %	AverageRF
Hexachlorobutadiene	10	11	0.01	0.394	0.434	10	NA	± 50 %	AverageRF
Naphthalene	10	9.6	0.01	1.34	1.29	-4	NA	± 50 %	AverageRF
1,2,3-Trichlorobenzene	10	11	0.01	0.623	0.682	9	NA	± 50 %	AverageRF
Dibromofluoromethane	10	11	0.01	0.258	0.272	5	NA	± 50 %	AverageRF
1,2-Dichloroethane-d4	10	9.4	0.01	0.289	0.272	-6	NA	± 50 %	AverageRF
Toluene-d8	10	11	0.01	0.931	1.01	8	NA	± 50 %	AverageRF
4-Bromofluorobenzene	10	11	0.01	0.777	0.849	9	NA	± 50 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: EA Engineering, Science, and Technology **Service Request:** K1808923
Project: JBLM/6304305

Analysis Run Log
Volatile Organic Compounds

Analysis Method: 8260C **Analysis Lot:** KWG1805294
Instrument ID: MS46

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0925F014.D	GC/MS Tuning - Bromofluorobenzene	KWG1805294-1	9/25/2018	16:56		9/25/2018	17:13
0925F016.D	Continuing Calibration Verification	KWG1805294-2	9/25/2018	18:10		9/25/2018	18:27
0925F017.D	Lab Control Sample	KWG1805293-3	9/25/2018	18:36		9/25/2018	18:53
0925F018.D	FTP-1-20180912MS	KWG1805293-1	9/25/2018	19:02		9/25/2018	19:19
0925F019.D	FTP-1-20180912DMS	KWG1805293-2	9/25/2018	19:29		9/25/2018	19:46
0925F022.D	Method Blank	KWG1805293-4	9/25/2018	20:48		9/25/2018	21:05
0925F023.D	TVR-TB-001-20180912	K1808923-009	9/25/2018	21:14		9/25/2018	21:31
0925F024.D	FTP-1-20180912	K1808923-001	9/25/2018	21:41		9/25/2018	21:58
0925F025.D	FTP-1-20180912	K1808923-001	9/25/2018	22:07		9/25/2018	22:24
0925F026.D	TVR-815-2-20180913	K1808923-005	9/25/2018	22:33		9/25/2018	22:50
0925F027.D	TVR-MTS-1-20180913	K1808923-006	9/25/2018	22:59		9/25/2018	23:16
0925F028.D	TVR-MTS-2-20180913	K1808923-007	9/25/2018	23:26		9/25/2018	23:43
0925F029.D	TVR-MTS-4-20180913	K1808923-008	9/25/2018	23:52		9/26/2018	00:09
0925F030.D	TVR-3-20180913	K1808923-010	9/26/2018	00:18		9/26/2018	00:35
0925F031.D	TVR-3A-20180913	K1808923-011	9/26/2018	00:45		9/26/2018	01:02
0925F032.D	TVR-5-20180913	K1808923-012	9/26/2018	01:11		9/26/2018	01:28
0925F033.D	TVR-6-20180913	K1808923-013	9/26/2018	01:38		9/26/2018	01:55
0925F034.D	TVR-7-20180913	K1808923-014	9/26/2018	02:04		9/26/2018	02:21
0925F035.D	TVR-POMONA-20180913	K1808923-015	9/26/2018	02:30		9/26/2018	02:47
0925F036.D	TVR-PAIC-20180913	K1808923-016	9/26/2018	02:57		9/26/2018	03:14
0925F037.D	TVR-1-20180913	K1808923-017	9/26/2018	03:23		9/26/2018	03:40
0925F038.D	Continuing Calibration Verification	KWG1805294-3	9/26/2018	03:49		9/26/2018	04:06

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

QA/QC Results

Client: EA Engineering, Science, and Technology
Project: JBLM/6304305
Sample Matrix: Ground water

Service Request: K1808923
Date Extracted: 09/25/2018

Extraction Prep Log
Volatile Organic Compounds

Extraction Method: EPA 5030B
Analysis Method: 8260C

Extraction Lot: KWG1805293
Level: Low

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Volume	% Solids	Note
FTP-1-20180912	K1808923-001	09/12/18	09/15/18	10ml	10ml	NA	
FTP-1-20180912DL	K1808923-001	09/12/18	09/15/18	10ml	10ml	NA	
TVR-815-2-20180913	K1808923-005	09/13/18	09/15/18	10ml	10ml	NA	
TVR-MTS-1-20180913	K1808923-006	09/13/18	09/15/18	10ml	10ml	NA	
TVR-MTS-2-20180913	K1808923-007	09/13/18	09/15/18	10ml	10ml	NA	
TVR-MTS-4-20180913	K1808923-008	09/13/18	09/15/18	10ml	10ml	NA	
TVR-TB-001-20180912	K1808923-009	09/12/18	09/15/18	10ml	10ml	NA	
TVR-3-20180913	K1808923-010	09/13/18	09/15/18	10ml	10ml	NA	
TVR-3A-20180913	K1808923-011	09/13/18	09/15/18	10ml	10ml	NA	
TVR-5-20180913	K1808923-012	09/13/18	09/15/18	10ml	10ml	NA	
TVR-6-20180913	K1808923-013	09/13/18	09/15/18	10ml	10ml	NA	
TVR-7-20180913	K1808923-014	09/13/18	09/15/18	10ml	10ml	NA	
TVR-POMONA-20180913	K1808923-015	09/13/18	09/15/18	10ml	10ml	NA	
TVR-PAIC-20180913	K1808923-016	09/13/18	09/15/18	10ml	10ml	NA	
TVR-1-20180913	K1808923-017	09/13/18	09/15/18	10ml	10ml	NA	
Method Blank	KWG1805293-4	NA	NA	10ml	10ml	NA	
FTP-1-20180912MS	KWG1805293-1	09/12/18	09/15/18	10ml	10ml	NA	
FTP-1-20180912DMS	KWG1805293-2	09/12/18	09/15/18	10ml	10ml	NA	
Lab Control Sample	KWG1805293-3	NA	NA	10ml	10ml	NA	

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

Semi-Volatile Organic Compounds by GC/MS

ALS Environmental—Kelso Laboratory
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Analytical Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/12/18 15:15
Sample Matrix:	Ground Water	**Date Received:**	09/15/18 09:20
Sample Name:	FTP-1-20180912	**Units:**	ug/L
Lab Code:	K1808923-001	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3520C

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,2,4-Trichlorobenzene	ND U	10	0.50	0.36	1	10/02/18 20:26	9/17/18	
1,2-Dichlorobenzene	**0.60 J**	10	0.50	0.43	1	10/02/18 20:26	9/17/18	
1,2-Diphenylhydrazine	ND U	10	0.51	0.51	1	10/02/18 20:26	9/17/18	
1,3-Dichlorobenzene	ND U	10	0.50	0.35	1	10/02/18 20:26	9/17/18	
1,4-Dichlorobenzene	ND U	10	0.50	0.32	1	10/02/18 20:26	9/17/18	
2,4,5-Trichlorophenol	ND U	10	0.50	0.38	1	10/02/18 20:26	9/17/18	
2,4,6-Trichlorophenol	ND U	10	1.0	0.20	1	10/02/18 20:26	9/17/18	
2,4-Dichlorophenol	ND U	10	0.50	0.30	1	10/02/18 20:26	9/17/18	
2,4-Dimethylphenol	ND U	10	2.0	0.26	1	10/02/18 20:26	9/17/18	
2,4-Dinitrophenol	ND U	25	25	2.2	1	10/02/18 20:26	9/17/18	
2,4-Dinitrotoluene	ND U	10	1.0	0.27	1	10/02/18 20:26	9/17/18	
2,6-Dinitrotoluene	ND U	10	0.50	0.35	1	10/02/18 20:26	9/17/18	
2-Chloronaphthalene	ND U	10	0.50	0.29	1	10/02/18 20:26	9/17/18	
2-Chlorophenol	ND U	10	0.50	0.31	1	10/02/18 20:26	9/17/18	
2-Methyl-4,6-dinitrophenol	ND U	25	10	2.1	1	10/02/18 20:26	9/17/18	
2-Methylnaphthalene	**110**	10	0.50	0.24	1	10/02/18 20:26	9/17/18	
2-Methylphenol	ND U	10	0.50	0.33	1	10/02/18 20:26	9/17/18	
2-Nitroaniline	ND U	25	0.50	0.34	1	10/02/18 20:26	9/17/18	
2-Nitrophenol	ND U	10	0.50	0.37	1	10/02/18 20:26	9/17/18	
3,3'-Dichlorobenzidine	ND U	25	2.0	0.27	1	10/02/18 20:26	9/17/18	
3-Nitroaniline	ND U	25	3.3	3.3	1	10/02/18 20:26	9/17/18	
4-Bromophenyl Phenyl Ether	ND U	10	0.50	0.27	1	10/02/18 20:26	9/17/18	
4-Chloro-3-methylphenol	ND U	10	0.50	0.49	1	10/02/18 20:26	9/17/18	
4-Chloroaniline	ND U	10	2.0	0.38	1	10/02/18 20:26	9/17/18	
4-Chlorophenyl Phenyl Ether	ND U	10	0.50	0.28	1	10/02/18 20:26	9/17/18	
4-Methylphenol	ND U	10	0.50	0.48	1	10/02/18 20:26	9/17/18	*
4-Nitroaniline	ND U	25	4.0	4.0	1	10/02/18 20:26	9/17/18	
4-Nitrophenol	ND U	25	10	1.9	1	10/02/18 20:26	9/17/18	
Acenaphthene	**1.7 J**	10	0.50	0.28	1	10/02/18 20:26	9/17/18	
Acenaphthylene	ND Ui	10	0.71	0.71	1	10/02/18 20:26	9/17/18	
Anthracene	ND U	10	0.61	0.61	1	10/02/18 20:26	9/17/18	
Benz(a)anthracene	ND U	10	0.59	0.59	1	10/02/18 20:26	9/17/18	
Benzo(a)pyrene	ND U	10	1.0	0.65	1	10/02/18 20:26	9/17/18	
Benzo(b)fluoranthene	ND U	10	0.58	0.58	1	10/02/18 20:26	9/17/18	
Benzo(g,h,i)perylene	ND U	10	0.81	0.81	1	10/02/18 20:26	9/17/18	
Benzo(k)fluoranthene	ND U	10	0.83	0.83	1	10/02/18 20:26	9/17/18	
Benzoic Acid	**24 J**	25	25	5.8	1	10/02/18 20:26	9/17/18	
Benzyl Alcohol	ND U	10	0.50	0.38	1	10/02/18 20:26	9/17/18	
Bis(2-chloroethoxy)methane	ND U	10	0.50	0.28	1	10/02/18 20:26	9/17/18	
Bis(2-chloroethyl) Ether	ND U	10	0.50	0.33	1	10/02/18 20:26	9/17/18	
Bis(2-ethylhexyl) Phthalate	ND U	10	1.9	1.9	1	10/02/18 20:26	9/17/18	
Butyl Benzyl Phthalate	ND U	10	0.50	0.47	1	10/02/18 20:26	9/17/18	
Carbazole	**5.3 J**	10	0.50	0.36	1	10/02/18 20:26	9/17/18	

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Analytical Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/12/18 15:15
Sample Matrix:	Ground Water	**Date Received:**	09/15/18 09:20
Sample Name:	FTP-1-20180912	**Units:**	ug/L
Lab Code:	K1808923-001	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3520C

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Date Extracted	Q
Chrysene	ND	U	10	0.79	0.79	1	10/02/18 20:26	9/17/18	
Dibenz(a,h)anthracene	ND	U	10	0.75	0.75	1	10/02/18 20:26	9/17/18	
Dibenzofuran	**3.9**	**J**	10	0.50	0.33	1	10/02/18 20:26	9/17/18	*
Diethyl Phthalate	**1.4**	**J**	10	0.50	0.29	1	10/02/18 20:26	9/17/18	
Dimethyl Phthalate	ND	U	10	2.0	0.25	1	10/02/18 20:26	9/17/18	
Di-n-butyl Phthalate	ND	U	10	0.65	0.65	1	10/02/18 20:26	9/17/18	*
Di-n-octyl Phthalate	ND	U	10	0.63	0.63	1	10/02/18 20:26	9/17/18	
Fluoranthene	ND	U	10	0.65	0.65	1	10/02/18 20:26	9/17/18	
Fluorene	**5.1**	**J**	10	0.50	0.32	1	10/02/18 20:26	9/17/18	
Hexachlorobenzene	ND	U	10	0.63	0.63	1	10/02/18 20:26	9/17/18	
Hexachlorobutadiene	ND	U	10	0.50	0.29	1	10/02/18 20:26	9/17/18	
Hexachloroethane	ND	U	10	2.0	0.29	1	10/02/18 20:26	9/17/18	
Indeno(1,2,3-cd)pyrene	ND	U	10	0.68	0.68	1	10/02/18 20:26	9/17/18	
Isophorone	ND	U	10	1.0	0.25	1	10/02/18 20:26	9/17/18	
Naphthalene	**48**		10	0.50	0.37	1	10/02/18 20:26	9/17/18	
Nitrobenzene	ND	U	10	0.57	0.57	1	10/02/18 20:26	9/17/18	
N-Nitrosodimethylamine	ND	U	25	5.0	0.48	1	10/02/18 20:26	9/17/18	
N-Nitrosodi-n-propylamine	ND	U	10	2.0	0.50	1	10/02/18 20:26	9/17/18	
N-Nitrosodiphenylamine	**0.65**	**J**	10	0.50	0.48	1	10/02/18 20:26	9/17/18	*
Pentachlorophenol	ND	U	25	5.0	2.4	1	10/02/18 20:26	9/17/18	
Phenanthrene	**4.6**	**J**	10	0.50	0.48	1	10/02/18 20:26	9/17/18	
Phenol	**0.35**	**J**	10	0.50	0.32	1	10/02/18 20:26	9/17/18	
Pyrene	ND	U	10	0.73	0.73	1	10/02/18 20:26	9/17/18	
2,2'-Oxybis(1-chloropropane)	ND	U	10	0.50	0.31	1	10/02/18 20:26	9/17/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	75	43 - 140	10/02/18 20:26	
2-Fluorobiphenyl	72	44 - 119	10/02/18 20:26	
2-Fluorophenol	72	19 - 119	10/02/18 20:26	
Nitrobenzene-d5	87	44 - 120	10/02/18 20:26	
Phenol-d6	75	38 - 107	10/02/18 20:26	
Terphenyl-d14	55	50 - 134	10/02/18 20:26	

Analytical Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ1812935-04	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3520C

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,2,4-Trichlorobenzene	ND U	9.4	0.50	0.36	1	10/02/18 17:42	9/17/18	
1,2-Dichlorobenzene	ND U	9.4	0.50	0.43	1	10/02/18 17:42	9/17/18	
1,2-Diphenylhydrazine	ND U	9.4	0.51	0.51	1	10/02/18 17:42	9/17/18	
1,3-Dichlorobenzene	ND U	9.4	0.50	0.35	1	10/02/18 17:42	9/17/18	
1,4-Dichlorobenzene	ND U	9.4	0.50	0.32	1	10/02/18 17:42	9/17/18	
2,4,5-Trichlorophenol	ND U	9.4	0.50	0.38	1	10/02/18 17:42	9/17/18	
2,4,6-Trichlorophenol	ND U	9.4	1.0	0.20	1	10/02/18 17:42	9/17/18	
2,4-Dichlorophenol	ND U	9.4	0.50	0.30	1	10/02/18 17:42	9/17/18	
2,4-Dimethylphenol	ND U	9.4	2.0	0.26	1	10/02/18 17:42	9/17/18	
2,4-Dinitrophenol	ND U	25	25	2.2	1	10/02/18 17:42	9/17/18	
2,4-Dinitrotoluene	ND U	9.4	1.0	0.27	1	10/02/18 17:42	9/17/18	
2,6-Dinitrotoluene	ND U	9.4	0.50	0.35	1	10/02/18 17:42	9/17/18	
2-Chloronaphthalene	ND U	9.4	0.50	0.29	1	10/02/18 17:42	9/17/18	
2-Chlorophenol	ND U	9.4	0.50	0.31	1	10/02/18 17:42	9/17/18	
2-Methyl-4,6-dinitrophenol	ND U	24	10	2.1	1	10/02/18 17:42	9/17/18	
2-Methylnaphthalene	ND U	9.4	0.50	0.24	1	10/02/18 17:42	9/17/18	
2-Methylphenol	ND U	9.4	0.50	0.33	1	10/02/18 17:42	9/17/18	
2-Nitroaniline	ND U	24	0.50	0.34	1	10/02/18 17:42	9/17/18	
2-Nitrophenol	ND U	9.4	0.50	0.37	1	10/02/18 17:42	9/17/18	
3,3'-Dichlorobenzidine	ND U	24	2.0	0.27	1	10/02/18 17:42	9/17/18	
3-Nitroaniline	ND U	24	3.3	3.3	1	10/02/18 17:42	9/17/18	
4-Bromophenyl Phenyl Ether	ND U	9.4	0.50	0.27	1	10/02/18 17:42	9/17/18	
4-Chloro-3-methylphenol	ND U	9.4	0.50	0.49	1	10/02/18 17:42	9/17/18	
4-Chloroaniline	ND U	9.4	2.0	0.38	1	10/02/18 17:42	9/17/18	
4-Chlorophenyl Phenyl Ether	ND U	9.4	0.50	0.28	1	10/02/18 17:42	9/17/18	
4-Methylphenol	ND U	9.4	0.50	0.48	1	10/02/18 17:42	9/17/18	
4-Nitroaniline	ND U	24	4.0	4.0	1	10/02/18 17:42	9/17/18	
4-Nitrophenol	ND U	24	10	1.9	1	10/02/18 17:42	9/17/18	
Acenaphthene	ND U	9.4	0.50	0.28	1	10/02/18 17:42	9/17/18	
Acenaphthylene	ND U	9.4	0.50	0.24	1	10/02/18 17:42	9/17/18	
Anthracene	ND U	9.4	0.61	0.61	1	10/02/18 17:42	9/17/18	
Benz(a)anthracene	ND U	9.4	0.59	0.59	1	10/02/18 17:42	9/17/18	
Benzo(a)pyrene	ND U	9.4	1.0	0.65	1	10/02/18 17:42	9/17/18	
Benzo(b)fluoranthene	ND U	9.4	0.58	0.58	1	10/02/18 17:42	9/17/18	
Benzo(g,h,i)perylene	ND U	9.4	0.81	0.81	1	10/02/18 17:42	9/17/18	
Benzo(k)fluoranthene	ND U	9.4	0.83	0.83	1	10/02/18 17:42	9/17/18	
Benzoic Acid	ND U	25	25	5.8	1	10/02/18 17:42	9/17/18	
Benzyl Alcohol	ND U	9.4	0.50	0.38	1	10/02/18 17:42	9/17/18	
Bis(2-chloroethoxy)methane	ND U	9.4	0.50	0.28	1	10/02/18 17:42	9/17/18	
Bis(2-chloroethyl) Ether	ND U	9.4	0.50	0.33	1	10/02/18 17:42	9/17/18	
Bis(2-ethylhexyl) Phthalate	ND U	9.4	1.9	1.9	1	10/02/18 17:42	9/17/18	
Butyl Benzyl Phthalate	ND U	9.4	0.50	0.47	1	10/02/18 17:42	9/17/18	
Carbazole	ND U	9.4	0.50	0.36	1	10/02/18 17:42	9/17/18	

Analytical Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ1812935-04	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3520C

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Date Extracted	Q
Chrysene	ND U	9.4	0.79	0.79	1	10/02/18 17:42	9/17/18	
Dibenz(a,h)anthracene	ND U	9.4	0.75	0.75	1	10/02/18 17:42	9/17/18	
Dibenzofuran	ND U	9.4	0.50	0.33	1	10/02/18 17:42	9/17/18	
Diethyl Phthalate	**1.0 J**	9.4	0.50	0.29	1	10/02/18 17:42	9/17/18	
Dimethyl Phthalate	ND U	9.4	2.0	0.25	1	10/02/18 17:42	9/17/18	
Di-n-butyl Phthalate	ND U	9.4	0.65	0.65	1	10/02/18 17:42	9/17/18	
Di-n-octyl Phthalate	ND U	9.4	0.63	0.63	1	10/02/18 17:42	9/17/18	
Fluoranthene	ND U	9.4	0.65	0.65	1	10/02/18 17:42	9/17/18	
Fluorene	ND U	9.4	0.50	0.32	1	10/02/18 17:42	9/17/18	
Hexachlorobenzene	ND U	9.4	0.63	0.63	1	10/02/18 17:42	9/17/18	
Hexachlorobutadiene	ND U	9.4	0.50	0.29	1	10/02/18 17:42	9/17/18	
Hexachloroethane	ND U	9.4	2.0	0.29	1	10/02/18 17:42	9/17/18	
Indeno(1,2,3-cd)pyrene	ND U	9.4	0.68	0.68	1	10/02/18 17:42	9/17/18	
Isophorone	ND U	9.4	1.0	0.25	1	10/02/18 17:42	9/17/18	
Naphthalene	ND U	9.4	0.50	0.37	1	10/02/18 17:42	9/17/18	
Nitrobenzene	ND U	9.4	0.57	0.57	1	10/02/18 17:42	9/17/18	
N-Nitrosodimethylamine	ND U	24	5.0	0.48	1	09/21/18 16:15	9/17/18	
N-Nitrosodi-n-propylamine	ND U	9.4	2.0	0.50	1	10/02/18 17:42	9/17/18	
N-Nitrosodiphenylamine	ND U	9.4	0.50	0.48	1	10/02/18 17:42	9/17/18	
Pentachlorophenol	ND U	24	5.0	2.4	1	10/02/18 17:42	9/17/18	
Phenanthrene	ND U	9.4	0.50	0.48	1	10/02/18 17:42	9/17/18	
Phenol	ND U	9.4	0.50	0.32	1	10/02/18 17:42	9/17/18	
Pyrene	ND U	9.4	0.73	0.73	1	10/02/18 17:42	9/17/18	
2,2'-Oxybis(1-chloropropane)	ND U	9.4	0.50	0.31	1	10/02/18 17:42	9/17/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	62	43 - 140	10/02/18 17:42	
2-Fluorobiphenyl	66	44 - 119	10/02/18 17:42	
2-Fluorophenol	64	19 - 119	10/02/18 17:42	
Nitrobenzene-d5	81	44 - 120	10/02/18 17:42	
Phenol-d6	64	38 - 107	10/02/18 17:42	
Terphenyl-d14	77	50 - 134	10/02/18 17:42	

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM/6304305
Sample Matrix: Ground Water

SURROGATE RECOVERY SUMMARY
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Extraction Method: EPA 3520C

Sample Name	Lab Code	2,4,6-Tribromophenol 43-140	2-Fluorobiphenyl 44-119	2-Fluorophenol 19-119
FTP-1-20180912	K1808923-001	75	72	72
Method Blank	KQ1812935-04	62	66	64
Lab Control Sample	KQ1812935-03	71	58	55
FTP-1-20180912	KQ1812935-01	81	83	73
FTP-1-20180912	KQ1812935-02	84	81	72

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923

Project: JBLM/6304305

Sample Matrix: Ground Water

SURROGATE RECOVERY SUMMARY
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D

Extraction Method: EPA 3520C

		Nitrobenzene-d5	Phenol-d6	Terphenyl-d14
Sample Name	**Lab Code**	**44-120**	**38-107**	**50-134**
FTP-1-20180912	K1808923-001	87	75	55
Method Blank	KQ1812935-04	81	64	77
Lab Control Sample	KQ1812935-03	70	59	67
FTP-1-20180912	KQ1812935-01	86	72	66
FTP-1-20180912	KQ1812935-02	91	79	52

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QA/QC Report

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:**K1808923
Project: JBLM/6304305 **Date Analyzed:**09/21/18 15:34

Internal Standard Area and RT SUMMARY
Semivolatile Organic Compounds by GC/MS

File ID: J:\MS07\DATA\092118\0921F012.D\ **Lab Code:**KQ1813296-02
Instrument ID: K-MS-07 **Analysis Lot:**607858
Analysis Method: 8270D **Signal ID:**1

		1,4-Dichlorobenzene-d4		Acenaphthene-d10		Chrysene-d12	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	Result ==>	60,571	9.45	105,110	14.40	128,045	21.29
	Upper Limit ==>	121,142	9.62	210,220	14.57	256,090	21.46
	Lower Limit ==>	30,286	9.28	52,555	14.23	64,023	21.12
Associated Analyses							
Continuing Calibration Verification	KQ1813296-02	35759	9.43	78214	14.39	91492	21.27
Method Blank	KQ1812935-04	38384	9.42	74291	14.38	86017	21.26
Lab Control Sample	KQ1812935-03	39269	9.42	83635	14.38	97393	21.28

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:**K1808923
Project: JBLM/6304305 **Date Analyzed:**09/21/18 15:34

Internal Standard Area and RT SUMMARY
Semivolatile Organic Compounds by GC/MS

File ID: J:\MS07\DATA\092118\0921F012.D\ **Lab Code:**KQ1813296-02
Instrument ID: K-MS-07 **Analysis Lot:**607858
Analysis Method: 8270D **Signal ID:**1

		Naphthalene-d8		Perylene-d12		Phenanthrene-d10	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	Result ==>	232,031	11.54	156,036	24.52	145,284	16.81
	Upper Limit ==>	464,062	11.71	312,072	24.69	290,568	16.98
	Lower Limit ==>	116,016	11.37	78,018	24.35	72,642	16.64
Associated Analyses							
Continuing Calibration Verification	KQ1813296-02	146371	11.52	120306	24.50	98308	16.80
Method Blank	KQ1812935-04	138032	11.51	104753	24.50	112421	16.79
Lab Control Sample	KQ1812935-03	146323	11.52	109849	24.50	104554	16.81

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QA/QC Report

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:**K1808923
Project: JBLM/6304305 **Date Analyzed:**10/02/18 16:22

Internal Standard Area and RT SUMMARY
Semivolatile Organic Compounds by GC/MS

File ID: J:\MS07\DATA\100218\1002F002.D\ **Lab Code:**KQ1813987-02
Instrument ID: K-MS-07 **Analysis Lot:**609329
Analysis Method: 8270D **Signal ID:**1

		1,4-Dichlorobenzene-d4		Acenaphthene-d10		Chrysene-d12	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	Result ==>	60,571	9.45	105,110	14.40	128,045	21.29
	Upper Limit ==>	121,142	9.62	210,220	14.57	256,090	21.46
	Lower Limit ==>	30,286	9.28	52,555	14.23	64,023	21.12
Associated Analyses							
Continuing Calibration Verification	KQ1813987-02	43284	9.42	99670	14.39	127452	21.29
Method Blank	KQ1812935-04	44676	9.42	100314	14.39	108426	21.26
Lab Control Sample	KQ1812935-03	39102	9.42	88303	14.39	116507	21.28
FTP-1-20180912MS	KQ1812935-01	46404	9.43	72594	14.39	133176	21.29
FTP-1-20180912DMS	KQ1812935-02	41279	9.42	75875	14.38	128324	21.29
FTP-1-20180912	K1808923-001	41894	9.42	83707	14.39	124956	21.28

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QA/QC Report

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:**K1808923
Project: JBLM/6304305 **Date Analyzed:**10/02/18 16:22

Internal Standard Area and RT SUMMARY
Semivolatile Organic Compounds by GC/MS

File ID: J:\MS07\DATA\100218\1002F002.D\ **Lab Code:**KQ1813987-02
Instrument ID: K-MS-07 **Analysis Lot:**609329
Analysis Method: 8270D **Signal ID:**1

		Naphthalene-d8		Perylene-d12		Phenanthrene-d10	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	Result ==>	232,031	11.54	156,036	24.52	145,284	16.81
	Upper Limit ==>	464,062	11.71	312,072	24.69	290,568	16.98
	Lower Limit ==>	116,016	11.37	78,018	24.35	72,642	16.64
Associated Analyses							
Continuing Calibration Verification	KQ1813987-02	178862	11.52	149087	24.51	132602	16.80
Method Blank	KQ1812935-04	168088	11.52	137785	24.50	161397	16.80
Lab Control Sample	KQ1812935-03	147722	11.52	123697	24.50	131198	16.81
FTP-1-20180912MS	KQ1812935-01	170757	11.53	138834	24.53	112492	16.80
FTP-1-20180912DMS	KQ1812935-02	164691	11.52	136806	24.53	108212	16.81
FTP-1-20180912	K1808923-001	162192	11.52	137857	24.52	116368	16.81

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QA/QC Report

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM/6304305 **Date Analyzed:** 10/03/18 08:41

Internal Standard Area and RT SUMMARY
Semivolatile Organic Compounds by GC/MS

File ID: J:\MS07\DATA\100218\1002F011.D\ **Lab Code:** KQ1813987-03
Instrument ID: K-MS-07 **Analysis Lot:** 609329
Analysis Method: 8270D **Signal ID:** 1

		1,4-Dichlorobenzene-d4		Acenaphthene-d10		Chrysene-d12	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	Result ==>	60,571	9.45	105,110	14.40	128,045	21.29
	Upper Limit ==>	121,142	9.62	210,220	14.57	256,090	21.46
	Lower Limit ==>	30,286	9.28	52,555	14.23	64,023	21.12
Associated Analyses							
Continuing Cal. Verification	KQ1813987-03	45730	9.42	99715	14.38	125741	21.28

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QA/QC Report

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM/6304305 **Date Analyzed:** 10/03/18 08:41

Internal Standard Area and RT SUMMARY
Semivolatile Organic Compounds by GC/MS

File ID: J:\MS07\DATA\100218\1002F011.D\ **Lab Code:** KQ1813987-03
Instrument ID: K-MS-07 **Analysis Lot:** 609329
Analysis Method: 8270D **Signal ID:** 1

		Naphthalene-d8		Perylene-d12		Phenanthrene-d10	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	Result ==>	232,031	11.54	156,036	24.52	145,284	16.81
	Upper Limit ==>	464,062	11.71	312,072	24.69	290,568	16.98
	Lower Limit ==>	116,016	11.37	78,018	24.35	72,642	16.64
Associated Analyses							
Continuing Cal. Verification	KQ1813987-03	187409	11.52	152422	24.51	126902	16.80

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QA/QC Report

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:**K1808923
Project: JBLM/6304305 **Date Analyzed:**10/02/18 16:22

Internal Standard Area and RT SUMMARY
Semivolatile Organic Compounds by GC/MS

File ID: J:\MS07\DATA\100218A\1002A002.D\ **Lab Code:**KQ1814094-02
Instrument ID: K-MS-07 **Analysis Lot:**609543
Analysis Method: 8270D **Signal ID:**1

		1,4-Dichlorobenzene-d4		Acenaphthene-d10		Chrysene-d12	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	Result ==>	60,571	9.45	105,110	14.40	128,045	21.29
	Upper Limit ==>	121,142	9.62	210,220	14.57	256,090	21.46
	Lower Limit ==>	30,286	9.28	52,555	14.23	64,023	21.12
Associated Analyses							
Continuing Calibration Verification	KQ1814094-02	43284	9.42	99670	14.39	127452	21.29
Method Blank	KQ1812935-04	44676	9.42	100314	14.39	108426	21.26
FTP-1-20180912MS	KQ1812935-01	46404	9.43	72594	14.39	133176	21.29
FTP-1-20180912DMS	KQ1812935-02	41279	9.42	75875	14.38	128324	21.29
FTP-1-20180912	K1808923-001	41894	9.42	83707	14.39	124956	21.28

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QA/QC Report

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:**K1808923
Project: JBLM/6304305 **Date Analyzed:**10/02/18 16:22

Internal Standard Area and RT SUMMARY
Semivolatile Organic Compounds by GC/MS

File ID: J:\MS07\DATA\100218A\1002A002.D\ **Lab Code:**KQ1814094-02
Instrument ID: K-MS-07 **Analysis Lot:**609543
Analysis Method: 8270D **Signal ID:**1

		Naphthalene-d8		Perylene-d12		Phenanthrene-d10	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	Result ==>	232,031	11.54	156,036	24.52	145,284	16.81
	Upper Limit ==>	464,062	11.71	312,072	24.69	290,568	16.98
	Lower Limit ==>	116,016	11.37	78,018	24.35	72,642	16.64
Associated Analyses							
Continuing Calibration Verification	KQ1814094-02	178862	11.52	149087	24.51	132602	16.80
Method Blank	KQ1812935-04	168088	11.52	137785	24.50	161397	16.80
FTP-1-20180912MS	KQ1812935-01	170757	11.53	138834	24.53	112492	16.80
FTP-1-20180912DMS	KQ1812935-02	164691	11.52	136806	24.53	108212	16.81
FTP-1-20180912	K1808923-001	162192	11.52	137857	24.52	116368	16.81

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM/6304305 **Date Analyzed:** 10/03/18 08:41

Internal Standard Area and RT SUMMARY
Semivolatile Organic Compounds by GC/MS

File ID: J:\MS07\DATA\100218A\1002A011.D\ **Lab Code:** KQ1814094-03
Instrument ID: K-MS-07 **Analysis Lot:** 609543
Analysis Method: 8270D **Signal ID:** 1

		1,4-Dichlorobenzene-d4		Acenaphthene-d10		Chrysene-d12	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	Result ==>	60,571	9.45	105,110	14.40	128,045	21.29
	Upper Limit ==>	121,142	9.62	210,220	14.57	256,090	21.46
	Lower Limit ==>	30,286	9.28	52,555	14.23	64,023	21.12
Associated Analyses							
Continuing Cal. Verification	KQ1814094-03	45730	9.42	99715	14.38	125741	21.28

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QA/QC Report

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:**K1808923
Project: JBLM/6304305 **Date Analyzed:**10/03/18 08:41

Internal Standard Area and RT SUMMARY
Semivolatile Organic Compounds by GC/MS

File ID: J:\MS07\DATA\100218A\1002A011.D\ **Lab Code:**KQ1814094-03
Instrument ID: K-MS-07 **Analysis Lot:**609543
Analysis Method: 8270D **Signal ID:**1

		Naphthalene-d8		Perylene-d12		Phenanthrene-d10	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
Result ==>		232,031	11.54	156,036	24.52	145,284	16.81
Upper Limit ==>		464,062	11.71	312,072	24.69	290,568	16.98
Lower Limit ==>		116,016	11.37	78,018	24.35	72,642	16.64
Associated Analyses							
Continuing Cal. Verification	KQ1814094-03	187409	11.52	152422	24.51	126902	16.80

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QA/QC Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/12/18
Sample Matrix:	Ground Water	**Date Received:**	09/15/18
		Date Analyzed:	10/2/18
		Date Extracted:	09/17/18

Duplicate Matrix Spike Summary
Semivolatile Organic Compounds by GC/MS

Sample Name:	FTP-1-20180912	**Units:**	ug/L
Lab Code:	K1808923-001	**Basis:**	NA
Analysis Method:	8270D		
Prep Method:	EPA 3520C		

		Matrix Spike KQ1812935-01			Duplicate Matrix Spike KQ1812935-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,4-Trichlorobenzene	ND U	82.5	100	83	67.4	100	67	29-116	20	20
1,2-Dichlorobenzene	0.60 J	78.9	100	78	69.0	100	68	32-111	14	20
1,2-Diphenylhydrazine	ND U	68.4	100	68	58.7	100	59	49-122	15	20
1,3-Dichlorobenzene	ND U	73.3	100	73	63.5	100	63	28-110	14	20
1,4-Dichlorobenzene	ND U	73.2	100	73	66.6	100	67	29-112	9	20
2,4,5-Trichlorophenol	ND U	80.1	100	80	72.3	100	72	53-123	10	20
2,4,6-Trichlorophenol	ND U	82.9	100	83	77.1	100	77	50-125	7	20
2,4-Dichlorophenol	ND U	77.3	100	77	74.6	100	75	47-121	3	20
2,4-Dimethylphenol	ND U	76.9	100	77	71.2	100	71	31-124	8	20
2,4-Dinitrophenol	ND U	91.8	100	92	82.4	100	82	23-143	11	20
2,4-Dinitrotoluene	ND U	89.7	100	90	76.4	100	76	57-128	16	20
2,6-Dinitrotoluene	ND U	77.8	100	78	68.7	100	69	57-124	12	20
2-Chloronaphthalene	ND U	84.7	100	85	75.3	100	75	40-116	12	20
2-Chlorophenol	ND U	85.9	100	86	79.0	100	79	38-117	8	20
2-Methyl-4,6-dinitrophenol	ND U	107	100	107	92.2	100	92	44-137	15	20
2-Methylnaphthalene	110	187	100	80	191	100	84	40-121	2	20
2-Methylphenol	ND U	82.1	100	82	81.9	100	82	30-117	<1	20
2-Nitroaniline	ND U	83.9	100	84	74.7	100	75	55-127	12	20
2-Nitrophenol	ND U	83.5	100	83	76.3	100	76	47-123	9	20
3,3'-Dichlorobenzidine	ND U	ND U	100	0 *	ND U	100	0 *	27-129	NC	20
3-Nitroaniline	ND U	34.4	100	34 *	31.5	100	31 *	41-128	9	20
4-Bromophenyl Phenyl Ether	ND U	85.8	100	86	77.2	100	77	55-124	11	20
4-Chloro-3-methylphenol	ND U	67.8	100	68	65.3	100	65	52-119	4	20
4-Chloroaniline	ND U	19.7	100	20 *	20.9	100	21 *	33-117	6	20
4-Chlorophenyl Phenyl Ether	ND U	84.5	100	85	72.0	100	72	53-121	16	20
4-Methylphenol	ND U	91.2	100	91	91.4	100	91	25-120	<1	20
4-Nitroaniline	ND U	40.6	100	41 *	37.6	100	38 *	48-133	8	20
4-Nitrophenol	ND U	130	100	130	105	100	105	52-132	21*	20
Acenaphthene	1.7 J	80.6	100	79	74.4	100	73	47-122	8	20
Acenaphthylene	ND Ui	72.1	100	72	64.6	100	65	41-130	11	20
Anthracene	ND U	78.9	100	79	69.6	100	70	57-123	13	20
Benz(a)anthracene	ND U	82.7	100	83	69.9	100	70	58-125	17	20
Benzo(a)pyrene	ND U	82.4	100	82	69.3	100	69	54-128	17	20
Benzo(b)fluoranthene	ND U	88.4	100	88	73.3	100	73	53-131	19	20
Benzo(g,h,i)perylene	ND U	78.8	100	79	67.7	100	68	50-134	15	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
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QA/QC Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Collected:**	09/12/18
Sample Matrix:	Ground Water	**Date Received:**	09/15/18
		Date Analyzed:	10/2/18
		Date Extracted:	09/17/18

Duplicate Matrix Spike Summary
Semivolatile Organic Compounds by GC/MS

Sample Name:	FTP-1-20180912	**Units:**	ug/L
Lab Code:	K1808923-001	**Basis:**	NA
Analysis Method:	8270D		
Prep Method:	EPA 3520C		

		Matrix Spike			Duplicate Matrix Spike					
		KQ1812935-01			KQ1812935-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Benzo(k)fluoranthene	ND U	86.9	100	87	73.5	100	74	57-129	17	20
Benzoic Acid	24 J	102	100	78	95.4	100	71	28-128	7	20
Benzyl Alcohol	ND U	81.6	100	82	82.7	100	83	31-112	1	20
Bis(2-chloroethoxy)methane	ND U	82.5	100	83	73.6	100	74	48-120	11	20
Bis(2-chloroethyl) Ether	ND U	90.1	100	90	74.1	100	74	43-118	19	20
Bis(2-ethylhexyl) Phthalate	ND U	73.7	100	74	60.8	100	61	55-135	19	20
Butyl Benzyl Phthalate	ND U	73.4	100	73	61.1	100	61	53-134	18	20
Carbazole	5.3 J	98.6	100	93	92.3	100	87	60-122	7	20
Chrysene	ND U	82.8	100	83	70.2	100	70	59-123	16	20
Dibenz(a,h)anthracene	ND U	81.9	100	82	67.2	100	67	51-134	20	20
Dibenzofuran	3.9 J	73.2	100	69	65.4	100	61	53-118	11	20
Diethyl Phthalate	1.4 J	88.1	100	87	80.4	100	79	56-125	9	20
Dimethyl Phthalate	ND U	80.4	100	80	73.0	100	73	45-127	10	20
Di-n-butyl Phthalate	ND U	94.8	100	95	82.6	100	83	59-127	14	20
Di-n-octyl Phthalate	ND U	83.3	100	83	66.7	100	67	51-140	22*	20
Fluoranthene	ND U	96.6	100	97	84.3	100	84	57-128	14	20
Fluorene	5.1 J	84.6	100	80	74.3	100	69	52-124	13	20
Hexachlorobenzene	ND U	84.8	100	85	75.2	100	75	53-125	12	20
Hexachlorobutadiene	ND U	87.1	100	87	66.0	100	66	22-124	28*	20
Hexachloroethane	ND U	82.4	100	82	72.3	100	72	21-115	13	20
Indeno(1,2,3-cd)pyrene	ND U	80.0	100	80	67.3	100	67	52-134	17	20
Isophorone	ND U	80.2	100	80	78.2	100	78	42-124	2	20
Naphthalene	48	136	100	88	125	100	77	40-121	8	20
Nitrobenzene	ND U	91.3	100	91	87.9	100	88	45-121	4	20
N-Nitrosodimethylamine	ND U	87.0	100	87	75.5	100	76	59-110	14	20
N-Nitrosodi-n-propylamine	ND U	83.6	100	84	85.3	100	85	49-119	2	20
N-Nitrosodiphenylamine	0.65 J	59.9	100	59	49.7	100	49 *	51-123	19	20
Pentachlorophenol	ND U	99.1	100	99	87.9	100	88	35-138	12	20
Phenanthrene	4.6 J	93.6	100	89	84.5	100	80	59-120	10	20
Phenol	0.35 J	82.1	100	82	79.4	100	79	54-105	3	20
Pyrene	ND U	71.3	100	71	62.2	100	62	57-126	14	20
2,2'-Oxybis(1-chloropropane)	ND U	79.7	100	80	70.5	100	71	37-130	12	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Analyzed:**	10/02/18
Sample Matrix:	Ground Water	**Date Extracted:**	09/17/18

Lab Control Sample Summary
Semivolatile Organic Compounds by GC/MS

Analysis Method:	8270D	**Units:**	ug/L
Prep Method:	EPA 3520C	**Basis:**	NA
		Analysis Lot:	609329

Lab Control Sample
KQ1812935-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,2,4-Trichlorobenzene	38.9	100	39	29-116
1,2-Dichlorobenzene	45.3	100	45	32-111
1,2-Diphenylhydrazine	59.8	100	60	49-122
1,3-Dichlorobenzene	42.1	100	42	28-110
1,4-Dichlorobenzene	42.7	100	43	29-112
2,2'-Oxybis(1-chloropropane)	54.9	100	55	37-130
2,4,5-Trichlorophenol	63.8	100	64	53-123
2,4,6-Trichlorophenol	61.5	100	62	50-125
2,4-Dichlorophenol	63.5	100	63	47-121
2,4-Dimethylphenol	35.0	100	35	31-124
2,4-Dinitrophenol	57.7	100	58	23-143
2,4-Dinitrotoluene	66.2	100	66	57-128
2,6-Dinitrotoluene	62.3	100	62	57-124
2-Chloronaphthalene	44.9	100	45	40-116
2-Chlorophenol	57.2	100	57	38-117
2-Methyl-4,6-dinitrophenol	72.8	100	73	44-137
2-Methylnaphthalene	48.2	100	48	40-121
2-Methylphenol	59.3	100	59	30-117
2-Nitroaniline	70.7	100	71	55-127
2-Nitrophenol	61.8	100	62	47-123
3,3'-Dichlorobenzidine	54.0	100	54	27-129
3-Nitroaniline	66.0	100	66	41-128
4-Bromophenyl Phenyl Ether	70.2	100	70	55-124
4-Chloro-3-methylphenol	76.8	100	77	52-119
4-Chloroaniline	63.0	100	63	33-117
4-Chlorophenyl Phenyl Ether	61.5	100	62	53-121
4-Methylphenol	69.2	100	69	25-120
4-Nitroaniline	65.7	100	66	48-133
4-Nitrophenol	81.7	100	82	52-132
Acenaphthene	53.4	100	53	47-122
Acenaphthylene	50.8	100	51	41-130
Anthracene	61.9	100	62	57-123
Benz(a)anthracene	66.4	100	66	58-125
Benzo(a)pyrene	63.0	100	63	54-128
Benzo(b)fluoranthene	64.2	100	64	53-131
Benzo(g,h,i)perylene	69.4	100	69	50-134
Benzo(k)fluoranthene	64.4	100	64	57-129
Benzoic Acid	69.4	100	69	28-128
Benzyl Alcohol	64.0	100	64	31-112
Bis(2-chloroethoxy)methane	60.6	100	61	48-120
Bis(2-chloroethyl) Ether	55.5	100	56	43-118

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QA/QC Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Analyzed:**	10/02/18
Sample Matrix:	Ground Water	**Date Extracted:**	09/17/18

Lab Control Sample Summary
Semivolatile Organic Compounds by GC/MS

Analysis Method:	8270D	**Units:**	ug/L
Prep Method:	EPA 3520C	**Basis:**	NA
		Analysis Lot:	609329

Lab Control Sample
KQ1812935-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Bis(2-ethylhexyl) Phthalate	67.2	100	67	55-135
Butyl Benzyl Phthalate	64.7	100	65	53-134
Chrysene	62.1	100	62	59-123
Dibenz(a,h)anthracene	65.0	100	65	51-134
Dibenzofuran	49.3	100	49 *	53-118
Diethyl Phthalate	72.7	100	73	56-125
Dimethyl Phthalate	70.3	100	70	45-127
Di-n-butyl Phthalate	56.4	100	56 *	59-127
Di-n-octyl Phthalate	64.3	100	64	51-140
Fluoranthene	61.5	100	61	57-128
Fluorene	59.9	100	60	52-124
Hexachlorobenzene	66.5	100	66	53-125
Hexachlorobutadiene	32.9	100	33	22-124
Hexachloroethane	36.5	100	36	21-115
Indeno(1,2,3-cd)pyrene	67.0	100	67	52-134
Isophorone	71.7	100	72	42-124
Naphthalene	46.5	100	47	40-121
Nitrobenzene	66.7	100	67	45-121
N-Nitrosodi-n-propylamine	66.9	100	67	49-119
N-Nitrosodiphenylamine	53.9	100	54	51-123
Pentachlorophenol	51.2	100	51	35-138
Phenanthrene	66.1	100	66	59-120
Phenol	56.0	100	56	54-105
Pyrene	57.8	100	58	57-126

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Analyzed:**	09/21/18
Sample Matrix:	Ground Water	**Date Extracted:**	09/17/18

Lab Control Sample Summary
Semivolatile Organic Compounds by GC/MS

Analysis Method:	8270D	**Units:**	ug/L
Prep Method:	EPA 3520C	**Basis:**	NA
		Analysis Lot:	607858

Lab Control Sample
KQ1812935-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
N-Nitrosodimethylamine	61.9	100	62	59-110

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QA/QC Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Analyzed:**	10/02/18 17:42
Sample Matrix:	Ground Water	**Date Extracted:**	09/17/18

Method Blank Summary
Semivolatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	K-MS-07
Lab Code:	KQ1812935-04	**File ID:**	J:\MS07\DATA\100218\1002F003.D\
Analysis Method:	8270D	**Analysis Lot:**	607858,609329,609543
Prep Method:	EPA 3520C	**Extraction Lot:**	322048

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1812935-03	J:\MS07\DATA\092118\0921F014.D\	09/21/18 16:56
Lab Control Sample	KQ1812935-03	J:\MS07\DATA\100218\1002F004.D\	10/02/18 18:23
FTP-1-20180912MS	KQ1812935-01	J:\MS07\DATA\100218\1002F005.D\	10/02/18 19:04
FTP-1-20180912MS	KQ1812935-01	J:\MS07\DATA\100218A\1002A005.D\	10/02/18 19:04
FTP-1-20180912DMS	KQ1812935-02	J:\MS07\DATA\100218\1002F006.D\	10/02/18 19:45
FTP-1-20180912DMS	KQ1812935-02	J:\MS07\DATA\100218A\1002A006.D\	10/02/18 19:45
FTP-1-20180912	K1808923-001	J:\MS07\DATA\100218\1002F007.D\	10/02/18 20:26
FTP-1-20180912	K1808923-001	J:\MS07\DATA\100218A\1002A007.D\	10/02/18 20:26

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	EA Engineering, Science, and Technology (EAEST)	**Service Request:**	K1808923
Project:	JBLM/6304305	**Date Analyzed:**	10/02/18 18:23
Sample Matrix:	Ground Water	**Date Extracted:**	09/17/18

Lab Control Sample Summary
Semivolatile Organic Compounds by GC/MS

Sample Name:	Lab Control Sample	**Instrument ID:**	K-MS-07
Lab Code:	KQ1812935-03	**File ID:**	J:\MS07\DATA\100218\1002F004.D\
Analysis Method:	8270D	**Analysis Lot:**	607858,609329,609543
Prep Method:	EPA 3520C	**Extraction Lot:**	322048

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1812935-04	J:\MS07\DATA\092118\0921F013.D\	09/21/18 16:15
Method Blank	KQ1812935-04	J:\MS07\DATA\100218\1002F003.D\	10/02/18 17:42
Method Blank	KQ1812935-04	J:\MS07\DATA\100218A\1002A003.D\	10/02/18 17:42
FTP-1-20180912MS	KQ1812935-01	J:\MS07\DATA\100218\1002F005.D\	10/02/18 19:04
FTP-1-20180912MS	KQ1812935-01	J:\MS07\DATA\100218A\1002A005.D\	10/02/18 19:04
FTP-1-20180912DMS	KQ1812935-02	J:\MS07\DATA\100218\1002F006.D\	10/02/18 19:45
FTP-1-20180912DMS	KQ1812935-02	J:\MS07\DATA\100218A\1002A006.D\	10/02/18 19:45
FTP-1-20180912	K1808923-001	J:\MS07\DATA\100218\1002F007.D\	10/02/18 20:26
FTP-1-20180912	K1808923-001	J:\MS07\DATA\100218A\1002A007.D\	10/02/18 20:26

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:**K1808923
Project: JBLM/6304305 **Date Analyzed:**09/21/18 14:53

Tune Summary
Semivolatile Organic Compounds by GC/MS

File ID: J:\MS07\DATA\092118\0921F011.D\ **Analytical Method:** 8270D
Instrument ID: K-MS-07 **Analysis Lot:** 607858

Target Mass	Relative to Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	30	80	72.45	13380	Pass
68	69	0	2	0.33	38	Pass
69	198	0	100	62.41	11527	Pass
70	69	0	2	0.00	0	Pass
127	198	25	75	50.33	9296	Pass
197	198	0	1	0.00	0	Pass
198	198	100	100	100.00	18469	Pass
199	198	5	9	6.92	1278	Pass
275	198	10	30	24.77	4574	Pass
365	198	0.75	100	2.94	543	Pass
441	443	0.01	100	76.01	1888	Pass
442	198	40	110	70.62	13043	Pass
443	442	15	24	19.04	2484	Pass

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1813296-02	J:\MS07\DATA\092118\0921F012.D\	09/21/18 15:34	
Method Blank	KQ1812935-04	J:\MS07\DATA\092118\0921F013.D\	09/21/18 16:15	
Lab Control Sample	KQ1812935-03	J:\MS07\DATA\092118\0921F014.D\	09/21/18 16:56	

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:**K1808923
Project: JBLM/6304305 **Date Analyzed:**10/02/18 15:41

Tune Summary
Semivolatile Organic Compounds by GC/MS

File ID: J:\MS07\DATA\100218\1002F001.D\ **Analytical Method:** 8270D
Instrument ID: K-MS-07 **Analysis Lot:** 609329

Target Mass	Relative to Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	30	80	71.78	11819	Pass
68	69	0	2	0.38	39	Pass
69	198	0	100	62.13	10229	Pass
70	69	0	2	0.43	44	Pass
127	198	25	75	49.28	8114	Pass
197	198	0	1	0.00	0	Pass
198	198	100	100	100.00	16465	Pass
199	198	5	9	7.00	1152	Pass
275	198	10	30	24.05	3960	Pass
365	198	0.75	100	3.02	497	Pass
441	443	0.01	100	74.99	1361	Pass
442	198	40	110	55.53	9143	Pass
443	442	15	24	19.85	1815	Pass

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1813987-02	J:\MS07\DATA\100218\1002F002.D\	10/02/18 16:22	
Method Blank	KQ1812935-04	J:\MS07\DATA\100218\1002F003.D\	10/02/18 17:42	
Lab Control Sample	KQ1812935-03	J:\MS07\DATA\100218\1002F004.D\	10/02/18 18:23	
FTP-1-20180912	KQ1812935-01	J:\MS07\DATA\100218\1002F005.D\	10/02/18 19:04	
FTP-1-20180912	KQ1812935-02	J:\MS07\DATA\100218\1002F006.D\	10/02/18 19:45	
FTP-1-20180912	K1808923-001	J:\MS07\DATA\100218\1002F007.D\	10/02/18 20:26	
Continuing Cal. Verification	KQ1813987-03	J:\MS07\DATA\100218\1002F011.D\	10/03/18 08:41	

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:**K1808923
Project: JBLM/6304305 **Date Analyzed:**10/02/18 15:41

Tune Summary
Semivolatile Organic Compounds by GC/MS

File ID: J:\MS07\DATA\100218A\1002A001.D\ **Analytical Method:** 8270D
Instrument ID: K-MS-07 **Analysis Lot:** 609543

Target Mass	Relative to Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	30	80	71.78	11819	Pass
68	69	0	2	0.38	39	Pass
69	198	0	100	62.13	10229	Pass
70	69	0	2	0.43	44	Pass
127	198	25	75	49.28	8114	Pass
197	198	0	1	0.00	0	Pass
198	198	100	100	100.00	16465	Pass
199	198	5	9	7.00	1152	Pass
275	198	10	30	24.05	3960	Pass
365	198	0.75	100	3.02	497	Pass
441	443	0.01	100	74.99	1361	Pass
442	198	40	110	55.53	9143	Pass
443	442	15	24	19.85	1815	Pass

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1814094-02	J:\MS07\DATA\100218A\1002A002.D\	10/02/18 16:22	
Method Blank	KQ1812935-04	J:\MS07\DATA\100218A\1002A003.D\	10/02/18 17:42	
FTP-1-20180912	KQ1812935-01	J:\MS07\DATA\100218A\1002A005.D\	10/02/18 19:04	
FTP-1-20180912	KQ1812935-02	J:\MS07\DATA\100218A\1002A006.D\	10/02/18 19:45	
FTP-1-20180912	K1808923-001	J:\MS07\DATA\100218A\1002A007.D\	10/02/18 20:26	
Continuing Cal. Verification	KQ1814094-03	J:\MS07\DATA\100218A\1002A011.D\	10/03/18 08:41	

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800439 **Signal ID:** 1
Instrument ID: K-MS-07

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800439-01	8270 Mega ICAL @ 1ppm | SVM59-22A	J:\MS07\DATA\080218A\0802A003.D	08/02/2018 18:36
02	KC1800439-02	8270 Mega ICAL @ 5ppm | SVM59-22B	J:\MS07\DATA\080218A\0802A004.D	08/02/2018 19:17
03	KC1800439-03	8270 Mega ICAL @ 10ppm | SVM59-22C	J:\MS07\DATA\080218A\0802A005.D	08/02/2018 19:58
04	KC1800439-04	8270 Mega ICAL @ 20ppm | SVM59-22D	J:\MS07\DATA\080218A\0802A006.D	08/02/2018 20:39
05	KC1800439-05	8270 Mega ICAL @ 50ppm | SVM59-22E	J:\MS07\DATA\080218A\0802A007.D	08/02/2018 21:20
06	KC1800439-06	8270 Mega ICAL @ 80ppm | SVM59-22F	J:\MS07\DATA\080218A\0802A008.D	08/02/2018 22:01
07	KC1800439-07	8270 Mega ICAL @ 100ppm | SVM59-22G	J:\MS07\DATA\080218A\0802A009.D	08/02/2018 22:42
08	KC1800439-08	8270 Mega ICAL @ 120ppm | SVM59-22H	J:\MS07\DATA\080218A\0802A010.D	08/02/2018 23:23
09	KC1800439-09	8270 Mega ICAL @ 160ppm | SVM59-22I	J:\MS07\DATA\080218A\0802A011.D	08/03/2018 00:04
10	KC1800439-10	8270 Mega ICAL @ 200ppm | SVM59-22J	J:\MS07\DATA\080218A\0802A012.D	08/03/2018 00:45

Analyte

1,2,4-Trichlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.3436	02	5.000	0.3437	03	10.000	0.3304	04	20.000	0.3383
05	50.000	0.343	06	80.000	0.336	07	100.000	0.3453	08	120.000	0.3453
09	160.000	0.3503	10	200.000	0.3366						

1,2-Dichlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.32	02	5.000	1.383	03	10.000	1.333	04	20.000	1.34
05	50.000	1.354	06	80.000	1.352	07	100.000	1.422	08	120.000	1.377
09	160.000	1.341	10	200.000	1.313						

1,2-Diphenylhydrazine

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.388	02	5.000	1.431	03	10.000	1.659	04	20.000	1.604
05	50.000	1.321	06	80.000	1.2	07	100.000	1.385	08	120.000	1.294
09	160.000	1.299	10	200.000	1.331						

1,3-Dichlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.465	02	5.000	1.417	03	10.000	1.416	04	20.000	1.431
05	50.000	1.438	06	80.000	1.435	07	100.000	1.473	08	120.000	1.435
09	160.000	1.43	10	200.000	1.375						

1,4-Dichlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.417	02	5.000	1.462	03	10.000	1.457	04	20.000	1.442
05	50.000	1.475	06	80.000	1.486	07	100.000	1.527	08	120.000	1.483
09	160.000	1.454	10	200.000	1.408						

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800439 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

2,2'-Oxybis(1-chloropropane)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	2.881	02	5.000	2.919	03	10.000	2.865	04	20.000	2.944
05	50.000	2.921	06	80.000	2.965	07	100.000	2.998	08	120.000	3.025
09	160.000	2.906	10	200.000	2.78						

2,4,5-Trichlorophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.3615	03	10.000	0.4376	04	20.000	0.4638	05	50.000	0.5086
06	80.000	0.4995	07	100.000	0.5039	08	120.000	0.5001	09	160.000	0.4963
10	200.000	0.5026									

2,4,6-Tribromophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	10.000	0.1171	04	20.000	0.1518	05	50.000	0.1581	06	80.000	0.1531
07	100.000	0.1608	08	120.000	0.1627	09	160.000	0.1596	10	200.000	0.1594

2,4,6-Trichlorophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.3456	03	10.000	0.3972	04	20.000	0.4332	05	50.000	0.4692
06	80.000	0.4713	07	100.000	0.4877	08	120.000	0.4792	09	160.000	0.4653
10	200.000	0.4735									

2,4-Dichlorophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.2883	03	10.000	0.2793	04	20.000	0.3007	05	50.000	0.3151
06	80.000	0.3108	07	100.000	0.3149	08	120.000	0.3165	09	160.000	0.3268
10	200.000	0.3013									

2,4-Dimethylphenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.2443	02	5.000	0.2852	03	10.000	0.2832	04	20.000	0.2885
05	50.000	0.3008	06	80.000	0.2943	07	100.000	0.3059	08	120.000	0.2936
09	160.000	0.3079	10	200.000	0.2842						

2,4-Dinitrophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
04	20.000	0.05222	05	50.000	0.1103	06	80.000	0.1353	07	100.000	0.1597
08	120.000	0.1726	09	160.000	0.1848	10	200.000	0.2005			

2,4-Dinitrotoluene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.326	02	5.000	0.4307	03	10.000	0.4395	04	20.000	0.3668
05	50.000	0.3843	06	80.000	0.3864	07	100.000	0.3937	08	120.000	0.4046
09	160.000	0.3801	10	200.000	0.4073						

2,6-Dinitrotoluene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.3339	02	5.000	0.3597	03	10.000	0.3487	04	20.000	0.3366

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800439 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

2,6-Dinitrotoluene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
05	50.000	0.3258	06	80.000	0.3065	07	100.000	0.3175	08	120.000	0.3328
09	160.000	0.3185	10	200.000	0.317						

2-Chloronaphthalene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.226	02	5.000	1.241	03	10.000	1.193	04	20.000	1.212
05	50.000	1.251	06	80.000	1.299	07	100.000	1.334	08	120.000	1.285
09	160.000	1.259	10	200.000	1.246						

2-Chlorophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.113	02	5.000	1.291	03	10.000	1.292	04	20.000	1.332
05	50.000	1.314	06	80.000	1.348	07	100.000	1.393	08	120.000	1.382
09	160.000	1.346	10	200.000	1.322						

2-Fluorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.427	02	5.000	1.573	03	10.000	1.461	04	20.000	1.485
05	50.000	1.523	06	80.000	1.601	07	100.000	1.613	08	120.000	1.515
09	160.000	1.478	10	200.000	1.568						

2-Fluorophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.8703	02	5.000	1.206	03	10.000	1.165	04	20.000	1.193
05	50.000	1.154	06	80.000	1.201	07	100.000	1.212	08	120.000	1.212
09	160.000	1.188	10	200.000	1.242						

2-Methyl-4,6-dinitrophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	10.000	0.06873	04	20.000	0.1286	05	50.000	0.2021	06	80.000	0.2233
07	100.000	0.2468	08	120.000	0.2504	09	160.000	0.2561	10	200.000	0.2732

2-Methylnaphthalene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.5656	02	5.000	0.6645	03	10.000	0.6323	04	20.000	0.6598
05	50.000	0.6742	06	80.000	0.6347	07	100.000	0.6659	08	120.000	0.6701
09	160.000	0.6665	10	200.000	0.5957						

2-Methylphenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.7935	02	5.000	0.9634	03	10.000	0.9462	04	20.000	0.9957
05	50.000	0.9973	06	80.000	1.024	07	100.000	1.056	08	120.000	1.023
09	160.000	0.984	10	200.000	0.9972						

2-Nitroaniline

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.3696	02	5.000	0.4119	03	10.000	0.3938	04	20.000	0.392

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800439 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

2-Nitroaniline

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
05	50.000	0.3878	06	80.000	0.3676	07	100.000	0.3702	08	120.000	0.3912
09	160.000	0.3815	10	200.000	0.3841						

2-Nitrophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.1724	03	10.000	0.1913	04	20.000	0.1987	05	50.000	0.2093
06	80.000	0.2063	07	100.000	0.2153	08	120.000	0.2104	09	160.000	0.2237
10	200.000	0.2092									

3,3'-Dichlorobenzidine

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.463	03	10.000	0.473	04	20.000	0.4918	05	50.000	0.4841
06	80.000	0.5187	07	100.000	0.5528	08	120.000	0.5594	09	160.000	0.5535
10	200.000	0.5707									

3-Nitroaniline

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.2955	02	5.000	0.3719	03	10.000	0.3786	04	20.000	0.3411
05	50.000	0.3357	06	80.000	0.3253	07	100.000	0.3401	08	120.000	0.3456
09	160.000	0.3409	10	200.000	0.3367						

4-Bromophenyl Phenyl Ether

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.2194	02	5.000	0.2387	03	10.000	0.2362	04	20.000	0.2762
05	50.000	0.2689	06	80.000	0.26	07	100.000	0.2648	08	120.000	0.2745
09	160.000	0.2696	10	200.000	0.2533						

4-Chloro-3-methylphenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.2049	02	5.000	0.2541	03	10.000	0.2712	04	20.000	0.2913
05	50.000	0.2986	06	80.000	0.2723	07	100.000	0.2767	08	120.000	0.2805
09	160.000	0.2965	10	200.000	0.2615						

4-Chloroaniline

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.3645	02	5.000	0.4367	03	10.000	0.4305	04	20.000	0.4543
05	50.000	0.4545	06	80.000	0.4328	07	100.000	0.4459	08	120.000	0.4451
09	160.000	0.4577	10	200.000	0.417						

4-Chlorophenyl Phenyl Ether

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.7014	02	5.000	0.7066	03	10.000	0.7019	04	20.000	0.7017
05	50.000	0.6889	06	80.000	0.6467	07	100.000	0.6596	08	120.000	0.704
09	160.000	0.6522	10	200.000	0.6609						

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800439 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

4-Methylphenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	2.000	1.138	02	10.000	1.282	03	20.000	1.269	04	40.000	1.325
05	100.000	1.357	06	160.000	1.369	07	200.000	1.425	08	240.000	1.364
09	320.000	1.305	10	400.000	1.267						

4-Nitroaniline

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.2664	02	5.000	0.2964	03	10.000	0.2996	04	20.000	0.2504
05	50.000	0.2994	06	80.000	0.2887	07	100.000	0.3124	08	120.000	0.3216
09	160.000	0.3068	10	200.000	0.3206						

4-Nitrophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	10.000	0.121	04	20.000	0.1169	05	50.000	0.1409	06	80.000	0.146
07	100.000	0.1516	08	120.000	0.1582	09	160.000	0.1486	10	200.000	0.1594

Acenaphthene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.133	02	5.000	1.165	03	10.000	1.136	04	20.000	1.129
05	50.000	1.125	06	80.000	1.078	07	100.000	1.1	08	120.000	1.095
09	160.000	1.056	10	200.000	1.034						

Acenaphthylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.876	02	5.000	2.035	03	10.000	1.959	04	20.000	2.007
05	50.000	1.995	06	80.000	2.019	07	100.000	2.028	08	120.000	2.034
09	160.000	1.928	10	200.000	1.938						

Anthracene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.998	02	5.000	1.107	03	10.000	1.055	04	20.000	1.026
05	50.000	1.082	06	80.000	1.051	07	100.000	1.096	08	120.000	1.122
09	160.000	1.049	10	200.000	1.026						

Benz(a)anthracene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.075	02	5.000	1.072	03	10.000	1.076	04	20.000	1.138
05	50.000	1.191	06	80.000	1.191	07	100.000	1.209	08	120.000	1.186
09	160.000	1.152	10	200.000	1.149						

Benzo(a)pyrene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.8637	02	5.000	0.9868	03	10.000	0.9525	04	20.000	1.044
05	50.000	1.064	06	80.000	1.071	07	100.000	1.104	08	120.000	1.131
09	160.000	1.076	10	200.000	1.066						

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Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800439 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

Benzo(b)fluoranthene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.9334	02	5.000	1.039	03	10.000	1.042	04	20.000	1.079
05	50.000	1.048	06	80.000	1.085	07	100.000	1.133	08	120.000	1.125
09	160.000	1.131	10	200.000	1.152						

Benzo(g,h,i)perylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.8589	02	5.000	0.9939	03	10.000	1.044	04	20.000	1.339
05	50.000	1.19	06	80.000	1.138	07	100.000	1.136	08	120.000	1.143
09	160.000	1.094	10	200.000	1.072						

Benzo(k)fluoranthene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.9502	02	5.000	1.128	03	10.000	1.052	04	20.000	1.153
05	50.000	1.051	06	80.000	1.073	07	100.000	1.109	08	120.000	1.141
09	160.000	1.011	10	200.000	1.03						

Benzoic Acid

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	10.000	0.03524	04	20.000	0.09528	05	50.000	0.1352	06	80.000	0.1521
07	100.000	0.1737	08	120.000	0.1866	09	160.000	0.2066			

Benzyl Alcohol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.6458	02	5.000	0.7556	03	10.000	0.7496	04	20.000	0.7889
05	50.000	0.8277	06	80.000	0.848	07	100.000	0.891	08	120.000	0.8521
09	160.000	0.8248	10	200.000	0.806						

Bis(2-chloroethoxy)methane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.3601	02	5.000	0.3908	03	10.000	0.3881	04	20.000	0.4089
05	50.000	0.4091	06	80.000	0.4018	07	100.000	0.4179	08	120.000	0.4074
09	160.000	0.4094	10	200.000	0.3894						

Bis(2-chloroethyl) Ether

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.166	02	5.000	1.217	03	10.000	1.193	04	20.000	1.214
05	50.000	1.196	06	80.000	1.21	07	100.000	1.218	08	120.000	1.224
09	160.000	1.164	10	200.000	1.148						

Bis(2-ethylhexyl) Phthalate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.7216	03	10.000	0.775	04	20.000	0.8272	05	50.000	0.8491
06	80.000	0.8628	07	100.000	0.8758	08	120.000	0.8711	09	160.000	0.8371
10	200.000	0.8403									

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Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800439 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

Butyl Benzyl Phthalate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.5202	02	5.000	0.6254	03	10.000	0.6214	04	20.000	0.6587
05	50.000	0.6857	06	80.000	0.6838	07	100.000	0.6742	08	120.000	0.6546
09	160.000	0.6235	10	200.000	0.5947						

Chrysene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.077	02	5.000	1.108	03	10.000	1.102	04	20.000	1.078
05	50.000	1.118	06	80.000	1.123	07	100.000	1.121	08	120.000	1.116
09	160.000	1.095	10	200.000	1.092						

Di-n-butyl Phthalate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.7293	03	10.000	0.7583	04	20.000	0.8373	05	50.000	1.095
06	80.000	1.232	07	100.000	1.298	08	120.000	1.342	09	160.000	1.336
10	200.000	1.347									

Di-n-octyl Phthalate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.9797	03	10.000	1.12	04	20.000	1.303	05	50.000	1.21
06	80.000	1.205	07	100.000	1.225	08	120.000	1.251	09	160.000	1.212
10	200.000	1.234									

Dibenz(a,h)anthracene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.8059	03	10.000	0.8851	04	20.000	1.174	05	50.000	1.086
06	80.000	1.028	07	100.000	1.026	08	120.000	1.054	09	160.000	1.039
10	200.000	1.035									

Dibenzofuran

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.753	02	5.000	1.842	03	10.000	1.792	04	20.000	1.774
05	50.000	1.772	06	80.000	1.705	07	100.000	1.685	08	120.000	1.718
09	160.000	1.64	10	200.000	1.644						

Diethyl Phthalate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.237	02	5.000	1.238	03	10.000	1.312	04	20.000	1.102
05	50.000	1.168	06	80.000	1.102	07	100.000	1.135	08	120.000	1.184
09	160.000	1.112	10	200.000	1.127						

Dimethyl Phthalate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.344	02	5.000	1.496	03	10.000	1.441	04	20.000	1.362
05	50.000	1.31	06	80.000	1.258	07	100.000	1.282	08	120.000	1.358
09	160.000	1.271	10	200.000	1.223						

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800439 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

Fluoranthene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.7961	03	10.000	0.7486	04	20.000	0.7429	05	50.000	0.9875
06	80.000	1.102	07	100.000	1.167	08	120.000	1.188	09	160.000	1.182
10	200.000	1.195									

Fluorene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.453	02	5.000	1.439	03	10.000	1.43	04	20.000	1.375
05	50.000	1.308	06	80.000	1.243	07	100.000	1.262	08	120.000	1.299
09	160.000	1.24	10	200.000	1.223						

Hexachlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.2548	02	5.000	0.2784	03	10.000	0.27	04	20.000	0.2964
05	50.000	0.3018	06	80.000	0.2863	07	100.000	0.2893	08	120.000	0.3004
09	160.000	0.2835	10	200.000	0.2776						

Hexachlorobutadiene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.203	02	5.000	0.1953	03	10.000	0.2031	04	20.000	0.1987
05	50.000	0.2088	06	80.000	0.2027	07	100.000	0.2071	08	120.000	0.2053
09	160.000	0.2146	10	200.000	0.1992						

Hexachloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.5787	02	5.000	0.6244	03	10.000	0.6047	04	20.000	0.6307
05	50.000	0.616	06	80.000	0.6176	07	100.000	0.635	08	120.000	0.6219
09	160.000	0.6025	10	200.000	0.5945						

Indeno(1,2,3-cd)pyrene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.8319	03	10.000	0.8822	04	20.000	1.198	05	50.000	1.122
06	80.000	1.065	07	100.000	1.069	08	120.000	1.105	09	160.000	1.059
10	200.000	1.074									

Isophorone

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.5526	02	5.000	0.6168	03	10.000	0.6175	04	20.000	0.6367
05	50.000	0.655	06	80.000	0.6244	07	100.000	0.6572	08	120.000	0.6564
09	160.000	0.652	10	200.000	0.5866						

N-Nitrosodi-n-propylamine

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.8507	02	5.000	0.8671	03	10.000	0.8235	04	20.000	0.8918
05	50.000	0.9176	06	80.000	0.9462	07	100.000	0.985	08	120.000	0.9542
09	160.000	0.8999	10	200.000	0.8895						

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800439 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

N-Nitrosodimethylamine

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.374	02	5.000	1.115	03	10.000	1.055	04	20.000	1.074
05	50.000	1.06	06	80.000	1.061	07	100.000	1.058	08	120.000	1.062
09	160.000	1.047	10	200.000	1.052						

N-Nitrosodiphenylamine

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.203	02	5.000	1.245	03	10.000	1.2	04	20.000	1.096
05	50.000	1.048	06	80.000	0.9468	07	100.000	0.9953	08	120.000	1.018
09	160.000	0.9919	10	200.000	1.002						

Naphthalene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.9668	02	5.000	1.016	03	10.000	0.9869	04	20.000	1.002
05	50.000	1.005	06	80.000	0.9737	07	100.000	1.018	08	120.000	0.9982
09	160.000	1.012	10	200.000	0.9488						

Nitrobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.215	02	5.000	1.137	03	10.000	1.114	04	20.000	1.17
05	50.000	1.182	06	80.000	1.245	07	100.000	1.257	08	120.000	1.218
09	160.000	1.18	10	200.000	1.165						

Nitrobenzene-d5

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.061	02	5.000	1.203	03	10.000	1.226	04	20.000	1.274
05	50.000	1.23	06	80.000	1.314	07	100.000	1.339	08	120.000	1.302
09	160.000	1.286	10	200.000	1.303						

Pentachlorophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	10.000	0.06355	04	20.000	0.1127	05	50.000	0.1584	06	80.000	0.171
07	100.000	0.1807	08	120.000	0.1884	09	160.000	0.191	10	200.000	0.1915

Phenanthrene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.057	02	5.000	1.072	03	10.000	1.019	04	20.000	1.015
05	50.000	1.06	06	80.000	1.027	07	100.000	1.043	08	120.000	1.052
09	160.000	1.031	10	200.000	0.987						

Phenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.445	02	5.000	1.59	03	10.000	1.583	04	20.000	1.642
05	50.000	1.611	06	80.000	1.67	07	100.000	1.711	08	120.000	1.685
09	160.000	1.591	10	200.000	1.601						

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800439 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

Phenol-d6

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.435	02	5.000	1.505	03	10.000	1.504	04	20.000	1.551
05	50.000	1.565	06	80.000	1.614	07	100.000	1.64	08	120.000	1.617
09	160.000	1.531	10	200.000	1.574						

Pyrene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.416	02	5.000	1.26	03	10.000	1.156	04	20.000	1.065
05	50.000	1.206	06	80.000	1.302	07	100.000	1.35	08	120.000	1.335
09	160.000	1.266	10	200.000	1.23						

Terphenyl-d14

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.9344	02	5.000	0.7746	03	10.000	0.7793	04	20.000	0.7662
05	50.000	0.8863	06	80.000	0.9634	07	100.000	0.9603	08	120.000	0.981
09	160.000	0.9372	10	200.000	0.9071						

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Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800439 **Signal ID:** 1
Instrument ID: K-MS-07

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
1,2,4-Trichlorobenzene	TRG	Average RF	% RSD	1.7	≤15	0.3413	0.010
1,2-Dichlorobenzene	TRG	Average RF	% RSD	2.4	≤15	1.354	0.010
1,2-Diphenylhydrazine	TRG	Average RF	% RSD	10.2	≤15	1.391	0.010
1,3-Dichlorobenzene	TRG	Average RF	% RSD	1.9	≤15	1.431	0.010
1,4-Dichlorobenzene	TRG	Average RF	% RSD	2.4	≤15	1.461	0.010
2,2'-Oxybis(1-chloropropane)	TRG	Average RF	% RSD	2.4	≤15	2.92	0.010
2,4,5-Trichlorophenol	TRG	Average RF	% RSD	10.2	≤15	0.4749	0.200
2,4,6-Tribromophenol	SURR	Average RF	% RSD	9.7	≤15	0.1528	0.010
2,4,6-Trichlorophenol	TRG	Average RF	% RSD	10.5	≤15	0.4469	0.200
2,4-Dichlorophenol	TRG	Average RF	% RSD	4.9	≤15	0.306	0.200
2,4-Dimethylphenol	TRG	Average RF	% RSD	6.2	≤15	0.2888	0.200
2,4-Dinitrophenol	TRG	Quadratic	COD	0.9987	≥0.990	0.1451	0.010
2,4-Dinitrotoluene	TRG	Average RF	% RSD	8.2	≤15	0.3919	0.200
2,6-Dinitrotoluene	TRG	Average RF	% RSD	4.9	≤15	0.3297	0.200
2-Chloronaphthalene	TRG	Average RF	% RSD	3.4	≤15	1.255	0.800
2-Chlorophenol	TRG	Average RF	% RSD	5.9	≤15	1.313	0.800
2-Fluorobiphenyl	SURR	Average RF	% RSD	4.1	≤15	1.524	0.010
2-Fluorophenol	SURR	Average RF	% RSD	9.1	≤15	1.164	0.010
2-Methyl-4,6-dinitrophenol	TRG	Quadratic	COD	0.9992	≥0.990	0.2062	0.010
2-Methylnaphthalene	TRG	Average RF	% RSD	5.7	≤15	0.6429	0.400
2-Methylphenol	TRG	Average RF	% RSD	7.3	≤15	0.9779	0.700
2-Nitroaniline	TRG	Average RF	% RSD	3.5	≤15	0.385	0.010
2-Nitrophenol	TRG	Average RF	% RSD	7.4	≤15	0.2041	0.100
3,3'-Dichlorobenzidine	TRG	Average RF	% RSD	8.0	≤15	0.5185	0.010
3-Nitroaniline	TRG	Average RF	% RSD	6.7	≤15	0.3411	0.010
4-Bromophenyl Phenyl Ether	TRG	Average RF	% RSD	7.4	≤15	0.2562	0.100
4-Chloro-3-methylphenol	TRG	Average RF	% RSD	10.1	≤15	0.2708	0.010
4-Chloroaniline	TRG	Average RF	% RSD	6.3	≤15	0.4339	0.010
4-Chlorophenyl Phenyl Ether	TRG	Average RF	% RSD	3.6	≤15	0.6824	0.400
4-Methylphenol	TRG	Average RF	% RSD	6.0	≤15	1.31	0.600
4-Nitroaniline	TRG	Average RF	% RSD	7.7	≤15	0.2962	0.010
4-Nitrophenol	TRG	Average RF	% RSD	11.2	≤15	0.1428	0.010
Acenaphthene	TRG	Average RF	% RSD	3.7	≤15	1.105	0.900
Acenaphthylene	TRG	Average RF	% RSD	2.7	≤15	1.982	0.900

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800439 **Signal ID:** 1
Instrument ID: K-MS-07

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Anthracene	TRG	Average RF	% RSD	3.7	≤15	1.061	0.700
Benz(a)anthracene	TRG	Average RF	% RSD	4.6	≤15	1.144	0.800
Benzo(a)pyrene	TRG	Average RF	% RSD	7.7	≤15	1.036	0.700
Benzo(b)fluoranthene	TRG	Average RF	% RSD	6.1	≤15	1.077	0.700
Benzo(g,h,i)perylene	TRG	Average RF	% RSD	11.5	≤15	1.101	0.500
Benzo(k)fluoranthene	TRG	Average RF	% RSD	6.0	≤15	1.07	0.700
Benzoic Acid	TRG	Quadratic	COD	0.9994	≥0.990	0.1407	0.010
Benzyl Alcohol	TRG	Average RF	% RSD	8.7	≤15	0.7989	0.010
Bis(2-chloroethoxy)methane	TRG	Average RF	% RSD	4.2	≤15	0.3983	0.300
Bis(2-chloroethyl) Ether	TRG	Average RF	% RSD	2.2	≤15	1.195	0.700
Bis(2-ethylhexyl) Phthalate	TRG	Average RF	% RSD	6.1	≤15	0.8289	0.010
Butyl Benzyl Phthalate	TRG	Average RF	% RSD	7.9	≤15	0.6342	0.010
Chrysene	TRG	Average RF	% RSD	1.5	≤15	1.103	0.700
Di-n-butyl Phthalate	TRG	Quadratic	COD	0.9978	≥0.990	1.108	0.010
Di-n-octyl Phthalate	TRG	Average RF	% RSD	7.8	≤15	1.193	0.010
Dibenz(a,h)anthracene	TRG	Average RF	% RSD	10.7	≤15	1.015	0.400
Dibenzofuran	TRG	Average RF	% RSD	3.8	≤15	1.732	0.800
Diethyl Phthalate	TRG	Average RF	% RSD	6.0	≤15	1.172	0.010
Dimethyl Phthalate	TRG	Average RF	% RSD	6.4	≤15	1.334	0.010
Fluoranthene	TRG	Quadratic	COD	0.9977	≥0.990	1.012	0.600
Fluorene	TRG	Average RF	% RSD	6.7	≤15	1.327	0.900
Hexachlorobenzene	TRG	Average RF	% RSD	5.1	≤15	0.2839	0.100
Hexachlorobutadiene	TRG	Average RF	% RSD	2.7	≤15	0.2038	0.010
Hexachloroethane	TRG	Average RF	% RSD	2.8	≤15	0.6126	0.300
Indeno(1,2,3-cd)pyrene	TRG	Average RF	% RSD	11.1	≤15	1.045	0.500
Isophorone	TRG	Average RF	% RSD	5.5	≤15	0.6255	0.400
N-Nitrosodi-n-propylamine	TRG	Average RF	% RSD	5.5	≤15	0.9025	0.500
N-Nitrosodimethylamine	TRG	Average RF	% RSD	9.1	≤15	1.096	0.010
N-Nitrosodiphenylamine	TRG	Average RF	% RSD	9.8	≤15	1.075	0.010
Naphthalene	TRG	Average RF	% RSD	2.3	≤15	0.9928	0.700
Nitrobenzene	TRG	Average RF	% RSD	3.8	≤15	1.188	0.200
Nitrobenzene-d5	SURR	Average RF	% RSD	6.4	≤15	1.254	0.010
Pentachlorophenol	TRG	Quadratic	COD	0.9994	≥0.990	0.1572	0.050
Phenanthrene	TRG	Average RF	% RSD	2.5	≤15	1.036	0.700
Phenol	TRG	Average RF	% RSD	4.6	≤15	1.613	0.800

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800439 **Signal ID:** 1
Instrument ID: K-MS-07

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Phenol-d6	SURR	Average RF	% RSD	4.0	≤15	1.554	0.010
Pyrene	TRG	Average RF	% RSD	8.1	≤15	1.259	0.600
Terphenyl-d14	SURR	Average RF	% RSD	9.5	≤15	0.889	0.010

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800380 **Signal ID:** 1
Instrument ID: K-MS-07

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800380-01	8270 Mega ICAL @ 1ppm | SVM59-22A	J:\MS07\DATA\080218\0802F003.D	08/02/2018 18:36
02	KC1800380-02	8270 Mega ICAL @ 5ppm | SVM59-22B	J:\MS07\DATA\080218\0802F004.D	08/02/2018 19:17
03	KC1800380-03	8270 Mega ICAL @ 10ppm | SVM59-22C	J:\MS07\DATA\080218\0802F005.D	08/02/2018 19:58
04	KC1800380-04	8270 Mega ICAL @ 20ppm | SVM59-22D	J:\MS07\DATA\080218\0802F006.D	08/02/2018 20:39
05	KC1800380-05	8270 Mega ICAL @ 50ppm | SVM59-22E	J:\MS07\DATA\080218\0802F007.D	08/02/2018 21:20
06	KC1800380-06	8270 Mega ICAL @ 80ppm | SVM59-22F	J:\MS07\DATA\080218\0802F008.D	08/02/2018 22:01
07	KC1800380-07	8270 Mega ICAL @ 100ppm | SVM59-22G	J:\MS07\DATA\080218\0802F009.D	08/02/2018 22:42
08	KC1800380-08	8270 Mega ICAL @ 120ppm | SVM59-22H	J:\MS07\DATA\080218\0802F010.D	08/02/2018 23:23
09	KC1800380-09	8270 Mega ICAL @ 160ppm | SVM59-22I	J:\MS07\DATA\080218\0802F011.D	08/03/2018 00:04
10	KC1800380-10	8270 Mega ICAL @ 200ppm | SVM59-22J	J:\MS07\DATA\080218\0802F012.D	08/03/2018 00:45

Analyte

1,2,4-Trichlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.3437	03	10.000	0.3304	04	20.000	0.3383	05	50.000	0.343
06	80.000	0.336	07	100.000	0.3453	08	120.000	0.3453	09	160.000	0.3503
10	200.000	0.3366									

1,2-Dichlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	1.383	03	10.000	1.333	04	20.000	1.34	05	50.000	1.354
06	80.000	1.352	07	100.000	1.422	08	120.000	1.377	09	160.000	1.341
10	200.000	1.313									

1,2-Diphenylhydrazine

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	1.431	03	10.000	1.659	04	20.000	1.604	05	50.000	1.321
06	80.000	1.2	07	100.000	1.385	08	120.000	1.294	09	160.000	1.299
10	200.000	1.331									

1,3-Dichlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	1.417	03	10.000	1.416	04	20.000	1.431	05	50.000	1.438
06	80.000	1.435	07	100.000	1.473	08	120.000	1.435	09	160.000	1.43
10	200.000	1.375									

1,4-Dichlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	1.462	03	10.000	1.457	04	20.000	1.442	05	50.000	1.475
06	80.000	1.486	07	100.000	1.527	08	120.000	1.483	09	160.000	1.454
10	200.000	1.408									

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800380 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

2,2'-Oxybis(1-chloropropane)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	2.919	03	10.000	2.865	04	20.000	2.944	05	50.000	2.921
06	80.000	2.965	07	100.000	2.998	08	120.000	3.025	09	160.000	2.906
10	200.000	2.78									

2,4,5-Trichlorophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.3615	03	10.000	0.4376	04	20.000	0.4638	05	50.000	0.5086
06	80.000	0.4995	07	100.000	0.5039	08	120.000	0.5001	09	160.000	0.4963
10	200.000	0.5026									

2,4,6-Tribromophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	10.000	0.1171	04	20.000	0.1518	05	50.000	0.1581	06	80.000	0.1531
07	100.000	0.1608	08	120.000	0.1627	09	160.000	0.1596	10	200.000	0.1596

2,4,6-Trichlorophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.3456	03	10.000	0.3972	04	20.000	0.4332	05	50.000	0.4692
06	80.000	0.4713	07	100.000	0.4877	08	120.000	0.4792	09	160.000	0.4653
10	200.000	0.4735									

2,4-Dichlorophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.2883	03	10.000	0.2793	04	20.000	0.3007	05	50.000	0.3151
06	80.000	0.3108	07	100.000	0.3149	08	120.000	0.3165	09	160.000	0.3268
10	200.000	0.3013									

2,4-Dimethylphenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.2852	03	10.000	0.2832	04	20.000	0.2885	05	50.000	0.3008
06	80.000	0.2943	07	100.000	0.3059	08	120.000	0.2936	09	160.000	0.3079
10	200.000	0.2842									

2,4-Dinitrophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
04	20.000	0.05222	05	50.000	0.1103	06	80.000	0.1353	07	100.000	0.1597
08	120.000	0.1726	09	160.000	0.1848	10	200.000	0.2005			

2,4-Dinitrotoluene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.4307	03	10.000	0.4395	04	20.000	0.3668	05	50.000	0.3843
06	80.000	0.3864	07	100.000	0.3937	08	120.000	0.4046	09	160.000	0.3801
10	200.000	0.4073									

2,6-Dinitrotoluene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.3597	03	10.000	0.3487	04	20.000	0.3366	05	50.000	0.3258

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800380 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

2,6-Dinitrotoluene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
06	80.000	0.3065	07	100.000	0.3175	08	120.000	0.3328	09	160.000	0.3185
10	200.000	0.317									

2-Chloronaphthalene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	1.241	03	10.000	1.193	04	20.000	1.212	05	50.000	1.251
06	80.000	1.299	07	100.000	1.334	08	120.000	1.285	09	160.000	1.259
10	200.000	1.246									

2-Chlorophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	1.291	03	10.000	1.292	04	20.000	1.332	05	50.000	1.314
06	80.000	1.348	07	100.000	1.393	08	120.000	1.382	09	160.000	1.346
10	200.000	1.322									

2-Fluorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	1.573	03	10.000	1.461	04	20.000	1.485	05	50.000	1.523
06	80.000	1.601	07	100.000	1.613	08	120.000	1.515	09	160.000	1.478
10	200.000	1.568									

2-Fluorophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	1.206	03	10.000	1.165	04	20.000	1.193	05	50.000	1.154
06	80.000	1.201	07	100.000	1.212	08	120.000	1.212	09	160.000	1.188
10	200.000	1.242									

2-Methyl-4,6-dinitrophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
04	20.000	0.1286	05	50.000	0.2021	06	80.000	0.2233	07	100.000	0.2468
08	120.000	0.2518	09	160.000	0.2561	10	200.000	0.2732			

2-Methylnaphthalene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.5656	02	5.000	0.6645	03	10.000	0.6323	04	20.000	0.6598
05	50.000	0.6742	06	80.000	0.6347	07	100.000	0.6659	08	120.000	0.6701
09	160.000	0.6665	10	200.000	0.5957						

2-Methylphenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.9634	03	10.000	0.9462	04	20.000	0.9957	05	50.000	0.9973
06	80.000	1.024	07	100.000	1.056	08	120.000	1.023	09	160.000	0.984
10	200.000	0.9972									

2-Nitroaniline

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.4119	03	10.000	0.3938	04	20.000	0.392	05	50.000	0.3878

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800380 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

2-Nitroaniline

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
06	80.000	0.3676	07	100.000	0.3702	08	120.000	0.3912	09	160.000	0.3815
10	200.000	0.3841									

2-Nitrophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.1724	03	10.000	0.1913	04	20.000	0.1987	05	50.000	0.2093
06	80.000	0.2063	07	100.000	0.2153	08	120.000	0.2104	09	160.000	0.2237
10	200.000	0.2092									

3,3'-Dichlorobenzidine

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.463	03	10.000	0.473	04	20.000	0.4918	05	50.000	0.4841
06	80.000	0.5187	07	100.000	0.5528	08	120.000	0.5594	09	160.000	0.5535
10	200.000	0.5707									

3-Nitroaniline

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.3719	03	10.000	0.3786	04	20.000	0.3411	05	50.000	0.3357
06	80.000	0.3253	07	100.000	0.3401	08	120.000	0.3456	09	160.000	0.3409
10	200.000	0.3367									

4-Bromophenyl Phenyl Ether

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.2387	03	10.000	0.2362	04	20.000	0.2762	05	50.000	0.2689
06	80.000	0.26	07	100.000	0.2648	08	120.000	0.2745	09	160.000	0.2696
10	200.000	0.2533									

4-Chloro-3-methylphenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.2541	03	10.000	0.2712	04	20.000	0.2913	05	50.000	0.2986
06	80.000	0.2723	07	100.000	0.2767	08	120.000	0.2805	09	160.000	0.2965
10	200.000	0.2615									

4-Chloroaniline

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.4367	03	10.000	0.4305	04	20.000	0.4543	05	50.000	0.4545
06	80.000	0.4328	07	100.000	0.4459	08	120.000	0.4451	09	160.000	0.4577
10	200.000	0.417									

4-Chlorophenyl Phenyl Ether

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.7066	03	10.000	0.7019	04	20.000	0.7017	05	50.000	0.6889
06	80.000	0.6467	07	100.000	0.6596	08	120.000	0.704	09	160.000	0.6522
10	200.000	0.6609									

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800380 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

4-Methylphenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	2.00	1.138	02	10.00	1.282	03	20.00	1.269	04	40.00	1.325
05	100.00	1.357	06	160.00	1.369	07	200.00	1.425	08	240.00	1.364
09	320.00	1.305	10	400.00	1.267						

4-Nitroaniline

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.2964	03	10.000	0.2996	04	20.000	0.2504	05	50.000	0.2994
06	80.000	0.2887	07	100.000	0.3124	08	120.000	0.3216	09	160.000	0.3068
10	200.000	0.3206									

4-Nitrophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	10.000	0.121	04	20.000	0.1169	05	50.000	0.1409	06	80.000	0.146
07	100.000	0.1516	08	120.000	0.1582	09	160.000	0.1486	10	200.000	0.1594

Acenaphthene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.133	02	5.000	1.165	03	10.000	1.136	04	20.000	1.129
05	50.000	1.125	06	80.000	1.078	07	100.000	1.1	08	120.000	1.095
09	160.000	1.056	10	200.000	1.034						

Acenaphthylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.876	02	5.000	2.035	03	10.000	1.959	04	20.000	2.007
05	50.000	1.995	06	80.000	2.019	07	100.000	2.028	08	120.000	2.034
09	160.000	1.928	10	200.000	1.938						

Anthracene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.998	02	5.000	1.107	03	10.000	1.055	04	20.000	1.026
05	50.000	1.082	06	80.000	1.051	07	100.000	1.096	08	120.000	1.122
09	160.000	1.049	10	200.000	1.026						

Benz(a)anthracene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.075	02	5.000	1.072	03	10.000	1.076	04	20.000	1.138
05	50.000	1.191	06	80.000	1.191	07	100.000	1.209	08	120.000	1.186
09	160.000	1.152	10	200.000	1.149						

Benzo(a)pyrene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.8637	02	5.000	0.9868	03	10.000	0.9525	04	20.000	1.044
05	50.000	1.064	06	80.000	1.071	07	100.000	1.104	08	120.000	1.131
09	160.000	1.076	10	200.000	1.066						

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800380 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

Benzo(b)fluoranthene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.9334	02	5.000	1.039	03	10.000	1.042	04	20.000	1.079
05	50.000	1.048	06	80.000	1.085	07	100.000	1.133	08	120.000	1.125
09	160.000	1.131	10	200.000	1.152						

Benzo(g,h,i)perylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.8589	02	5.000	0.9939	03	10.000	1.044	04	20.000	1.339
05	50.000	1.19	06	80.000	1.138	07	100.000	1.136	08	120.000	1.143
09	160.000	1.094	10	200.000	1.072						

Benzo(k)fluoranthene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.9502	02	5.000	1.128	03	10.000	1.052	04	20.000	1.153
05	50.000	1.051	06	80.000	1.073	07	100.000	1.109	08	120.000	1.141
09	160.000	1.011	10	200.000	1.03						

Benzoic Acid

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
04	20.000	0.09528	05	50.000	0.1352	06	80.000	0.1521	07	100.000	0.1737
08	120.000	0.1866	09	160.000	0.2066	10	200.000	0.2035			

Benzyl Alcohol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.7556	03	10.000	0.7496	04	20.000	0.7889	05	50.000	0.8277
06	80.000	0.848	07	100.000	0.891	08	120.000	0.8521	09	160.000	0.8248
10	200.000	0.806									

Bis(2-chloroethoxy)methane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.3908	03	10.000	0.3881	04	20.000	0.4089	05	50.000	0.4091
06	80.000	0.4018	07	100.000	0.4179	08	120.000	0.4074	09	160.000	0.4094
10	200.000	0.3894									

Bis(2-chloroethyl) Ether

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	1.217	03	10.000	1.193	04	20.000	1.214	05	50.000	1.196
06	80.000	1.21	07	100.000	1.218	08	120.000	1.224	09	160.000	1.164
10	200.000	1.148									

Bis(2-ethylhexyl) Phthalate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.7216	03	10.000	0.775	04	20.000	0.8272	05	50.000	0.8491
06	80.000	0.8628	07	100.000	0.8758	08	120.000	0.8711	09	160.000	0.8371
10	200.000	0.8403									

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800380 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

Butyl Benzyl Phthalate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.5202	02	5.000	0.6254	03	10.000	0.6214	04	20.000	0.6587
05	50.000	0.6857	06	80.000	0.6838	07	100.000	0.6742	08	120.000	0.6546
09	160.000	0.6235	10	200.000	0.5947						

Carbazole

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.902	02	5.000	0.8933	03	10.000	0.8377	04	20.000	0.7674
05	50.000	0.962	06	80.000	1.002	07	100.000	1.063	08	120.000	1.064
09	160.000	1.076	10	200.000	1.069						

Chrysene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.077	02	5.000	1.108	03	10.000	1.102	04	20.000	1.078
05	50.000	1.118	06	80.000	1.123	07	100.000	1.121	08	120.000	1.116
09	160.000	1.095	10	200.000	1.092						

Di-n-butyl Phthalate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	-1.000		03	10.000	0.7583	04	20.000	0.8373	05	50.000	1.095
06	80.000	1.232	07	100.000	1.298	08	120.000	1.342	09	160.000	1.336
10	200.000	1.347									

Di-n-octyl Phthalate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.9797	03	10.000	1.12	04	20.000	1.303	05	50.000	1.21
06	80.000	1.205	07	100.000	1.225	08	120.000	1.251	09	160.000	1.212
10	200.000	1.234									

Dibenz(a,h)anthracene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.8059	03	10.000	0.8851	04	20.000	1.174	05	50.000	1.086
06	80.000	1.028	07	100.000	1.026	08	120.000	1.054	09	160.000	1.039
10	200.000	1.035									

Dibenzofuran

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.753	02	5.000	1.842	03	10.000	1.792	04	20.000	1.774
05	50.000	1.772	06	80.000	1.705	07	100.000	1.685	08	120.000	1.718
09	160.000	1.64	10	200.000	1.644						

Diethyl Phthalate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.237	02	5.000	1.238	03	10.000	1.312	04	20.000	1.102
05	50.000	1.168	06	80.000	1.102	07	100.000	1.135	08	120.000	1.184
09	160.000	1.112	10	200.000	1.127						

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800380 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

Dimethyl Phthalate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.344	02	5.000	1.496	03	10.000	1.441	04	20.000	1.362
05	50.000	1.31	06	80.000	1.258	07	100.000	1.282	08	120.000	1.358
09	160.000	1.271	10	200.000	1.223						

Fluoranthene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	10.000	0.7486	04	20.000	0.7429	05	50.000	0.9875	06	80.000	1.102
07	100.000	1.167	08	120.000	1.188	09	160.000	1.182	10	200.000	1.195

Fluorene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.453	02	5.000	1.439	03	10.000	1.43	04	20.000	1.375
05	50.000	1.308	06	80.000	1.243	07	100.000	1.262	08	120.000	1.299
09	160.000	1.24	10	200.000	1.223						

Hexachlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.2784	03	10.000	0.27	04	20.000	0.2964	05	50.000	0.3018
06	80.000	0.2863	07	100.000	0.2893	08	120.000	0.3004	09	160.000	0.2835
10	200.000	0.2776									

Hexachlorobutadiene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.1953	03	10.000	0.2031	04	20.000	0.1987	05	50.000	0.2088
06	80.000	0.2027	07	100.000	0.2071	08	120.000	0.2053	09	160.000	0.2146
10	200.000	0.1992									

Hexachloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.6244	03	10.000	0.6047	04	20.000	0.6307	05	50.000	0.616
06	80.000	0.6176	07	100.000	0.635	08	120.000	0.6219	09	160.000	0.6025
10	200.000	0.5945									

Indeno(1,2,3-cd)pyrene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.8319	03	10.000	0.8822	04	20.000	1.198	05	50.000	1.122
06	80.000	1.065	07	100.000	1.069	08	120.000	1.105	09	160.000	1.059
10	200.000	1.074									

Isophorone

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.6168	03	10.000	0.6175	04	20.000	0.6367	05	50.000	0.655
06	80.000	0.6244	07	100.000	0.6572	08	120.000	0.6564	09	160.000	0.652
10	200.000	0.5866									

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800380 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

N-Nitrosodi-n-propylamine

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.8671	03	10.000	0.8235	04	20.000	0.8918	05	50.000	0.9176
06	80.000	0.9462	07	100.000	0.985	08	120.000	0.9542	09	160.000	0.8999
10	200.000	0.8895									

N-Nitrosodimethylamine

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	1.115	03	10.000	1.055	04	20.000	1.074	05	50.000	1.06
06	80.000	1.061	07	100.000	1.058	08	120.000	1.062	09	160.000	1.047
10	200.000	1.052									

N-Nitrosodiphenylamine

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	1.245	03	10.000	1.2	04	20.000	1.096	05	50.000	1.048
06	80.000	0.9468	07	100.000	0.9953	08	120.000	1.018	09	160.000	0.9919
10	200.000	1.002									

Naphthalene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.9668	02	5.000	1.016	03	10.000	0.9869	04	20.000	1.002
05	50.000	1.005	06	80.000	0.9737	07	100.000	1.018	08	120.000	0.9982
09	160.000	1.012	10	200.000	0.9488						

Nitrobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	1.137	03	10.000	1.114	04	20.000	1.17	05	50.000	1.182
06	80.000	1.245	07	100.000	1.257	08	120.000	1.218	09	160.000	1.18
10	200.000	1.165									

Nitrobenzene-d5

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	1.203	03	10.000	1.226	04	20.000	1.274	05	50.000	1.23
06	80.000	1.314	07	100.000	1.339	08	120.000	1.302	09	160.000	1.286
10	200.000	1.303									

Pentachlorophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
04	20.000	0.1127	05	50.000	0.1584	06	80.000	0.171	07	100.000	0.1807
08	120.000	0.1884	09	160.000	0.191	10	200.000	0.1915			

Phenanthrene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.057	02	5.000	1.072	03	10.000	1.019	04	20.000	1.015
05	50.000	1.06	06	80.000	1.027	07	100.000	1.043	08	120.000	1.052
09	160.000	1.031	10	200.000	0.987						

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800380 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte

Phenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	1.59	03	10.000	1.583	04	20.000	1.642	05	50.000	1.611
06	80.000	1.67	07	100.000	1.711	08	120.000	1.685	09	160.000	1.591
10	200.000	1.601									

Phenol-d6

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	1.505	03	10.000	1.504	04	20.000	1.551	05	50.000	1.565
06	80.000	1.614	07	100.000	1.64	08	120.000	1.617	09	160.000	1.531
10	200.000	1.574									

Pyrene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.416	02	5.000	1.26	03	10.000	1.156	04	20.000	1.065
05	50.000	1.206	06	80.000	1.302	07	100.000	1.35	08	120.000	1.335
09	160.000	1.266	10	200.000	1.23						

Terphenyl-d14

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.9344	02	5.000	0.7746	03	10.000	0.7793	04	20.000	0.7662
05	50.000	0.8863	06	80.000	0.9634	07	100.000	0.9603	08	120.000	0.981
09	160.000	0.9372	10	200.000	0.9071						

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800380 **Signal ID:** 1
Instrument ID: K-MS-07

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
1,2,4-Trichlorobenzene	TRG	Average RF	% RSD	1.8	≤15	0.341	0.010
1,2-Dichlorobenzene	TRG	Average RF	% RSD	2.4	≤15	1.357	0.010
1,2-Diphenylhydrazine	TRG	Average RF	% RSD	10.8	≤15	1.392	0.010
1,3-Dichlorobenzene	TRG	Average RF	% RSD	1.8	≤15	1.428	0.010
1,4-Dichlorobenzene	TRG	Average RF	% RSD	2.2	≤15	1.466	0.010
2,2'-Oxybis(1-chloropropane)	TRG	Average RF	% RSD	2.5	≤15	2.925	0.010
2,4,5-Trichlorophenol	TRG	Average RF	% RSD	10.2	≤15	0.4749	0.200
2,4,6-Tribromophenol	SURR	Average RF	% RSD	9.7	≤15	0.1528	0.010
2,4,6-Trichlorophenol	TRG	Average RF	% RSD	10.5	≤15	0.4469	0.200
2,4-Dichlorophenol	TRG	Average RF	% RSD	4.9	≤15	0.306	0.200
2,4-Dimethylphenol	TRG	Average RF	% RSD	3.2	≤15	0.2937	0.200
2,4-Dinitrophenol	TRG	Quadratic	COD	0.9987	≥0.990	0.1451	0.010
2,4-Dinitrotoluene	TRG	Average RF	% RSD	6.0	≤15	0.3993	0.200
2,6-Dinitrotoluene	TRG	Average RF	% RSD	5.2	≤15	0.3292	0.200
2-Chloronaphthalene	TRG	Average RF	% RSD	3.5	≤15	1.258	0.800
2-Chlorophenol	TRG	Average RF	% RSD	2.7	≤15	1.336	0.800
2-Fluorobiphenyl	SURR	Average RF	% RSD	3.6	≤15	1.535	0.010
2-Fluorophenol	SURR	Average RF	% RSD	2.2	≤15	1.197	0.010
2-Methyl-4,6-dinitrophenol	TRG	Quadratic	COD	0.9990	≥0.990	0.226	0.010
2-Methylnaphthalene	TRG	Average RF	% RSD	5.7	≤15	0.6429	0.400
2-Methylphenol	TRG	Average RF	% RSD	3.3	≤15	0.9984	0.700
2-Nitroaniline	TRG	Average RF	% RSD	3.4	≤15	0.3867	0.010
2-Nitrophenol	TRG	Average RF	% RSD	7.4	≤15	0.2041	0.100
3,3'-Dichlorobenzidine	TRG	Average RF	% RSD	8.0	≤15	0.5185	0.010
3-Nitroaniline	TRG	Average RF	% RSD	5.0	≤15	0.3462	0.010
4-Bromophenyl Phenyl Ether	TRG	Average RF	% RSD	5.7	≤15	0.2603	0.100
4-Chloro-3-methylphenol	TRG	Average RF	% RSD	5.5	≤15	0.2781	0.010
4-Chloroaniline	TRG	Average RF	% RSD	3.0	≤15	0.4416	0.010
4-Chlorophenyl Phenyl Ether	TRG	Average RF	% RSD	3.7	≤15	0.6803	0.400
4-Methylphenol	TRG	Average RF	% RSD	6.0	≤15	1.31	0.600
4-Nitroaniline	TRG	Average RF	% RSD	7.2	≤15	0.2996	0.010
4-Nitrophenol	TRG	Average RF	% RSD	11.2	≤15	0.1428	0.010
Acenaphthene	TRG	Average RF	% RSD	3.7	≤15	1.105	0.900
Acenaphthylene	TRG	Average RF	% RSD	2.7	≤15	1.982	0.900

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800380 **Signal ID:** 1
Instrument ID: K-MS-07

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Anthracene	TRG	Average RF	% RSD	3.7	≤15	1.061	0.700
Benz(a)anthracene	TRG	Average RF	% RSD	4.6	≤15	1.144	0.800
Benzo(a)pyrene	TRG	Average RF	% RSD	7.7	≤15	1.036	0.700
Benzo(b)fluoranthene	TRG	Average RF	% RSD	6.1	≤15	1.077	0.700
Benzo(g,h,i)perylene	TRG	Average RF	% RSD	11.5	≤15	1.101	0.500
Benzo(k)fluoranthene	TRG	Average RF	% RSD	6.0	≤15	1.07	0.700
Benzoic Acid	TRG	Quadratic	COD	0.9948	≥0.990	0.1647	0.010
Benzyl Alcohol	TRG	Average RF	% RSD	5.7	≤15	0.816	0.010
Bis(2-chloroethoxy)methane	TRG	Average RF	% RSD	2.7	≤15	0.4025	0.300
Bis(2-chloroethyl) Ether	TRG	Average RF	% RSD	2.2	≤15	1.198	0.700
Bis(2-ethylhexyl) Phthalate	TRG	Average RF	% RSD	6.1	≤15	0.8289	0.010
Butyl Benzyl Phthalate	TRG	Average RF	% RSD	7.9	≤15	0.6342	0.010
Carbazole	TRG	Average RF	% RSD	11.4	≤15	0.9637	0.010
Chrysene	TRG	Average RF	% RSD	1.5	≤15	1.103	0.700
Di-n-butyl Phthalate	TRG	Quadratic	COD	0.9984	≥0.990	1.156	0.010
Di-n-octyl Phthalate	TRG	Average RF	% RSD	7.8	≤15	1.193	0.010
Dibenz(a,h)anthracene	TRG	Average RF	% RSD	10.7	≤15	1.015	0.400
Dibenzofuran	TRG	Average RF	% RSD	3.8	≤15	1.732	0.800
Diethyl Phthalate	TRG	Average RF	% RSD	6.0	≤15	1.172	0.010
Dimethyl Phthalate	TRG	Average RF	% RSD	6.4	≤15	1.334	0.010
Fluoranthene	TRG	Quadratic	COD	0.9989	≥0.990	1.039	0.600
Fluorene	TRG	Average RF	% RSD	6.7	≤15	1.327	0.900
Hexachlorobenzene	TRG	Average RF	% RSD	3.8	≤15	0.2871	0.100
Hexachlorobutadiene	TRG	Average RF	% RSD	2.9	≤15	0.2039	0.010
Hexachloroethane	TRG	Average RF	% RSD	2.2	≤15	0.6164	0.300
Indeno(1,2,3-cd)pyrene	TRG	Average RF	% RSD	11.1	≤15	1.045	0.500
Isophorone	TRG	Average RF	% RSD	3.8	≤15	0.6336	0.400
N-Nitrosodi-n-propylamine	TRG	Average RF	% RSD	5.4	≤15	0.9083	0.500
N-Nitrosodimethylamine	TRG	Average RF	% RSD	1.9	≤15	1.065	0.010
N-Nitrosodiphenylamine	TRG	Average RF	% RSD	9.5	≤15	1.06	0.010
Naphthalene	TRG	Average RF	% RSD	2.3	≤15	0.9928	0.700
Nitrobenzene	TRG	Average RF	% RSD	4.0	≤15	1.185	0.200
Nitrobenzene-d5	SURR	Average RF	% RSD	3.6	≤15	1.275	0.010
Pentachlorophenol	TRG	Quadratic	COD	0.9994	≥0.990	0.1705	0.050
Phenanthrene	TRG	Average RF	% RSD	2.5	≤15	1.036	0.700

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800380 **Signal ID:** 1
Instrument ID: K-MS-07

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Phenol	TRG	Average RF	% RSD	2.9	≤15	1.631	0.800
Phenol-d6	SURR	Average RF	% RSD	3.1	≤15	1.567	0.010
Pyrene	TRG	Average RF	% RSD	8.1	≤15	1.259	0.600
Terphenyl-d14	SURR	Average RF	% RSD	9.5	≤15	0.889	0.010

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Verification Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800439 **Signal ID:** 1
Instrument ID: K-MS-07

#	Lab Code	Sample Name	File Location	Acquisition Date
11	KC1800439-11	8270 ICV @ 80ppm | SVM58-87C	J:\MS07\DATA\080218A\0802A013.D	08/03/2018 01:27
12	KC1800439-12	Benzidine ICV @ 50ppm | SVM58-2B	J:\MS07\DATA\080218A\0802A015.D	08/03/2018 02:49

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
1,2,4-Trichlorobenzene	80.0	79.3	3.413E-1	3.381E-1	-0.926	±20	Average RF
1,2-Dichlorobenzene	80.0	81.3	1.354E0	1.375E0	1.57	±20	Average RF
1,2-Diphenylhydrazine	80.0	68.9	1.391E0	1.199E0	-13.845	±20	Average RF
1,3-Dichlorobenzene	80.0	78.6	1.431E0	1.406E0	-1.750	±20	Average RF
1,4-Dichlorobenzene	80.0	81.2	1.461E0	1.484E0	1.54	±20	Average RF
2,4,5-Trichlorophenol	80.0	88.3	4.749E-1	5.239E-1	10.32	±20	Average RF
2,4,6-Trichlorophenol	80.0	85.9	4.469E-1	4.801E-1	7.42	±20	Average RF
2,4-Dichlorophenol	80.0	85.1	3.06E-1	3.253E-1	6.32	±20	Average RF
2,4-Dimethylphenol	80.0	78.2	2.888E-1	2.824E-1	-2.220	±20	Average RF
2,4-Dinitrophenol	80.0	92.1	1.451E-1	1.754E-1	15.10	±20	Quadratic
2,4-Dinitrotoluene	80.0	75.4	3.919E-1	3.695E-1	-5.713	±20	Average RF
2,6-Dinitrotoluene	80.0	74.2	3.297E-1	3.057E-1	-7.272	±20	Average RF
2-Chloronaphthalene	80.0	82.5	1.255E0	1.294E0	3.13	±20	Average RF
2-Chlorophenol	80.0	83.7	1.313E0	1.373E0	4.58	±20	Average RF
2-Methyl-4,6-dinitrophenol	80.0	79.4	2.062E-1	2.277E-1	-0.689	±20	Quadratic
2-Methylnaphthalene	80.0	81.6	6.429E-1	6.56E-1	2.04	±20	Average RF
2-Methylphenol	80.0	91.1	9.779E-1	1.113E0	13.83	±20	Average RF
2-Nitroaniline	80.0	77.1	3.85E-1	3.708E-1	-3.667	±20	Average RF
2-Nitrophenol	80.0	87.3	2.041E-1	2.227E-1	9.12	±20	Average RF
3,3'-Dichlorobenzidine	80.0	76.6	5.185E-1	4.963E-1	-4.299	±20	Average RF
3-Nitroaniline	80.0	76.0	3.411E-1	3.242E-1	-4.980	±20	Average RF
4-Bromophenyl Phenyl Ether	80.0	82.2	2.562E-1	2.632E-1	2.75	±20	Average RF
4-Chloro-3-methylphenol	80.0	88.6	2.708E-1	3.0E-1	10.80	±20	Average RF
4-Chloroaniline	80.0	79.3	4.339E-1	4.302E-1	-0.848	±20	Average RF
4-Chlorophenyl Phenyl Ether	80.0	78.3	6.824E-1	6.678E-1	-2.136	±20	Average RF
4-Methylphenol	80.0	97.7	1.31E0	1.6E0	22.16*	±20	Average RF
4-Nitroaniline	80.0	78.4	2.962E-1	2.904E-1	-1.964	±20	Average RF
4-Nitrophenol	80.0	85.7	1.428E-1	1.531E-1	7.18	±20	Average RF
Acenaphthene	80.0	78.4	1.105E0	1.083E0	-1.968	±20	Average RF
Acenaphthylene	80.0	75.9	1.982E0	1.879E0	-5.163	±20	Average RF
Anthracene	80.0	79.8	1.061E0	1.059E0	-0.217	±20	Average RF
Benz(a)anthracene	80.0	85.5	1.144E0	1.222E0	6.81	±20	Average RF

QA/QC Report

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Verification Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800439 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Benzo(a)pyrene	80.0	83.6	1.036E0	1.083E0	4.55	±20	Average RF
Benzo(b)fluoranthene	80.0	85.9	1.077E0	1.157E0	7.44	±20	Average RF
Benzo(g,h,i)perylene	80.0	82.8	1.101E0	1.14E0	3.53	±20	Average RF
Benzo(k)fluoranthene	80.0	85.1	1.07E0	1.138E0	6.35	±20	Average RF
Benzoic Acid	80.0	93.8	1.407E-1	1.965E-1	17.27	±20	Quadratic
Benzyl Alcohol	80.0	88.5	7.989E-1	8.834E-1	10.58	±20	Average RF
Bis(2-chloroethoxy)methane	80.0	82.4	3.983E-1	4.101E-1	2.97	±20	Average RF
Bis(2-chloroethyl) Ether	80.0	83.5	1.195E0	1.248E0	4.42	±20	Average RF
Bis(2-ethylhexyl) Phthalate	80.0	87.1	8.289E-1	9.019E-1	8.81	±20	Average RF
Butyl Benzyl Phthalate	80.0	87.1	6.342E-1	6.906E-1	8.89	±20	Average RF
Chrysene	80.0	82.0	1.103E0	1.13E0	2.47	±20	Average RF
Dibenz(a,h)anthracene	80.0	84.2	1.015E0	1.067E0	5.20	±20	Average RF
Dibenzofuran	80.0	81.1	1.732E0	1.756E0	1.36	±20	Average RF
Diethyl Phthalate	80.0	76.5	1.172E0	1.12E0	-4.415	±20	Average RF
Dimethyl Phthalate	80.0	75.0	1.334E0	1.251E0	-6.260	±20	Average RF
Di-n-butyl Phthalate	80.0	79.0	1.108E0	1.208E0	-1.242	±20	Quadratic
Di-n-octyl Phthalate	80.0	83.4	1.193E0	1.244E0	4.25	±20	Average RF
Fluoranthene	80.0	79.7	1.012E0	1.088E0	-0.416	±20	Quadratic
Fluorene	80.0	74.0	1.327E0	1.228E0	-7.506	±20	Average RF
Hexachlorobenzene	80.0	79.7	2.839E-1	2.827E-1	-0.422	±20	Average RF
Hexachlorobutadiene	80.0	78.1	2.038E-1	1.99E-1	-2.346	±20	Average RF
Hexachloroethane	80.0	80.0	6.126E-1	6.128E-1	0.029	±20	Average RF
Indeno(1,2,3-cd)pyrene	80.0	86.1	1.045E0	1.125E0	7.63	±20	Average RF
Isophorone	80.0	83.8	6.255E-1	6.55E-1	4.71	±20	Average RF
Naphthalene	80.0	80.3	9.928E-1	9.966E-1	0.382	±20	Average RF
Nitrobenzene	80.0	84.6	1.188E0	1.256E0	5.75	±20	Average RF
N-Nitrosodimethylamine	80.0	87.5	1.096E0	1.199E0	9.40	±20	Average RF
N-Nitrosodi-n-propylamine	80.0	80.3	9.025E-1	9.065E-1	0.434	±20	Average RF
N-Nitrosodiphenylamine	80.0	59.4	1.075E0	7.979E-1	-25.752*	±20	Average RF
Pentachlorophenol	80.0	81.8	1.572E-1	1.81E-1	2.29	±20	Quadratic
Phenanthrene	80.0	80.9	1.036E0	1.048E0	1.17	±20	Average RF
Phenol	80.0	83.2	1.613E0	1.677E0	3.98	±20	Average RF
Pyrene	80.0	80.8	1.259E0	1.271E0	0.987	±20	Average RF
2,2'-Oxybis(1-chloropropane)	80.0	68.7	2.92E0	2.509E0	-14.071	±20	Average RF

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Verification Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800439 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
2,4,6-Tribromophenol	80.0	78.0	1.528E-1	1.491E-1	-2.453	±20	Average RF
2-Fluorobiphenyl	80.0	77.8	1.524E0	1.482E0	-2.790	±20	Average RF
2-Fluorophenol	80.0	79.9	1.164E0	1.163E0	-0.097	±20	Average RF
Nitrobenzene-d5	80.0	82.1	1.254E0	1.286E0	2.60	±20	Average RF
Phenol-d6	80.0	77.8	1.554E0	1.511E0	-2.728	±20	Average RF
Terphenyl-d14	80.0	83.3	8.89E-1	9.254E-1	4.10	±20	Average RF

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Verification Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800380 **Signal ID:** 1
Instrument ID: K-MS-07

#	Lab Code	Sample Name	File Location	Acquisition Date
11	KC1800380-11	8270 ICV @ 80ppm | SVM58-87C	J:\MS07\DATA\080218\0802F013.D	08/03/2018 01:27
12	KC1800380-12	PAPER ICV @ 80ppm | SVM58-87A	J:\MS07\DATA\080218\0802F014.D	08/03/2018 02:08
13	KC1800380-13	Benzidine ICV @ 50ppm | SVM58-2B	J:\MS07\DATA\080218\0802F015.D	08/03/2018 02:49

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
1,2,4-Trichlorobenzene	80.0	79.3	3.41E-1	3.381E-1	-0.850	±20	Average RF
1,2-Dichlorobenzene	80.0	81.0	1.357E0	1.375E0	1.29	±20	Average RF
1,2-Diphenylhydrazine	80.0	68.9	1.392E0	1.199E0	-13.870	±20	Average RF
1,3-Dichlorobenzene	80.0	78.8	1.428E0	1.406E0	-1.494	±20	Average RF
1,4-Dichlorobenzene	80.0	81.0	1.466E0	1.484E0	1.20	±20	Average RF
2,4,5-Trichlorophenol	80.0	88.3	4.749E-1	5.239E-1	10.32	±20	Average RF
2,4,6-Trichlorophenol	80.0	85.9	4.469E-1	4.801E-1	7.42	±20	Average RF
2,4-Dichlorophenol	80.0	85.1	3.06E-1	3.253E-1	6.32	±20	Average RF
2,4-Dimethylphenol	80.0	76.9	2.937E-1	2.824E-1	-3.865	±20	Average RF
2,4-Dinitrophenol	80.0	92.1	1.451E-1	1.754E-1	15.10	±20	Quadratic
2,4-Dinitrotoluene	80.0	74.0	3.993E-1	3.695E-1	-7.444	±20	Average RF
2,6-Dinitrotoluene	80.0	74.3	3.292E-1	3.057E-1	-7.140	±20	Average RF
2-Chloronaphthalene	80.0	82.3	1.258E0	1.294E0	2.86	±20	Average RF
2-Chlorophenol	80.0	82.3	1.336E0	1.373E0	2.84	±20	Average RF
2-Methyl-4,6-dinitrophenol	80.0	79.3	2.26E-1	2.277E-1	-0.829	±20	Quadratic
2-Methylnaphthalene	80.0	81.6	6.429E-1	6.56E-1	2.04	±20	Average RF
2-Methylphenol	80.0	89.2	9.984E-1	1.113E0	11.49	±20	Average RF
2-Nitroaniline	80.0	76.7	3.867E-1	3.708E-1	-4.091	±20	Average RF
2-Nitrophenol	80.0	87.3	2.041E-1	2.227E-1	9.12	±20	Average RF
3,3'-Dichlorobenzidine	80.0	76.6	5.185E-1	4.963E-1	-4.299	±20	Average RF
3-Nitroaniline	80.0	74.9	3.462E-1	3.242E-1	-6.371	±20	Average RF
4-Bromophenyl Phenyl Ether	80.0	80.9	2.603E-1	2.632E-1	1.14	±20	Average RF
4-Chloro-3-methylphenol	80.0	86.3	2.781E-1	3.0E-1	7.89	±20	Average RF
4-Chloroaniline	80.0	77.9	4.416E-1	4.302E-1	-2.580	±20	Average RF
4-Chlorophenyl Phenyl Ether	80.0	78.5	6.803E-1	6.678E-1	-1.833	±20	Average RF
4-Methylphenol	80.0	97.7	1.31E0	1.6E0	22.16*	±20	Average RF
4-Nitroaniline	80.0	77.6	2.996E-1	2.904E-1	-3.048	±20	Average RF
4-Nitrophenol	80.0	85.7	1.428E-1	1.531E-1	7.18	±20	Average RF
Acenaphthene	80.0	78.4	1.105E0	1.083E0	-1.968	±20	Average RF
Acenaphthylene	80.0	75.9	1.982E0	1.879E0	-5.163	±20	Average RF
Anthracene	80.0	79.8	1.061E0	1.059E0	-0.217	±20	Average RF

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Verification Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800380 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Benz(a)anthracene	80.0	85.5	1.144E0	1.222E0	6.81	±20	Average RF
Benzo(a)pyrene	80.0	83.6	1.036E0	1.083E0	4.55	±20	Average RF
Benzo(b)fluoranthene	80.0	85.9	1.077E0	1.157E0	7.44	±20	Average RF
Benzo(g,h,i)perylene	80.0	82.8	1.101E0	1.14E0	3.53	±20	Average RF
Benzo(k)fluoranthene	80.0	85.1	1.07E0	1.138E0	6.35	±20	Average RF
Benzoic Acid	80.0	91.4	1.647E-1	1.965E-1	14.26	±20	Quadratic
Benzyl Alcohol	80.0	86.6	8.16E-1	8.834E-1	8.27	±20	Average RF
Bis(2-chloroethoxy)methane	80.0	81.5	4.025E-1	4.101E-1	1.88	±20	Average RF
Bis(2-chloroethyl) Ether	80.0	83.3	1.198E0	1.248E0	4.14	±20	Average RF
Bis(2-ethylhexyl) Phthalate	80.0	87.1	8.289E-1	9.019E-1	8.81	±20	Average RF
Butyl Benzyl Phthalate	80.0	87.1	6.342E-1	6.906E-1	8.89	±20	Average RF
Carbazole	80.0	80.6	9.637E-1	9.714E-1	0.799	±20	Average RF
Chrysene	80.0	82.0	1.103E0	1.13E0	2.47	±20	Average RF
Dibenz(a,h)anthracene	80.0	84.2	1.015E0	1.067E0	5.20	±20	Average RF
Dibenzofuran	80.0	81.1	1.732E0	1.756E0	1.36	±20	Average RF
Diethyl Phthalate	80.0	76.5	1.172E0	1.12E0	-4.415	±20	Average RF
Dimethyl Phthalate	80.0	75.0	1.334E0	1.251E0	-6.260	±20	Average RF
Di-n-butyl Phthalate	80.0	78.2	1.156E0	1.208E0	-2.274	±20	Quadratic
Di-n-octyl Phthalate	80.0	83.4	1.193E0	1.244E0	4.25	±20	Average RF
Fluoranthene	80.0	77.6	1.039E0	1.088E0	-3.054	±20	Quadratic
Fluorene	80.0	74.0	1.327E0	1.228E0	-7.506	±20	Average RF
Hexachlorobenzene	80.0	78.8	2.871E-1	2.827E-1	-1.542	±20	Average RF
Hexachlorobutadiene	80.0	78.1	2.039E-1	1.99E-1	-2.387	±20	Average RF
Hexachloroethane	80.0	79.5	6.164E-1	6.128E-1	-0.582	±20	Average RF
Indeno(1,2,3-cd)pyrene	80.0	86.1	1.045E0	1.125E0	7.63	±20	Average RF
Isophorone	80.0	82.7	6.336E-1	6.55E-1	3.37	±20	Average RF
Naphthalene	80.0	80.3	9.928E-1	9.966E-1	0.382	±20	Average RF
Nitrobenzene	80.0	84.8	1.185E0	1.256E0	6.01	±20	Average RF
N-Nitrosodimethylamine	80.0	90.1	1.065E0	1.199E0	12.58	±20	Average RF
N-Nitrosodi-n-propylamine	80.0	79.8	9.083E-1	9.065E-1	-0.202	±20	Average RF
N-Nitrosodiphenylamine	80.0	60.2	1.06E0	7.979E-1	-24.751*	±20	Average RF
Pentachlorophenol	80.0	81.8	1.705E-1	1.81E-1	2.30	±20	Quadratic
Phenanthrene	80.0	80.9	1.036E0	1.048E0	1.17	±20	Average RF
Phenol	80.0	82.2	1.631E0	1.677E0	2.80	±20	Average RF
Pyrene	80.0	80.8	1.259E0	1.271E0	0.987	±20	Average RF
2,2'-Oxybis(1-chloropropane)	80.0	68.7	2.925E0	2.513E0	-14.088	±20	Average RF

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM **Calibration Date:** 8/2/2018

Initial Calibration Verification Summary
Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800380 **Signal ID:** 1
Instrument ID: K-MS-07

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
2,4,6-Tribromophenol	80.0	78.0	1.528E-1	1.491E-1	-2.463	±20	Average RF
2-Fluorobiphenyl	80.0	77.2	1.535E0	1.482E0	-3.478	±20	Average RF
2-Fluorophenol	80.0	77.7	1.197E0	1.163E0	-2.825	±20	Average RF
Nitrobenzene-d5	80.0	80.7	1.275E0	1.286E0	0.873	±20	Average RF
Phenol-d6	80.0	77.2	1.567E0	1.511E0	-3.543	±20	Average RF
Terphenyl-d14	80.0	83.3	8.89E-1	9.254E-1	4.10	±20	Average RF

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM/6304305 **Date Analyzed:** 09/21/18 15:34

Continuing Calibration Verification (CCV) Summary
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D **Calibration Date:** 8/2/2018
File ID: J:\MS07\DATA\092118\0921F012.D\ **Calibration ID:** KC1800439
Signal ID: 1 **Analysis Lot:** 607858
Units: ug/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,2,4-Trichlorobenzene	80.0	80.9	0.3413	0.3449	1.1	NA	±20	Average RF
1,2-Dichlorobenzene	80.0	84.0	1.3535	1.4203	4.9	NA	±20	Average RF
1,2-Diphenylhydrazine	80.0	74.7	1.3914	1.2988	-6.7	NA	±20	Average RF
1,3-Dichlorobenzene	80.0	82.0	1.4314	1.4663	2.4	NA	±20	Average RF
1,4-Dichlorobenzene	80.0	83.2	1.4611	1.5194	4.0	NA	±20	Average RF
2,4,5-Trichlorophenol	80.0	76.7	0.4749	0.455	-4.2	NA	±20	Average RF
2,4,6-Trichlorophenol	80.0	79.0	0.4469	0.4414	-1.2	NA	±20	Average RF
2,4-Dichlorophenol	80.0	81.3	0.306	0.311	1.6	NA	±20	Average RF
2,4-Dimethylphenol	80.0	80.6	0.2888	0.291	0.8	NA	±20	Average RF
2,4-Dinitrophenol	80.0	69.8	0.1451	0.1193	NA	-12.8	±20	Quadratic
2,4-Dinitrotoluene	80.0	70.9	0.3919	0.3475	-11.3	NA	±20	Average RF
2,6-Dinitrotoluene	80.0	71.8	0.3297	0.2959	-10.3	NA	±20	Average RF
2-Chloronaphthalene	80.0	76.9	1.2545	1.2054	-3.9	NA	±20	Average RF
2-Chlorophenol	80.0	82.9	1.3133	1.3607	3.6	NA	±20	Average RF
2-Methyl-4,6-dinitrophenol	80.0	74.1	0.2062	0.2096	NA	-7.3	±20	Quadratic
2-Methylnaphthalene	80.0	84.5	0.6429	0.679	5.6	NA	±20	Average RF
2-Methylphenol	80.0	88.4	0.9779	1.0807	10.5	NA	±20	Average RF
2-Nitroaniline	80.0	74.2	0.385	0.3569	-7.3	NA	±20	Average RF
2-Nitrophenol	80.0	80.9	0.2041	0.2064	1.1	NA	±20	Average RF
3,3'-Dichlorobenzidine	80.0	83.7	0.5185	0.5428	4.7	NA	±20	Average RF
3-Nitroaniline	80.0	65.7	0.3411	0.2801	-17.9	NA	±20	Average RF
4-Bromophenyl Phenyl Ether	80.0	92.8	0.2562	0.2971	16.0	NA	±20	Average RF
4-Chloro-3-methylphenol	80.0	84.7	0.2708	0.2866	5.9	NA	±20	Average RF
4-Chloroaniline	80.0	80.5	0.4339	0.4366	0.6	NA	±20	Average RF
4-Chlorophenyl Phenyl Ether	80.0	75.3	0.6824	0.6426	-5.8	NA	±20	Average RF
4-Methylphenol	160	183	1.3101	1.4975	14.3	NA	±20	Average RF
4-Nitroaniline	80.0	69.2	0.2962	0.2561	-13.5	NA	±20	Average RF
4-Nitrophenol	80.0	75.1	0.1428	0.134	-6.2	NA	±20	Average RF
Acenaphthene	80.0	75.9	1.105	1.0483	-5.1	NA	±20	Average RF
Acenaphthylene	80.0	75.8	1.9818	1.8768	-5.3	NA	±20	Average RF
Anthracene	80.0	82.0	1.061	1.0875	2.5	NA	±20	Average RF
Benz(a)anthracene	80.0	84.1	1.1438	1.2022	5.1	NA	±20	Average RF
Benzo(a)pyrene	80.0	80.8	1.036	1.0464	1.0	NA	±20	Average RF
Benzo(b)fluoranthene	80.0	74.9	1.0766	1.008	-6.4	NA	±20	Average RF
Benzo(g,h,i)perylene	80.0	86.9	1.101	1.1952	8.6	NA	±20	Average RF
Benzo(k)fluoranthene	80.0	76.2	1.0699	1.0191	-4.7	NA	±20	Average RF
Benzoic Acid	80.0	88.0	0.1407	0.1801	NA	10.0	±20	Quadratic
Benzyl Alcohol	80.0	85.2	0.7989	0.8504	6.4	NA	±20	Average RF
Bis(2-chloroethoxy)methane	80.0	80.0	0.3983	0.3983	0.0	NA	±20	Average RF

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM/6304305 **Date Analyzed:** 09/21/18 15:34

Continuing Calibration Verification (CCV) Summary
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D **Calibration Date:** 8/2/2018
File ID: J:\MS07\DATA\092118\0921F012.D\ **Calibration ID:** KC1800439
Signal ID: 1 **Analysis Lot:** 607858
Units: ug/mL

Bis(2-chloroethyl) Ether	80.0	79.8	1.1949	1.1923	-0.2	NA	±20	Average RF
Bis(2-ethylhexyl) Phthalate	80.0	78.2	0.8289	0.8107	-2.2	NA	±20	Average RF
Butyl Benzyl Phthalate	80.0	79.5	0.6342	0.6304	-0.6	NA	±20	Average RF
Chrysene	80.0	80.6	1.1031	1.1111	0.7	NA	±20	Average RF
Dibenz(a,h)anthracene	80.0	86.1	1.0147	1.0925	7.7	NA	±20	Average RF
Dibenzofuran	80.0	74.9	1.7325	1.621	-6.4	NA	±20	Average RF
Diethyl Phthalate	80.0	74.1	1.1716	1.085	-7.4	NA	±20	Average RF
Dimethyl Phthalate	80.0	74.1	1.3344	1.2366	-7.3	NA	±20	Average RF
Di-n-butyl Phthalate	80.0	79.9	1.1084	1.2232	NA	-0.1	±20	Quadratic
Di-n-octyl Phthalate	80.0	68.7	1.1931	1.0243	-14.1	NA	±20	Average RF
Fluoranthene	80.0	83.2	1.012	1.14	NA	4.0	±20	Quadratic
Fluorene	80.0	72.9	1.3272	1.2098	-8.8	NA	±20	Average RF
Hexachlorobenzene	80.0	95.0	0.2839	0.3369	18.7	NA	±20	Average RF
Hexachlorobutadiene	80.0	87.1	0.2038	0.2218	8.9	NA	±20	Average RF
Hexachloroethane	80.0	89.6	0.6126	0.6861	12.0	NA	±20	Average RF
Indeno(1,2,3-cd)pyrene	80.0	87.2	1.0451	1.1393	9.0	NA	±20	Average RF
Isophorone	80.0	83.9	0.6255	0.656	4.9	NA	±20	Average RF
Naphthalene	80.0	80.9	0.9928	1.0033	1.1	NA	±20	Average RF
Nitrobenzene	80.0	90.1	1.1882	1.3375	12.6	NA	±20	Average RF
N-Nitrosodimethylamine	80.0	87.8	1.0959	1.202	9.7	NA	±20	Average RF
N-Nitrosodi-n-propylamine	80.0	89.6	0.9025	1.0108	12.0	NA	±20	Average RF
N-Nitrosodiphenylamine	80.0	67.9	1.0746	0.9115	-15.2	NA	±20	Average RF
Pentachlorophenol	80.0	78.9	0.1572	0.1736	NA	-1.4	±20	Quadratic
Phenanthrene	80.0	82.1	1.0362	1.0633	2.6	NA	±20	Average RF
Phenol	80.0	83.7	1.6129	1.6874	4.6	NA	±20	Average RF
Pyrene	80.0	82.4	1.2586	1.2959	3.0	NA	±20	Average RF
2,2'-Oxybis(1-chloropropane)	80.0	82.7	2.9203	3.0177	3.3	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
2,4,6-Tribromophenol	80.0	91.3	0.1528	0.1744	14.1	NA	±20	Average RF
2-Fluorobiphenyl	80.0	76.9	1.5244	1.4651	-3.9	NA	±20	Average RF
2-Fluorophenol	80.0	82.0	1.1645	1.1939	2.5	NA	±20	Average RF
Nitrobenzene-d5	80.0	90.7	1.2538	1.4218	13.4	NA	±20	Average RF
Phenol-d6	80.0	80.8	1.5536	1.5697	1.0	NA	±20	Average RF
Terphenyl-d14	80.0	90.3	0.889	1.0029	12.8	NA	±20	Average RF

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM/6304305 **Date Analyzed:** 10/02/18 16:22

Continuing Calibration Verification (CCV) Summary
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D **Calibration Date:** 8/2/2018
File ID: J:\MS07\DATA\100218\1002F002.D\ **Calibration ID:** KC1800439
Signal ID: 1 **Analysis Lot:** 609329
Units: ug/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,2,4-Trichlorobenzene	80.0	79.7	0.3413	0.34	-0.4	NA	±20	Average RF
1,2-Dichlorobenzene	80.0	81.9	1.3535	1.386	2.4	NA	±20	Average RF
1,2-Diphenylhydrazine	80.0	76.4	1.3914	1.329	-4.5	NA	±20	Average RF
1,3-Dichlorobenzene	80.0	80.0	1.4314	1.4313	0.0	NA	±20	Average RF
1,4-Dichlorobenzene	80.0	80.9	1.4611	1.4766	1.1	NA	±20	Average RF
2,4,5-Trichlorophenol	80.0	74.8	0.4749	0.4443	-6.4	NA	±20	Average RF
2,4,6-Trichlorophenol	80.0	76.2	0.4469	0.4254	-4.8	NA	±20	Average RF
2,4-Dichlorophenol	80.0	81.0	0.306	0.3099	1.3	NA	±20	Average RF
2,4-Dimethylphenol	80.0	77.2	0.2888	0.2785	-3.6	NA	±20	Average RF
2,4-Dinitrophenol	80.0	76.6	0.1451	0.136	NA	-4.3	±20	Quadratic
2,4-Dinitrotoluene	80.0	74.2	0.3919	0.3633	-7.3	NA	±20	Average RF
2,6-Dinitrotoluene	80.0	70.6	0.3297	0.291	-11.7	NA	±20	Average RF
2-Chloronaphthalene	80.0	72.4	1.2545	1.1347	-9.6	NA	±20	Average RF
2-Chlorophenol	80.0	81.8	1.3133	1.3436	2.3	NA	±20	Average RF
2-Methyl-4,6-dinitrophenol	80.0	76.0	0.2062	0.2158	NA	-5.1	±20	Quadratic
2-Methylnaphthalene	80.0	81.4	0.6429	0.654	1.7	NA	±20	Average RF
2-Methylphenol	80.0	84.6	0.9779	1.0344	5.8	NA	±20	Average RF
2-Nitroaniline	80.0	77.3	0.385	0.3719	-3.4	NA	±20	Average RF
2-Nitrophenol	80.0	78.3	0.2041	0.1997	-2.1	NA	±20	Average RF
3,3'-Dichlorobenzidine	80.0	83.4	0.5185	0.5405	4.2	NA	±20	Average RF
3-Nitroaniline	80.0	71.2	0.3411	0.3036	-11.0	NA	±20	Average RF
4-Bromophenyl Phenyl Ether	80.0	88.5	0.2562	0.2833	10.6	NA	±20	Average RF
4-Chloro-3-methylphenol	80.0	83.4	0.2708	0.2824	4.3	NA	±20	Average RF
4-Chloroaniline	80.0	82.0	0.4339	0.4449	2.5	NA	±20	Average RF
4-Chlorophenyl Phenyl Ether	80.0	74.5	0.6824	0.6356	-6.8	NA	±20	Average RF
4-Methylphenol	160	179	1.3101	1.4666	11.9	NA	±20	Average RF
4-Nitroaniline	80.0	67.7	0.2962	0.2506	-15.4	NA	±20	Average RF
4-Nitrophenol	80.0	85.1	0.1428	0.1519	6.4	NA	±20	Average RF
Acenaphthene	80.0	71.9	1.105	0.9925	-10.2	NA	±20	Average RF
Acenaphthylene	80.0	72.9	1.9818	1.8046	-8.9	NA	±20	Average RF
Anthracene	80.0	78.4	1.061	1.0403	-2.0	NA	±20	Average RF
Benz(a)anthracene	80.0	81.2	1.1438	1.1614	1.5	NA	±20	Average RF
Benzo(a)pyrene	80.0	79.1	1.036	1.0239	-1.2	NA	±20	Average RF
Benzo(b)fluoranthene	80.0	79.2	1.0766	1.0655	-1.0	NA	±20	Average RF
Benzo(g,h,i)perylene	80.0	82.9	1.101	1.1405	3.6	NA	±20	Average RF
Benzo(k)fluoranthene	80.0	77.9	1.0699	1.0412	-2.7	NA	±20	Average RF
Benzoic Acid	80.0	77.9	0.1407	0.1527	NA	-2.7	±20	Quadratic
Benzyl Alcohol	80.0	83.6	0.7989	0.835	4.5	NA	±20	Average RF
Bis(2-chloroethoxy)methane	80.0	76.3	0.3983	0.3797	-4.7	NA	±20	Average RF

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM/6304305 **Date Analyzed:** 10/02/18 16:22

Continuing Calibration Verification (CCV) Summary
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D **Calibration Date:** 8/2/2018
File ID: J:\MS07\DATA\100218\1002F002.D\ **Calibration ID:** KC1800439
Signal ID: 1 **Analysis Lot:** 609329
Units: ug/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Bis(2-chloroethyl) Ether	80.0	74.8	1.1949	1.1172	-6.5	NA	±20	Average RF
Bis(2-ethylhexyl) Phthalate	80.0	80.0	0.8289	0.8287	0.0	NA	±20	Average RF
Butyl Benzyl Phthalate	80.0	78.4	0.6342	0.6217	-2.0	NA	±20	Average RF
Chrysene	80.0	76.7	1.1031	1.058	-4.1	NA	±20	Average RF
Dibenz(a,h)anthracene	80.0	79.8	1.0147	1.0127	-0.2	NA	±20	Average RF
Dibenzofuran	80.0	71.3	1.7325	1.5445	-10.9	NA	±20	Average RF
Diethyl Phthalate	80.0	74.5	1.1716	1.0905	-6.9	NA	±20	Average RF
Dimethyl Phthalate	80.0	71.1	1.3344	1.1865	-11.1	NA	±20	Average RF
Di-n-butyl Phthalate	80.0	74.4	1.1084	1.1303	NA	-7.0	±20	Quadratic
Di-n-octyl Phthalate	80.0	75.4	1.1931	1.1249	-5.7	NA	±20	Average RF
Fluoranthene	80.0	78.3	1.012	1.0671	NA	-2.1	±20	Quadratic
Fluorene	80.0	71.8	1.3272	1.1906	-10.3	NA	±20	Average RF
Hexachlorobenzene	80.0	83.0	0.2839	0.2946	3.8	NA	±20	Average RF
Hexachlorobutadiene	80.0	86.6	0.2038	0.2206	8.3	NA	±20	Average RF
Hexachloroethane	80.0	91.7	0.6126	0.7025	14.7	NA	±20	Average RF
Indeno(1,2,3-cd)pyrene	80.0	80.3	1.0451	1.0495	0.4	NA	±20	Average RF
Isophorone	80.0	82.3	0.6255	0.6437	2.9	NA	±20	Average RF
Naphthalene	80.0	78.7	0.9928	0.977	-1.6	NA	±20	Average RF
Nitrobenzene	80.0	91.4	1.1882	1.3576	14.3	NA	±20	Average RF
N-Nitrosodimethylamine	80.0	85.5	1.0959	1.1706	6.8	NA	±20	Average RF
N-Nitrosodi-n-propylamine	80.0	87.3	0.9025	0.9845	9.1	NA	±20	Average RF
N-Nitrosodiphenylamine	80.0	69.6	1.0746	0.9347	-13.0	NA	±20	Average RF
Pentachlorophenol	80.0	67.3	0.1572	0.1449	NA	-15.9	±20	Quadratic
Phenanthrene	80.0	78.7	1.0362	1.0195	-1.6	NA	±20	Average RF
Phenol	80.0	81.1	1.6129	1.6354	1.4	NA	±20	Average RF
Pyrene	80.0	74.6	1.2586	1.1728	-6.8	NA	±20	Average RF
2,2'-Oxybis(1-chloropropane)	80.0	76.8	2.9203	2.8032	-4.0	NA	±20	Average RF
2,4,6-Tribromophenol	80.0	81.3	0.1528	0.1553	1.6	NA	±20	Average RF
2-Fluorobiphenyl	80.0	71.6	1.5244	1.3646	-10.5	NA	±20	Average RF
2-Fluorophenol	80.0	77.1	1.1645	1.1223	-3.6	NA	±20	Average RF
Nitrobenzene-d5	80.0	91.6	1.2538	1.4361	14.5	NA	±20	Average RF
Phenol-d6	80.0	79.3	1.5536	1.5393	-0.9	NA	±20	Average RF
Terphenyl-d14	80.0	83.4	0.889	0.9267	4.2	NA	±20	Average RF

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM/6304305 **Date Analyzed:** 10/03/18 08:41

Continuing Calibration Verification (CCV) Summary
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D **Calibration Date:** 8/2/2018
File ID: J:\MS07\DATA\100218\1002F011.D\ **Calibration ID:** KC1800439
Signal ID: 1 **Analysis Lot:** 609329
Units: ug/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,2,4-Trichlorobenzene	80.0	81.6	0.3413	0.348	2.0	NA	±50	Average RF
1,2-Dichlorobenzene	80.0	81.8	1.3535	1.3833	2.2	NA	±50	Average RF
1,2-Diphenylhydrazine	80.0	67.4	1.3914	1.1723	-15.7	NA	±50	Average RF
1,3-Dichlorobenzene	80.0	80.2	1.4314	1.434	0.2	NA	±50	Average RF
1,4-Dichlorobenzene	80.0	81.6	1.4611	1.4899	2.0	NA	±50	Average RF
2,4,5-Trichlorophenol	80.0	72.4	0.4749	0.4297	-9.5	NA	±50	Average RF
2,4,6-Trichlorophenol	80.0	75.6	0.4469	0.4222	-5.5	NA	±50	Average RF
2,4-Dichlorophenol	80.0	81.3	0.306	0.311	1.6	NA	±50	Average RF
2,4-Dimethylphenol	80.0	76.9	0.2888	0.2777	-3.8	NA	±50	Average RF
2,4-Dinitrophenol	80.0	78.1	0.1451	0.1397	NA	-2.4	±50	Quadratic
2,4-Dinitrotoluene	80.0	70.7	0.3919	0.3465	-11.6	NA	±50	Average RF
2,6-Dinitrotoluene	80.0	67.4	0.3297	0.2778	-15.7	NA	±50	Average RF
2-Chloronaphthalene	80.0	72.7	1.2545	1.1405	-9.1	NA	±50	Average RF
2-Chlorophenol	80.0	82.8	1.3133	1.3586	3.5	NA	±50	Average RF
2-Methyl-4,6-dinitrophenol	80.0	75.0	0.2062	0.2125	NA	-6.3	±50	Quadratic
2-Methylnaphthalene	80.0	80.4	0.6429	0.6463	0.5	NA	±50	Average RF
2-Methylphenol	80.0	86.4	0.9779	1.0566	8.0	NA	±50	Average RF
2-Nitroaniline	80.0	73.1	0.385	0.352	-8.6	NA	±50	Average RF
2-Nitrophenol	80.0	80.3	0.2041	0.2049	0.4	NA	±50	Average RF
3,3'-Dichlorobenzidine	80.0	85.4	0.5185	0.5536	6.8	NA	±50	Average RF
3-Nitroaniline	80.0	67.6	0.3411	0.2884	-15.5	NA	±50	Average RF
4-Bromophenyl Phenyl Ether	80.0	85.9	0.2562	0.2751	7.4	NA	±50	Average RF
4-Chloro-3-methylphenol	80.0	78.6	0.2708	0.2659	-1.8	NA	±50	Average RF
4-Chloroaniline	80.0	77.9	0.4339	0.4223	-2.7	NA	±50	Average RF
4-Chlorophenyl Phenyl Ether	80.0	71.0	0.6824	0.6059	-11.2	NA	±50	Average RF
4-Methylphenol	160	180	1.3101	1.4725	12.4	NA	±50	Average RF
4-Nitroaniline	80.0	66.2	0.2962	0.2452	-17.2	NA	±50	Average RF
4-Nitrophenol	80.0	76.3	0.1428	0.1361	-4.7	NA	±50	Average RF
Acenaphthene	80.0	70.1	1.105	0.9688	-12.3	NA	±50	Average RF
Acenaphthylene	80.0	71.5	1.9818	1.7711	-10.6	NA	±50	Average RF
Anthracene	80.0	78.6	1.061	1.0422	-1.8	NA	±50	Average RF
Benz(a)anthracene	80.0	82.9	1.1438	1.1859	3.7	NA	±50	Average RF
Benzo(a)pyrene	80.0	81.0	1.036	1.0487	1.2	NA	±50	Average RF
Benzo(b)fluoranthene	80.0	78.9	1.0766	1.0619	-1.4	NA	±50	Average RF
Benzo(g,h,i)perylene	80.0	77.3	1.101	1.0641	-3.3	NA	±50	Average RF
Benzo(k)fluoranthene	80.0	79.3	1.0699	1.0607	-0.9	NA	±50	Average RF
Benzoic Acid	80.0	77.5	0.1407	0.1518	NA	-3.1	±50	Quadratic
Benzyl Alcohol	80.0	85.9	0.7989	0.8579	7.4	NA	±50	Average RF
Bis(2-chloroethoxy)methane	80.0	76.5	0.3983	0.3806	-4.4	NA	±50	Average RF

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM/6304305 **Date Analyzed:** 10/03/18 08:41

Continuing Calibration Verification (CCV) Summary
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D **Calibration Date:** 8/2/2018
File ID: J:\MS07\DATA\100218\1002F011.D\ **Calibration ID:** KC1800439
Signal ID: 1 **Analysis Lot:** 609329
Units: ug/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Bis(2-chloroethyl) Ether	80.0	79.2	1.1949	1.1832	-1.0	NA	±50	Average RF
Bis(2-ethylhexyl) Phthalate	80.0	83.3	0.8289	0.8627	4.1	NA	±50	Average RF
Butyl Benzyl Phthalate	80.0	81.7	0.6342	0.648	2.2	NA	±50	Average RF
Chrysene	80.0	78.3	1.1031	1.0792	-2.2	NA	±50	Average RF
Dibenz(a,h)anthracene	80.0	79.1	1.0147	1.0027	-1.2	NA	±50	Average RF
Dibenzofuran	80.0	71.1	1.7325	1.5391	-11.2	NA	±50	Average RF
Diethyl Phthalate	80.0	73.6	1.1716	1.0774	-8.0	NA	±50	Average RF
Dimethyl Phthalate	80.0	68.8	1.3344	1.1479	-14.0	NA	±50	Average RF
Di-n-butyl Phthalate	80.0	75.5	1.1084	1.1487	NA	-5.6	±50	Quadratic
Di-n-octyl Phthalate	80.0	76.3	1.1931	1.1373	-4.7	NA	±50	Average RF
Fluoranthene	80.0	81.5	1.012	1.1147	NA	1.9	±50	Quadratic
Fluorene	80.0	67.1	1.3272	1.1134	-16.1	NA	±50	Average RF
Hexachlorobenzene	80.0	83.6	0.2839	0.2967	4.5	NA	±50	Average RF
Hexachlorobutadiene	80.0	90.3	0.2038	0.23	12.9	NA	±50	Average RF
Hexachloroethane	80.0	94.0	0.6126	0.7199	17.5	NA	±50	Average RF
Indeno(1,2,3-cd)pyrene	80.0	77.9	1.0451	1.0179	-2.6	NA	±50	Average RF
Isophorone	80.0	79.4	0.6255	0.6209	-0.7	NA	±50	Average RF
Naphthalene	80.0	77.5	0.9928	0.9622	-3.1	NA	±50	Average RF
Nitrobenzene	80.0	94.6	1.1882	1.4048	18.2	NA	±50	Average RF
N-Nitrosodimethylamine	80.0	87.0	1.0959	1.1921	8.8	NA	±50	Average RF
N-Nitrosodi-n-propylamine	80.0	88.5	0.9025	0.9979	10.6	NA	±50	Average RF
N-Nitrosodiphenylamine	80.0	63.9	1.0746	0.8582	-20.1	NA	±50	Average RF
Pentachlorophenol	80.0	67.4	0.1572	0.1453	NA	-15.7	±50	Quadratic
Phenanthrene	80.0	79.1	1.0362	1.0251	-1.1	NA	±50	Average RF
Phenol	80.0	80.7	1.6129	1.6265	0.8	NA	±50	Average RF
Pyrene	80.0	73.6	1.2586	1.1585	-7.9	NA	±50	Average RF
2,2'-Oxybis(1-chloropropane)	80.0	77.6	2.9203	2.8309	-3.1	NA	±50	Average RF
2,4,6-Tribromophenol	80.0	80.3	0.1528	0.1533	0.3	NA	±50	Average RF
2-Fluorobiphenyl	80.0	74.2	1.5244	1.413	-7.3	NA	±50	Average RF
2-Fluorophenol	80.0	79.6	1.1645	1.1591	-0.5	NA	±50	Average RF
Nitrobenzene-d5	80.0	94.3	1.2538	1.4784	17.9	NA	±50	Average RF
Phenol-d6	80.0	78.0	1.5536	1.5153	-2.5	NA	±50	Average RF
Terphenyl-d14	80.0	83.6	0.889	0.9285	4.4	NA	±50	Average RF

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM/6304305 **Date Analyzed:** 10/02/18 16:22

Continuing Calibration Verification (CCV) Summary
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D **Calibration Date:** 8/2/2018
File ID: J:\MS07\DATA\100218A\1002A002.D\ **Calibration ID:** KC1800380
Signal ID: 1 **Analysis Lot:** 609543
Units: ug/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,2,4-Trichlorobenzene	80.0	79.8	0.341	0.34	-0.3	NA	±20	Average RF
1,2-Dichlorobenzene	80.0	81.7	1.3572	1.386	2.1	NA	±20	Average RF
1,2-Diphenylhydrazine	80.0	76.4	1.3918	1.329	-4.5	NA	±20	Average RF
1,3-Dichlorobenzene	80.0	80.2	1.4276	1.4313	0.3	NA	±20	Average RF
1,4-Dichlorobenzene	80.0	80.6	1.466	1.4766	0.7	NA	±20	Average RF
2,4,5-Trichlorophenol	80.0	74.8	0.4749	0.4443	-6.4	NA	±20	Average RF
2,4,6-Trichlorophenol	80.0	76.2	0.4469	0.4254	-4.8	NA	±20	Average RF
2,4-Dichlorophenol	80.0	81.0	0.306	0.3099	1.3	NA	±20	Average RF
2,4-Dimethylphenol	80.0	75.9	0.2937	0.2785	-5.2	NA	±20	Average RF
2,4-Dinitrophenol	80.0	76.6	0.1451	0.136	NA	-4.3	±20	Quadratic
2,4-Dinitrotoluene	80.0	72.8	0.3993	0.3633	-9.0	NA	±20	Average RF
2,6-Dinitrotoluene	80.0	70.7	0.3292	0.291	-11.6	NA	±20	Average RF
2-Chloronaphthalene	80.0	72.2	1.2577	1.1347	-9.8	NA	±20	Average RF
2-Chlorophenol	80.0	80.5	1.3355	1.3436	0.6	NA	±20	Average RF
2-Methyl-4,6-dinitrophenol	80.0	75.9	0.226	0.2158	NA	-5.1	±20	Quadratic
2-Methylnaphthalene	80.0	81.4	0.6429	0.654	1.7	NA	±20	Average RF
2-Methylphenol	80.0	82.9	0.9984	1.0344	3.6	NA	±20	Average RF
2-Nitroaniline	80.0	77.0	0.3867	0.3719	-3.8	NA	±20	Average RF
2-Nitrophenol	80.0	78.3	0.2041	0.1997	-2.1	NA	±20	Average RF
3,3'-Dichlorobenzidine	80.0	83.4	0.5185	0.5405	4.2	NA	±20	Average RF
3-Nitroaniline	80.0	70.2	0.3462	0.3036	-12.3	NA	±20	Average RF
4-Bromophenyl Phenyl Ether	80.0	87.1	0.2603	0.2833	8.9	NA	±20	Average RF
4-Chloro-3-methylphenol	80.0	81.2	0.2781	0.2824	1.6	NA	±20	Average RF
4-Chloroaniline	80.0	80.6	0.4416	0.4449	0.7	NA	±20	Average RF
4-Chlorophenyl Phenyl Ether	80.0	74.8	0.6803	0.6356	-6.6	NA	±20	Average RF
4-Methylphenol	160	179	1.3101	1.4666	11.9	NA	±20	Average RF
4-Nitroaniline	80.0	66.9	0.2996	0.2506	-16.3	NA	±20	Average RF
4-Nitrophenol	80.0	85.1	0.1428	0.1519	6.4	NA	±20	Average RF
Acenaphthene	80.0	71.9	1.105	0.9925	-10.2	NA	±20	Average RF
Acenaphthylene	80.0	72.9	1.9818	1.8046	-8.9	NA	±20	Average RF
Anthracene	80.0	78.4	1.061	1.0403	-2.0	NA	±20	Average RF
Benz(a)anthracene	80.0	81.2	1.1438	1.1614	1.5	NA	±20	Average RF
Benzo(a)pyrene	80.0	79.1	1.036	1.0239	-1.2	NA	±20	Average RF
Benzo(b)fluoranthene	80.0	79.2	1.0766	1.0655	-1.0	NA	±20	Average RF
Benzo(g,h,i)perylene	80.0	82.9	1.101	1.1405	3.6	NA	±20	Average RF
Benzo(k)fluoranthene	80.0	77.9	1.0699	1.0412	-2.7	NA	±20	Average RF
Benzoic Acid	80.0	75.0	0.1647	0.1527	NA	-6.3	±20	Quadratic
Benzyl Alcohol	80.0	81.9	0.816	0.835	2.3	NA	±20	Average RF
Bis(2-chloroethoxy)methane	80.0	75.5	0.4025	0.3797	-5.7	NA	±20	Average RF

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM/6304305 **Date Analyzed:** 10/02/18 16:22

Continuing Calibration Verification (CCV) Summary
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D **Calibration Date:** 8/2/2018
File ID: J:\MS07\DATA\100218A\1002A002.D\ **Calibration ID:** KC1800380
Signal ID: 1 **Analysis Lot:** 609543
Units: ug/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Bis(2-chloroethyl) Ether	80.0	74.6	1.1981	1.1172	-6.8	NA	±20	Average RF
Bis(2-ethylhexyl) Phthalate	80.0	80.0	0.8289	0.8287	0.0	NA	±20	Average RF
Butyl Benzyl Phthalate	80.0	78.4	0.6342	0.6217	-2.0	NA	±20	Average RF
Carbazole	80.0	76.2	0.9637	0.9179	-4.8	NA	±20	Average RF
Chrysene	80.0	76.7	1.1031	1.058	-4.1	NA	±20	Average RF
Dibenz(a,h)anthracene	80.0	79.8	1.0147	1.0127	-0.2	NA	±20	Average RF
Dibenzofuran	80.0	71.3	1.7325	1.5445	-10.9	NA	±20	Average RF
Diethyl Phthalate	80.0	74.5	1.1716	1.0905	-6.9	NA	±20	Average RF
Dimethyl Phthalate	80.0	71.1	1.3344	1.1865	-11.1	NA	±20	Average RF
Di-n-butyl Phthalate	80.0	74.4	1.1558	1.1303	NA	-7.0	±20	Quadratic
Di-n-octyl Phthalate	80.0	75.4	1.1931	1.1249	-5.7	NA	±20	Average RF
Fluoranthene	80.0	76.2	1.039	1.0671	NA	-4.7	±20	Quadratic
Fluorene	80.0	71.8	1.3272	1.1906	-10.3	NA	±20	Average RF
Hexachlorobenzene	80.0	82.1	0.2871	0.2946	2.6	NA	±20	Average RF
Hexachlorobutadiene	80.0	86.6	0.2039	0.2206	8.2	NA	±20	Average RF
Hexachloroethane	80.0	91.2	0.6164	0.7025	14.0	NA	±20	Average RF
Indeno(1,2,3-cd)pyrene	80.0	80.3	1.0451	1.0495	0.4	NA	±20	Average RF
Isophorone	80.0	81.3	0.6336	0.6437	1.6	NA	±20	Average RF
Naphthalene	80.0	78.7	0.9928	0.977	-1.6	NA	±20	Average RF
Nitrobenzene	80.0	91.6	1.1853	1.3576	14.5	NA	±20	Average RF
N-Nitrosodimethylamine	80.0	87.9	1.0649	1.1706	9.9	NA	±20	Average RF
N-Nitrosodi-n-propylamine	80.0	86.7	0.9083	0.9845	8.4	NA	±20	Average RF
N-Nitrosodiphenylamine	80.0	70.5	1.0603	0.9347	-11.9	NA	±20	Average RF
Pentachlorophenol	80.0	67.5	0.1705	0.1449	NA	-15.6	±20	Quadratic
Phenanthrene	80.0	78.7	1.0362	1.0195	-1.6	NA	±20	Average RF
Phenol	80.0	80.2	1.6315	1.6354	0.2	NA	±20	Average RF
Pyrene	80.0	74.6	1.2586	1.1728	-6.8	NA	±20	Average RF
2,2'-Oxybis(1-chloropropane)	80.0	76.7	2.9247	2.8032	-4.2	NA	±20	Average RF
2,4,6-Tribromophenol	80.0	81.3	0.1528	0.1553	1.6	NA	±20	Average RF
2-Fluorobiphenyl	80.0	71.1	1.5353	1.3646	-11.1	NA	±20	Average RF
2-Fluorophenol	80.0	75.0	1.1972	1.1223	-6.3	NA	±20	Average RF
Nitrobenzene-d5	80.0	90.1	1.2753	1.4361	12.6	NA	±20	Average RF
Phenol-d6	80.0	78.6	1.5668	1.5393	-1.8	NA	±20	Average RF
Terphenyl-d14	80.0	83.4	0.889	0.9267	4.2	NA	±20	Average RF

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM/6304305 **Date Analyzed:** 10/03/18 08:41

Continuing Calibration Verification (CCV) Summary
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D **Calibration Date:** 8/2/2018
File ID: J:\MS07\DATA\100218A\1002A011.D\ **Calibration ID:** KC1800380
Signal ID: 1 **Analysis Lot:** 609543
Units: ug/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,2,4-Trichlorobenzene	80.0	81.6	0.341	0.348	2.0	NA	±50	Average RF
1,2-Dichlorobenzene	80.0	81.5	1.3572	1.3833	1.9	NA	±50	Average RF
1,2-Diphenylhydrazine	80.0	67.4	1.3918	1.1723	-15.8	NA	±50	Average RF
1,3-Dichlorobenzene	80.0	80.4	1.4276	1.434	0.4	NA	±50	Average RF
1,4-Dichlorobenzene	80.0	81.3	1.466	1.4899	1.6	NA	±50	Average RF
2,4,5-Trichlorophenol	80.0	72.4	0.4749	0.4297	-9.5	NA	±50	Average RF
2,4,6-Trichlorophenol	80.0	75.6	0.4469	0.4222	-5.5	NA	±50	Average RF
2,4-Dichlorophenol	80.0	81.3	0.306	0.311	1.6	NA	±50	Average RF
2,4-Dimethylphenol	80.0	75.6	0.2937	0.2777	-5.4	NA	±50	Average RF
2,4-Dinitrophenol	80.0	78.1	0.1451	0.1397	NA	-2.4	±50	Quadratic
2,4-Dinitrotoluene	80.0	69.4	0.3993	0.3465	-13.2	NA	±50	Average RF
2,6-Dinitrotoluene	80.0	67.5	0.3292	0.2778	-15.6	NA	±50	Average RF
2-Chloronaphthalene	80.0	72.6	1.2577	1.1405	-9.3	NA	±50	Average RF
2-Chlorophenol	80.0	81.4	1.3355	1.3586	1.7	NA	±50	Average RF
2-Methyl-4,6-dinitrophenol	80.0	74.9	0.226	0.2125	NA	-6.3	±50	Quadratic
2-Methylnaphthalene	80.0	80.4	0.6429	0.6463	0.5	NA	±50	Average RF
2-Methylphenol	80.0	84.7	0.9984	1.0566	5.8	NA	±50	Average RF
2-Nitroaniline	80.0	72.8	0.3867	0.352	-9.0	NA	±50	Average RF
2-Nitrophenol	80.0	80.3	0.2041	0.2049	0.4	NA	±50	Average RF
3,3'-Dichlorobenzidine	80.0	85.4	0.5185	0.5536	6.8	NA	±50	Average RF
3-Nitroaniline	80.0	66.6	0.3462	0.2884	-16.7	NA	±50	Average RF
4-Bromophenyl Phenyl Ether	80.0	84.6	0.2603	0.2751	5.7	NA	±50	Average RF
4-Chloro-3-methylphenol	80.0	76.5	0.2781	0.2659	-4.4	NA	±50	Average RF
4-Chloroaniline	80.0	76.5	0.4416	0.4223	-4.4	NA	±50	Average RF
4-Chlorophenyl Phenyl Ether	80.0	71.3	0.6803	0.6059	-10.9	NA	±50	Average RF
4-Methylphenol	160	180	1.3101	1.4725	12.4	NA	±50	Average RF
4-Nitroaniline	80.0	65.5	0.2996	0.2452	-18.1	NA	±50	Average RF
4-Nitrophenol	80.0	76.3	0.1428	0.1361	-4.7	NA	±50	Average RF
Acenaphthene	80.0	70.1	1.105	0.9688	-12.3	NA	±50	Average RF
Acenaphthylene	80.0	71.5	1.9818	1.7711	-10.6	NA	±50	Average RF
Anthracene	80.0	78.6	1.061	1.0422	-1.8	NA	±50	Average RF
Benz(a)anthracene	80.0	82.9	1.1438	1.1859	3.7	NA	±50	Average RF
Benzo(a)pyrene	80.0	81.0	1.036	1.0487	1.2	NA	±50	Average RF
Benzo(b)fluoranthene	80.0	78.9	1.0766	1.0619	-1.4	NA	±50	Average RF
Benzo(g,h,i)perylene	80.0	77.3	1.101	1.0641	-3.3	NA	±50	Average RF
Benzo(k)fluoranthene	80.0	79.3	1.0699	1.0607	-0.9	NA	±50	Average RF
Benzoic Acid	80.0	74.6	0.1647	0.1518	NA	-6.7	±50	Quadratic
Benzyl Alcohol	80.0	84.1	0.816	0.8579	5.1	NA	±50	Average RF
Bis(2-chloroethoxy)methane	80.0	75.7	0.4025	0.3806	-5.4	NA	±50	Average RF

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:** K1808923
Project: JBLM/6304305 **Date Analyzed:** 10/03/18 08:41

Continuing Calibration Verification (CCV) Summary
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D **Calibration Date:** 8/2/2018
File ID: J:\MS07\DATA\100218A\1002A011.D\ **Calibration ID:** KC1800380
Signal ID: 1 **Analysis Lot:** 609543
Units: ug/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Bis(2-chloroethyl) Ether	80.0	79.0	1.1981	1.1832	-1.2	NA	±50	Average RF
Bis(2-ethylhexyl) Phthalate	80.0	83.3	0.8289	0.8627	4.1	NA	±50	Average RF
Butyl Benzyl Phthalate	80.0	81.7	0.6342	0.648	2.2	NA	±50	Average RF
Carbazole	80.0	81.5	0.9637	0.9811	1.8	NA	±50	Average RF
Chrysene	80.0	78.3	1.1031	1.0792	-2.2	NA	±50	Average RF
Dibenz(a,h)anthracene	80.0	79.2	1.0147	1.0042	-1.0	NA	±50	Average RF
Dibenzofuran	80.0	71.1	1.7325	1.5391	-11.2	NA	±50	Average RF
Diethyl Phthalate	80.0	73.6	1.1716	1.0774	-8.0	NA	±50	Average RF
Dimethyl Phthalate	80.0	68.8	1.3344	1.1479	-14.0	NA	±50	Average RF
Di-n-butyl Phthalate	80.0	75.5	1.1558	1.1487	NA	-5.6	±50	Quadratic
Di-n-octyl Phthalate	80.0	76.3	1.1931	1.1373	-4.7	NA	±50	Average RF
Fluoranthene	80.0	79.3	1.039	1.1147	NA	-0.9	±50	Quadratic
Fluorene	80.0	67.1	1.3272	1.1134	-16.1	NA	±50	Average RF
Hexachlorobenzene	80.0	82.7	0.2871	0.2967	3.3	NA	±50	Average RF
Hexachlorobutadiene	80.0	90.3	0.2039	0.23	12.8	NA	±50	Average RF
Hexachloroethane	80.0	93.4	0.6164	0.7199	16.8	NA	±50	Average RF
Indeno(1,2,3-cd)pyrene	80.0	77.9	1.0451	1.0179	-2.6	NA	±50	Average RF
Isophorone	80.0	78.4	0.6336	0.6209	-2.0	NA	±50	Average RF
Naphthalene	80.0	77.5	0.9928	0.9622	-3.1	NA	±50	Average RF
Nitrobenzene	80.0	94.8	1.1853	1.4048	18.5	NA	±50	Average RF
N-Nitrosodimethylamine	80.0	89.6	1.0649	1.1921	11.9	NA	±50	Average RF
N-Nitrosodi-n-propylamine	80.0	87.9	0.9083	0.9979	9.9	NA	±50	Average RF
N-Nitrosodiphenylamine	80.0	64.8	1.0603	0.8582	-19.1	NA	±50	Average RF
Pentachlorophenol	80.0	67.7	0.1705	0.1453	NA	-15.4	±50	Quadratic
Phenanthrene	80.0	79.1	1.0362	1.0251	-1.1	NA	±50	Average RF
Phenol	80.0	79.8	1.6315	1.6265	-0.3	NA	±50	Average RF
Pyrene	80.0	73.6	1.2586	1.1585	-7.9	NA	±50	Average RF
2,2'-Oxybis(1-chloropropane)	80.0	77.4	2.9247	2.8309	-3.2	NA	±50	Average RF
2,4,6-Tribromophenol	80.0	80.3	0.1528	0.1533	0.3	NA	±50	Average RF
2-Fluorobiphenyl	80.0	73.6	1.5353	1.413	-8.0	NA	±50	Average RF
2-Fluorophenol	80.0	77.5	1.1972	1.1591	-3.2	NA	±50	Average RF
Nitrobenzene-d5	80.0	92.7	1.2753	1.4784	15.9	NA	±50	Average RF
Phenol-d6	80.0	77.4	1.5668	1.5153	-3.3	NA	±50	Average RF
Terphenyl-d14	80.0	83.6	0.889	0.9285	4.4	NA	±50	Average RF

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:**K1808923
Project: JBLM/6304305

Analysis Run Log
Semivolatile Organic Compounds by GC/MS

Analysis Method: **Analysis Lot:**607858
Instrument ID:K-MS-07

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS07\DATA\092118\0921F011.D\	ZZZZZZZ	ZZZZZZZ	9/21/2018	14:53:00	
J:\MS07\DATA\092118\0921F012.D\	Continuing Calibration Verification	KQ1813296-02	9/21/2018	15:34:00	
J:\MS07\DATA\092118\0921F013.D\	Method Blank	KQ1812935-04	9/21/2018	16:15:00	
J:\MS07\DATA\092118\0921F014.D\	Lab Control Sample	KQ1812935-03	9/21/2018	16:56:00	
J:\MS07\DATA\092118\0921F015.D\	ZZZZZZZ	ZZZZZZZ	9/21/2018	17:37:00	
J:\MS07\DATA\092118\0921F016.D\	ZZZZZZZ	ZZZZZZZ	9/21/2018	18:18:00	
J:\MS07\DATA\092118\0921F017.D\	ZZZZZZZ	ZZZZZZZ	9/21/2018	18:59:00	
J:\MS07\DATA\092118\0921F018.D\	ZZZZZZZ	ZZZZZZZ	9/21/2018	19:40:00	
J:\MS07\DATA\092118\0921F019.D\	ZZZZZZZ	ZZZZZZZ	9/21/2018	20:21:00	
J:\MS07\DATA\092118\0921F020.D\	ZZZZZZZ	ZZZZZZZ	9/21/2018	21:02:00	
J:\MS07\DATA\092118\0921F021.D\	ZZZZZZZ	ZZZZZZZ	9/21/2018	21:43:00	
J:\MS07\DATA\092118\0921F022.D\	ZZZZZZZ	ZZZZZZZ	9/21/2018	22:24:00	
J:\MS07\DATA\092118\0921F023.D\	ZZZZZZZ	ZZZZZZZ	9/21/2018	23:05:00	
J:\MS07\DATA\092118\0921F024.D\	ZZZZZZZ	ZZZZZZZ	9/21/2018	23:46:00	

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:**K1808923
Project: JBLM/6304305

Analysis Run Log
Semivolatile Organic Compounds by GC/MS

Analysis Method: **Analysis Lot:**609329
Instrument ID:K-MS-07

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS07\DATA\100218\1002F001.D\	ZZZZZZZ	ZZZZZZZ	10/2/2018	15:41:00	
J:\MS07\DATA\100218\1002F002.D\	Continuing Calibration Verification	KQ1813987-02	10/2/2018	16:22:00	
J:\MS07\DATA\100218\1002F003.D\	Method Blank	KQ1812935-04	10/2/2018	17:42:00	
J:\MS07\DATA\100218\1002F004.D\	Lab Control Sample	KQ1812935-03	10/2/2018	18:23:00	
J:\MS07\DATA\100218\1002F005.D\	FTP-1-20180912 MS	KQ1812935-01	10/2/2018	19:04:00	
J:\MS07\DATA\100218\1002F006.D\	FTP-1-20180912 DMS	KQ1812935-02	10/2/2018	19:45:00	
J:\MS07\DATA\100218\1002F007.D\	FTP-1-20180912	K1808923-001	10/2/2018	20:26:00	
J:\MS07\DATA\100218\1002F011.D\	Continuing Cal. Verification	KQ1813987-03	10/3/2018	08:41:00	

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:**K1808923
Project: JBLM/6304305

Analysis Run Log
Semivolatile Organic Compounds by GC/MS

Analysis Method: **Analysis Lot:**609543
Instrument ID:K-MS-07

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS07\DATA\100218A\1002A001.D\	ZZZZZZZ	ZZZZZZZ	10/2/2018	15:41:00	
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J:\MS07\DATA\100218A\1002A003.D\	Method Blank	KQ1812935-04	10/2/2018	17:42:00	
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Prep Summary Report

Client: EA Engineering, Science, and Technology (EAEST) **Service Request:**K1808923
Project: JBLM/6304305
Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Prep Method: EPA 3520C **Extraction Lot:** 322048
Analytical Method: 8270D **Extraction Date:** 09/17/18 11:31

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
FTP-1-20180912	K1808923-001	9/12/18	9/15/18	1000 mL	1 mL	
Matrix Spike	KQ1812935-01MS	9/12/18	9/15/18	1000 mL	1 mL	
Duplicate Matrix Spike	KQ1812935-02DMS	9/12/18	9/15/18	1000 mL	1 mL	
Lab Control Sample	KQ1812935-03LCS	NA	NA	1000 mL	1 mL	
Method Blank	KQ1812935-04MB	NA	NA	1060.0000	1 mL	

APPENDIX B

HISTORICAL CONCENTRATION GRAPHS AND STATISTICS

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ANALYSIS OF DATA

Statistical analysis on data from the FTP and TVR/Old MATES sites followed guidelines presented in the U.S. Environmental Protection Agency's (EPA's) Methods for Evaluating the Attainment of Cleanup Standards, Volume 2: Ground Water (EPA 1992). Statistical analysis was performed only on data from monitoring wells which consisted of less than half non-detects. This included TPH-G, TPH-D, and TPH-O data for monitoring well FTP-1, as well as TCE data for the following monitoring wells: 815-2, MTS-1, MTS-2, MTS-4, MTS-4, TVR-1, TVR-2, TVR-3, TVR-5, TVR-6, and TVR-7.

Summary statistics (e.g. mean and standard deviation) were calculated using the Microsoft Excel® Descriptive Statistics tool. The Shapiro-Wilk test for normality, linear regression analysis, and Mann-Kendall test for trend were performed using Analyse-it for Microsoft Excel version 5.01. The Mann-Kendall test was performed only on non-parametric data.

All concentration measurements not known to be in error were considered valid. Suspect "outliers" were not removed from the data set and were included in the graphs. Non-detect data, which represent concentration measurements below the analytical reporting limits, were evaluated at the reporting limit value.

A. SUMMARY STATISTICS

Summary statistics were calculated using Microsoft Excel®'s Descriptive Statistics tool and are shown in Table 6.

B. SHAPIRO-WILK TEST FOR NORMALITY

Prior to analyzing data for trends, the data were tested for normal distribution. A significance level, or alpha level, of 0.05 was used when determining whether current data from monitoring wells was normally distributed. P values, generated using the Shapiro-Wilk test for normality, were then compared to the alpha level. The alpha level is the "cutoff" point for the test statistic in making a decision whether the data was normally distributed or not. P values show the strength of the test in determining whether the data was normally distributed or not. P values range from 0 to 1; the closer a P value is to 1, the closer the dataset is to a normally distribution. P values equal to or below 0.05 (alpha level) were not considered normally distributed.

Datasets that were not considered normally distributed were then transformed by taking the natural logarithm of the original values. The Shapiro-Wilk test for normality was run on the transformed data with the same criteria as the datasets above. Histograms are presented following this discussion.

C. LINEAR REGRESSION AND MANN-KENDALL TREND ANALYSES

Linear regression trend analyses were conducted on all concentration data that was found to be normally or log-normally distributed. The alpha level for the linear regression analysis was 0.05.

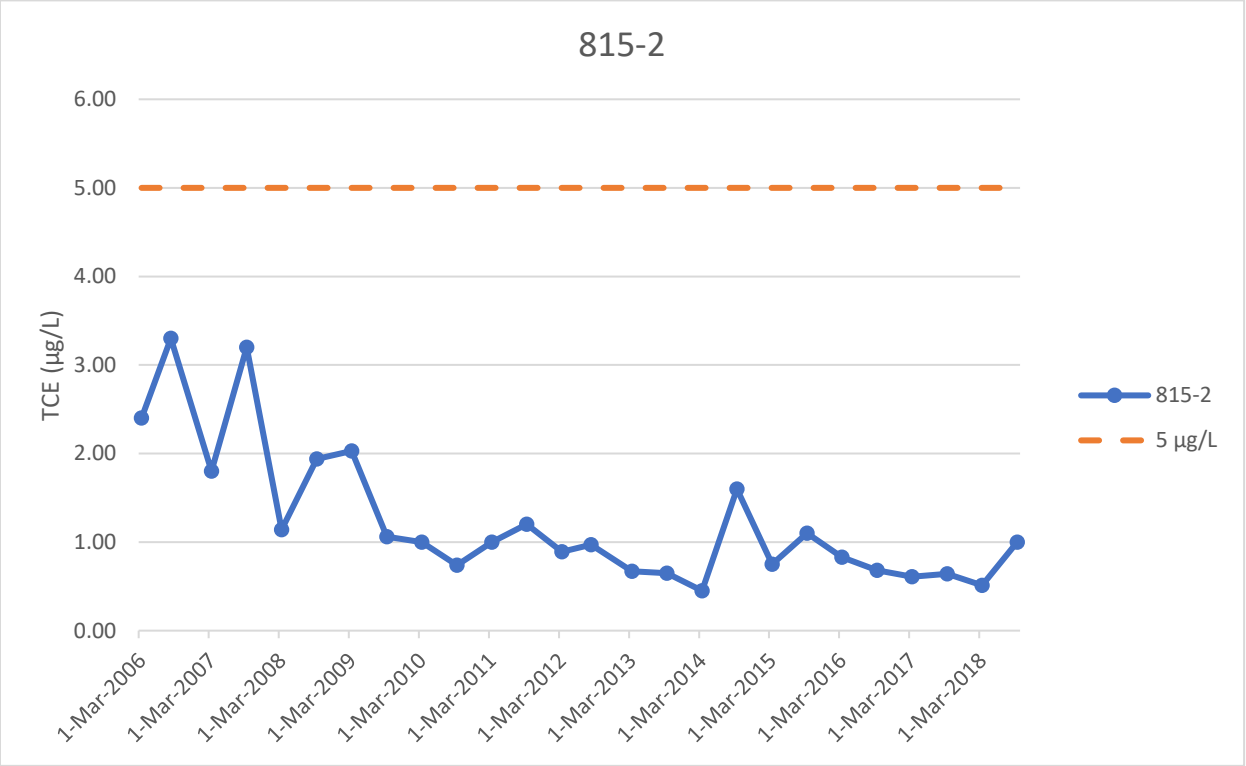
P values generated by the analysis were then compared to the alpha level. P values less than the alpha value suggested a trend in the data. Linear regression graphs are presented following this discussion.

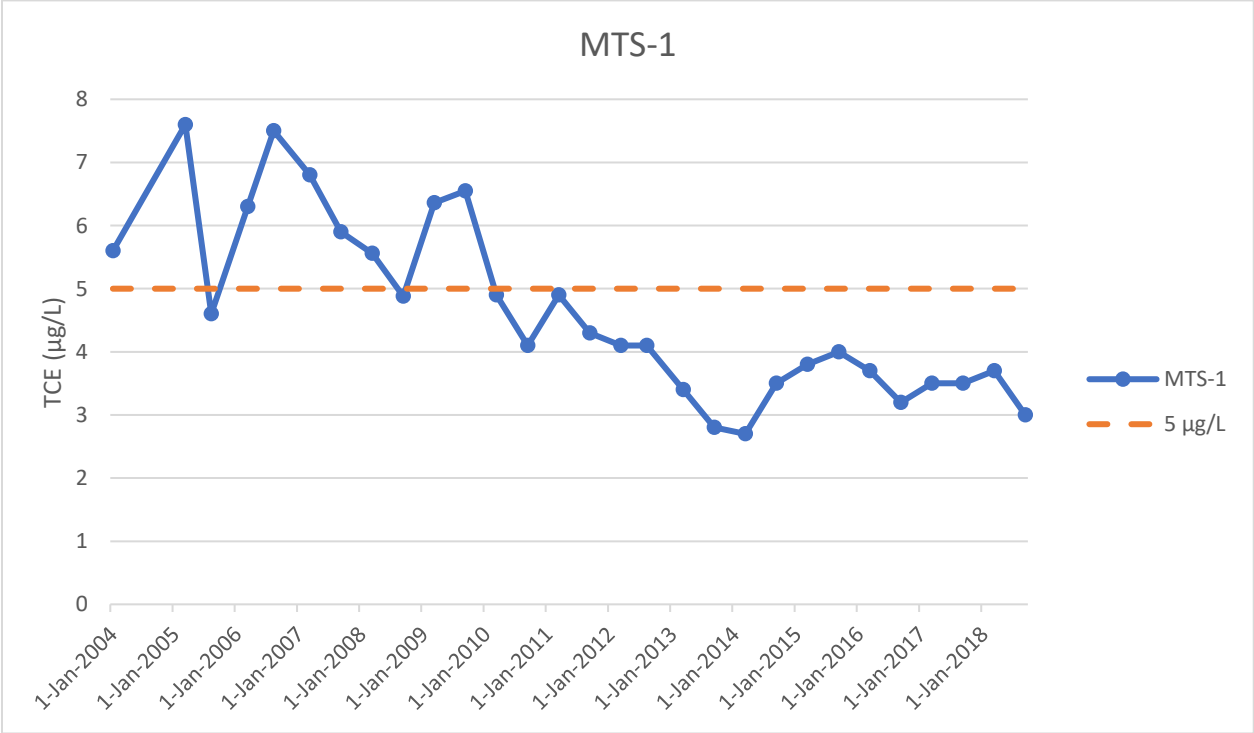
The Mann-Kendall test for trend was performed on data that was not normally or log-normally distributed (non-parametric data). No assumptions need to be made about the distribution of the data in order to perform the Mann-Kendall test (Helsel and Hirsch 2002). The alpha level was kept at 0.05, although the Mann-Kendall test computes a P value for a two-tailed prediction interval, and as such the null hypothesis was rejected for P values smaller than 0.025 or larger than 0.975. Mann-Kendall scatter plots are presented following this discussion.

D. TOTAL TOXIC EQUIVALENT CONCENTRATIONS OF CPAHS

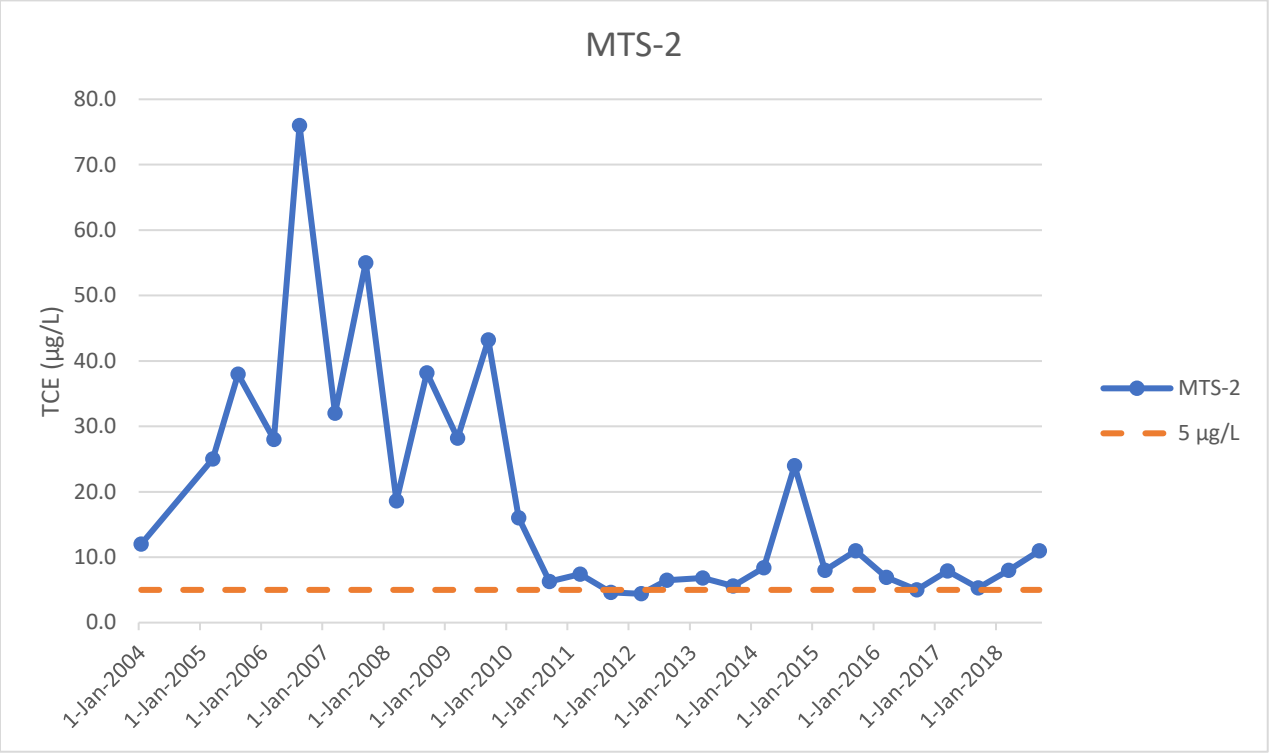
During YTC's 5-year review conducted by the USACE in 2011, it was noted that the updated 2007 groundwater monitoring plan stated that total carcinogenic polycyclic aromatic hydrocarbons (cPAHs) for the FTP site would be evaluated using the total toxic equivalent concentration (TEC) of the benz(a)pyrene method outlined in WAC 173-340-708(8)(e) (USACE 2012). The cPAHs required for this analyses include benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluroanthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene. The concentration of each of these cPAHs is multiplied by its corresponding toxicity equivalency factor (TEF) listed in Table 708-2 (WAC 173-340-900) to obtain the TEF for that cPAH. The TEFs from each cPAH are then added together to obtain the total TEF for that sample. If the total TEC is equal to or greater than 0.1, then the cPAHs are above the MTCA Method A cleanup level of 0.1 µg/L for cPAHs. During both the spring and fall 2018 sampling events, none of the specified cPAHs were detected in the sample from well FTP-1 and a TEF was not calculated (Table 4).

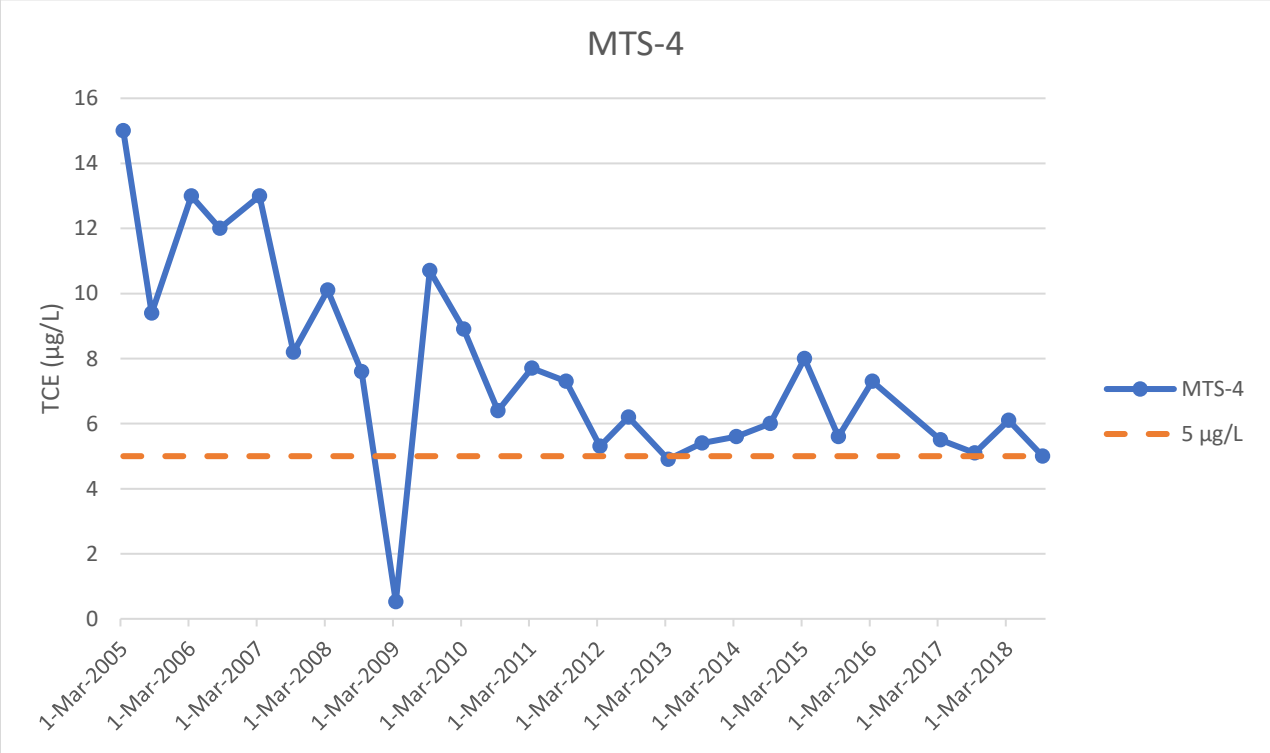
APPENDIX B
TCE CONCENTRATIONS
YAKIMA TRAINING CENTER, WASHINGTON



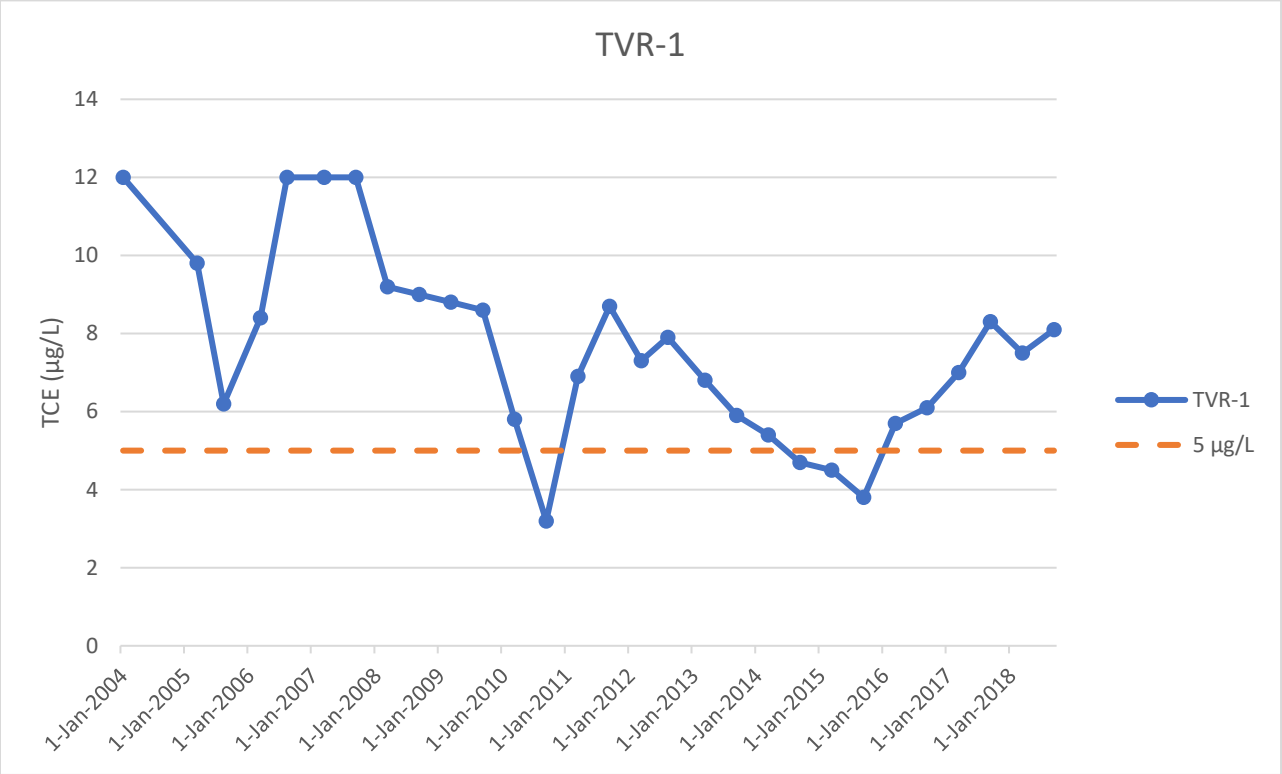


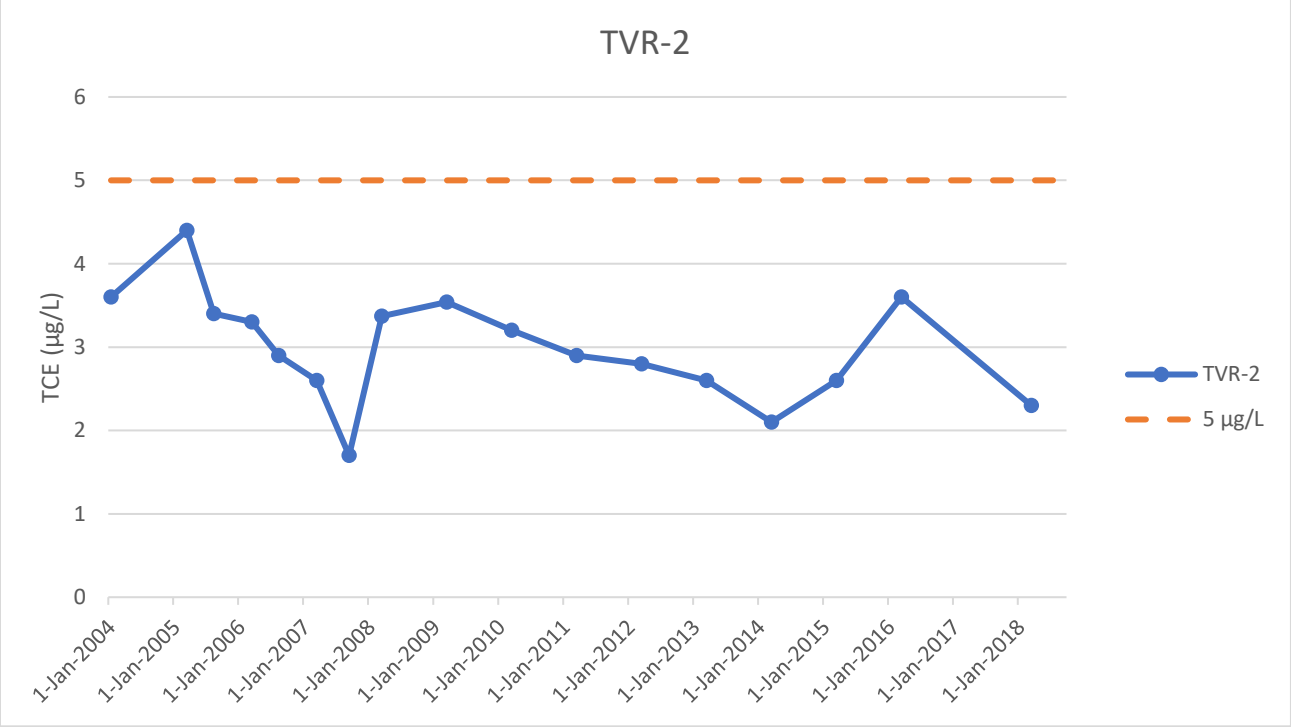
APPENDIX B
TCE CONCENTRATIONS
YAKIMA TRAINING CENTER, WASHINGTON



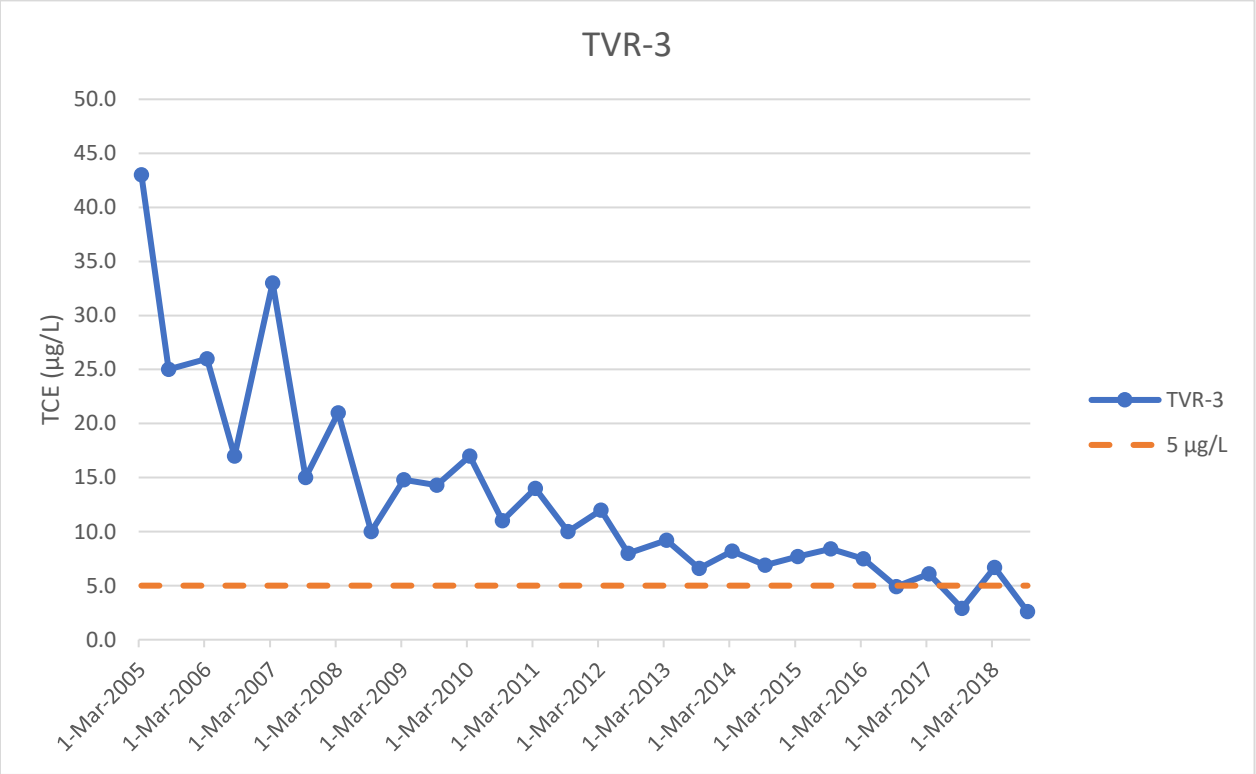


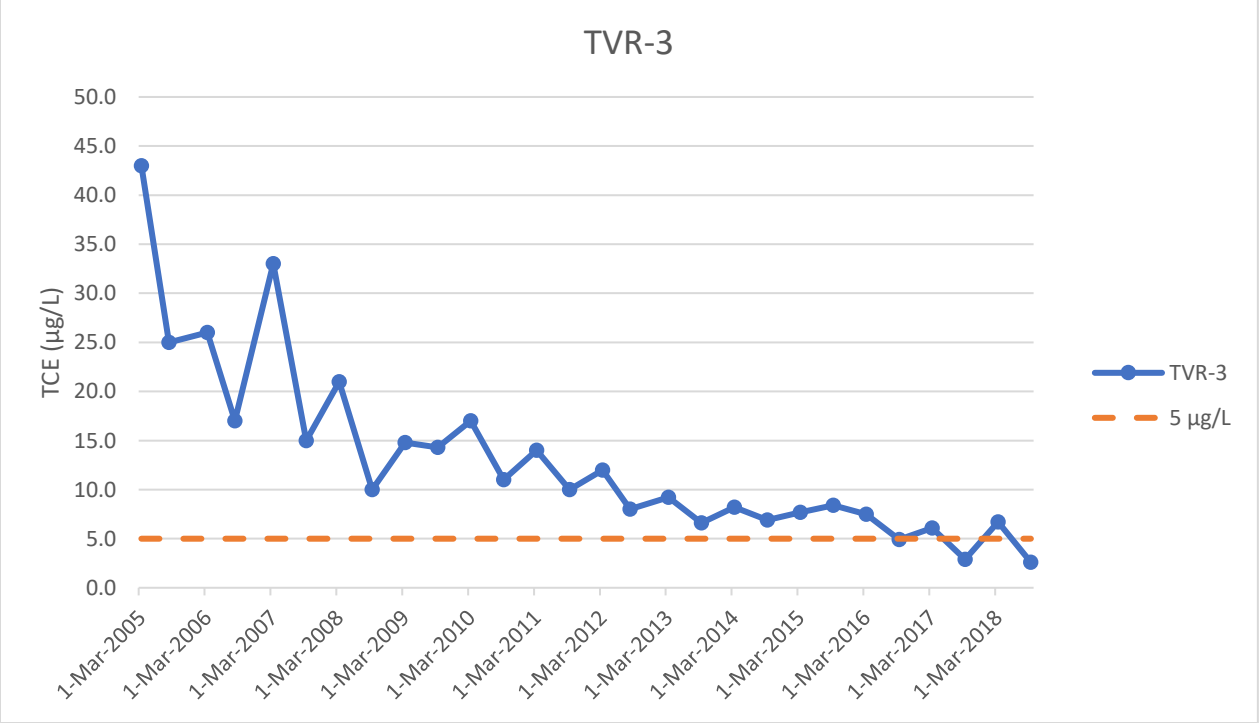
APPENDIX B
TCE CONCENTRATIONS
YAKIMA TRAINING CENTER, WASHINGTON



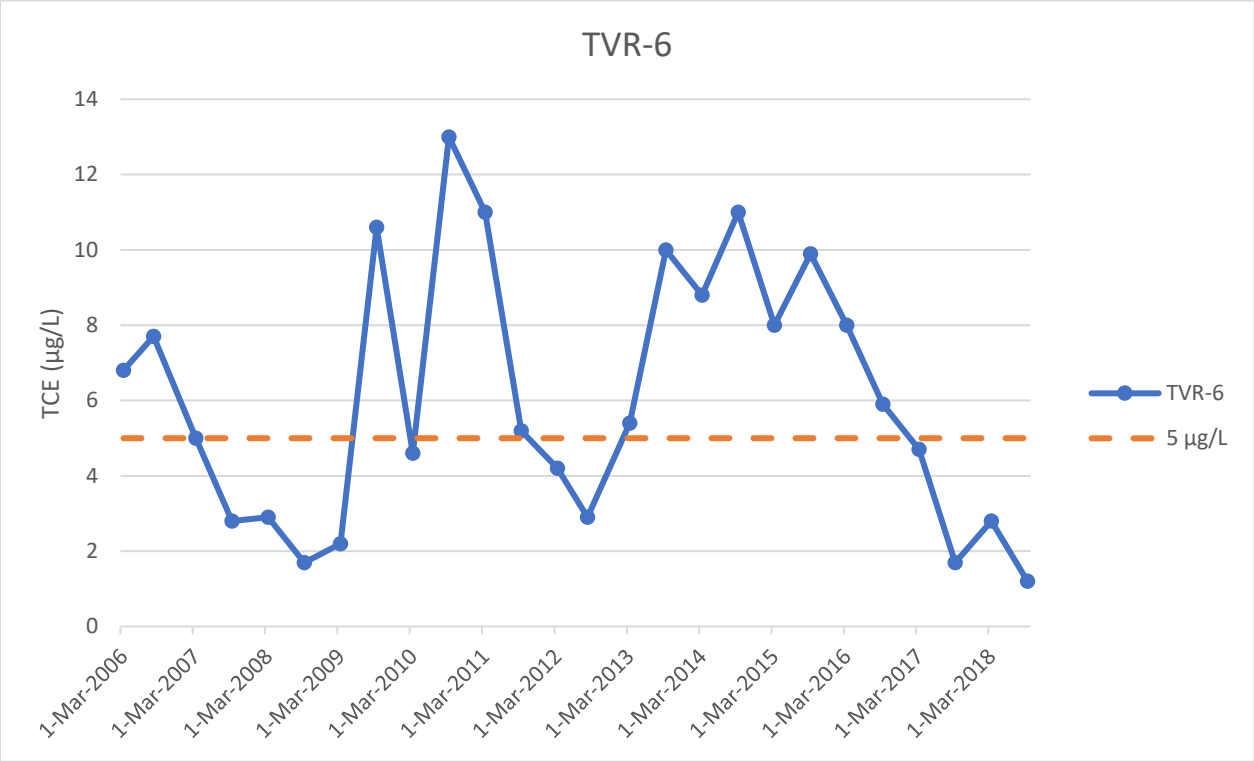


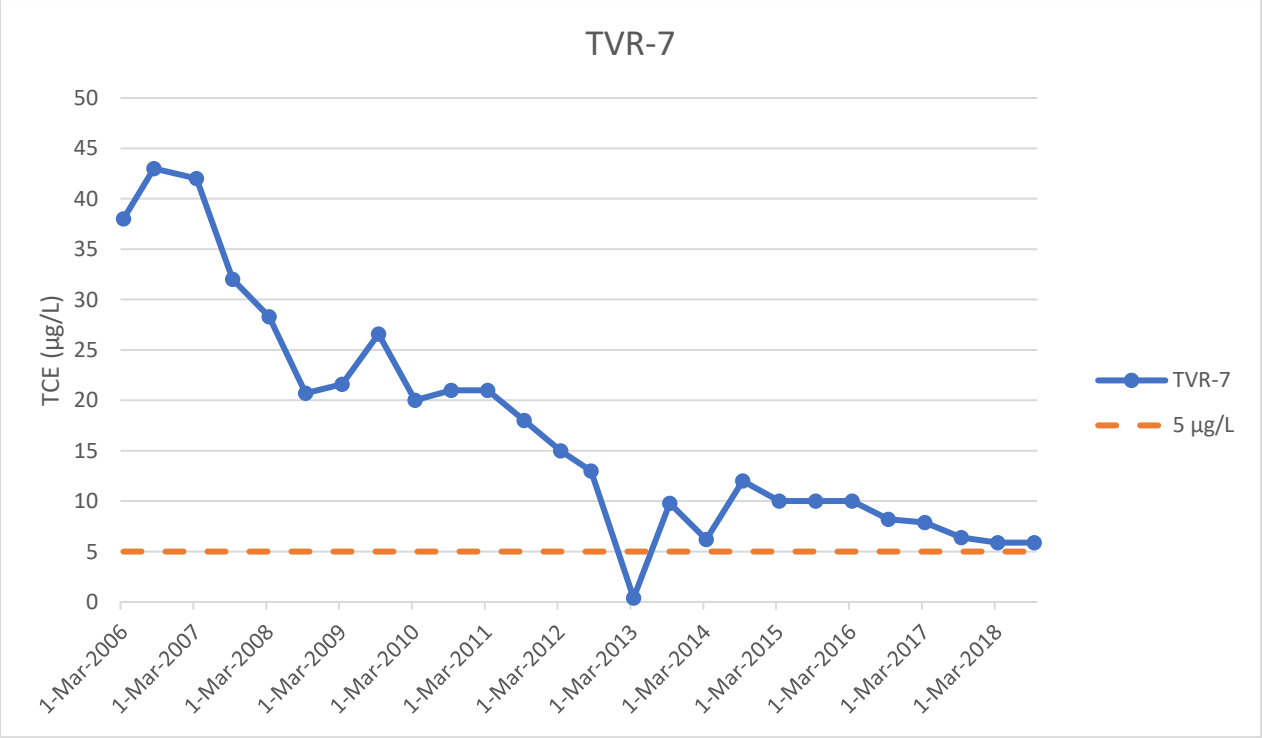
APPENDIX B
TCE CONCENTRATIONS
YAKIMA TRAINING CENTER, WASHINGTON





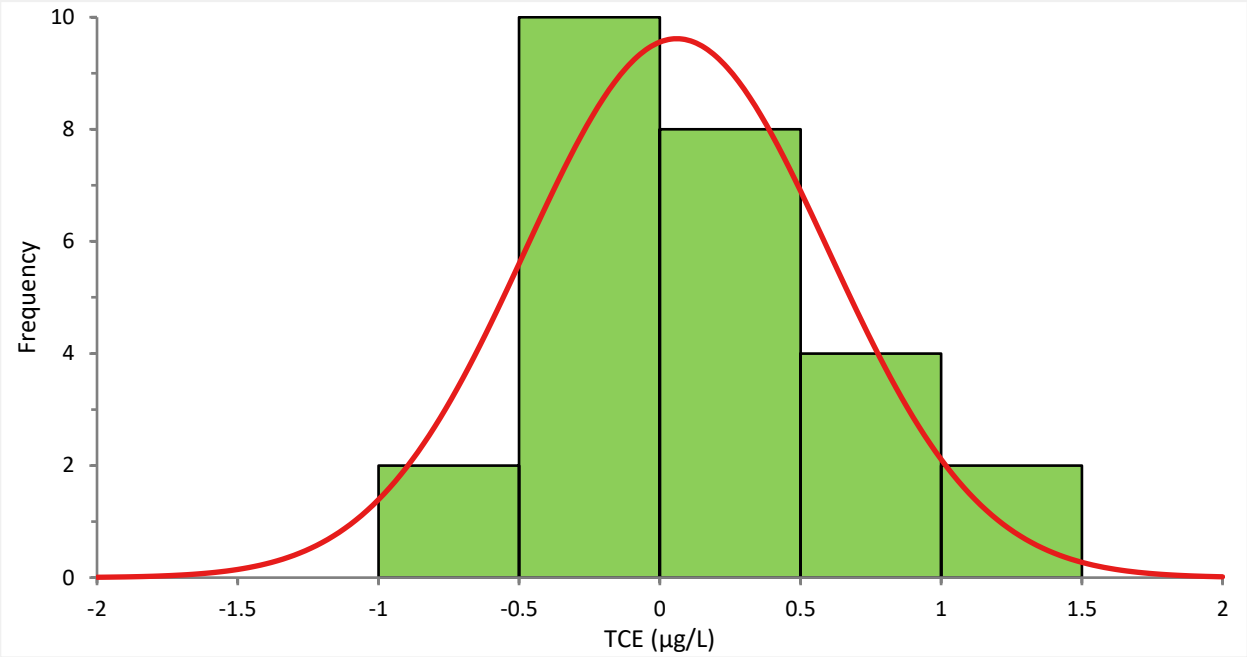
APPENDIX B
TCE CONCENTRATIONS
YAKIMA TRAINING CENTER, WASHINGTON



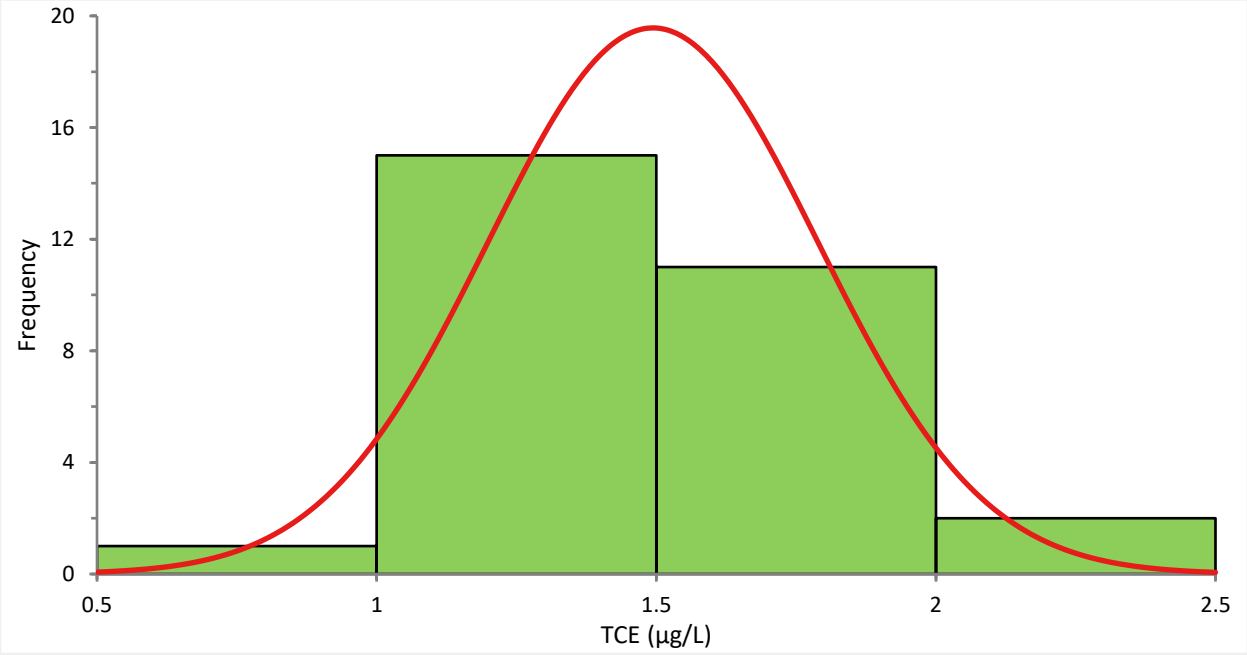


APPENDIX B
HISTOGRAMS
YAKIMA TRAINING CENTER, WASHINGTON

Ln(815-2) – TCE

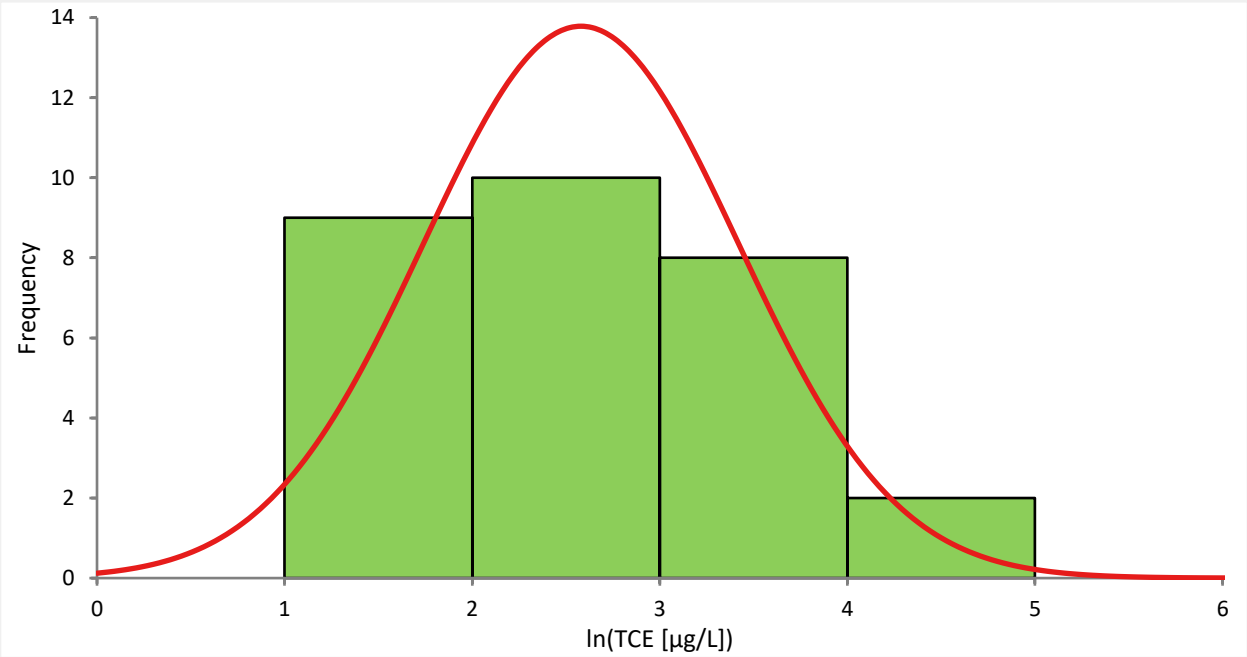


Ln(MTS-1) – TCE

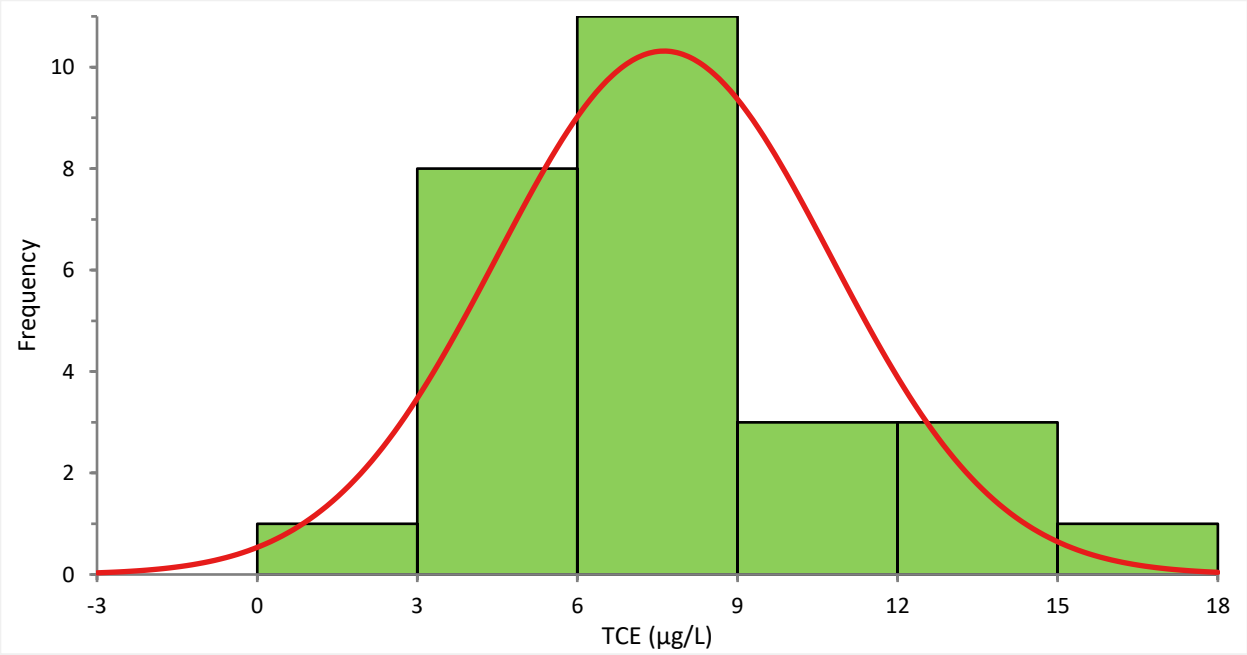


APPENDIX B
HISTOGRAMS
YAKIMA TRAINING CENTER, WASHINGTON

Ln(MTS-2) – TCE



MTS-4 – TCE



APPENDIX B
HISTOGRAMS
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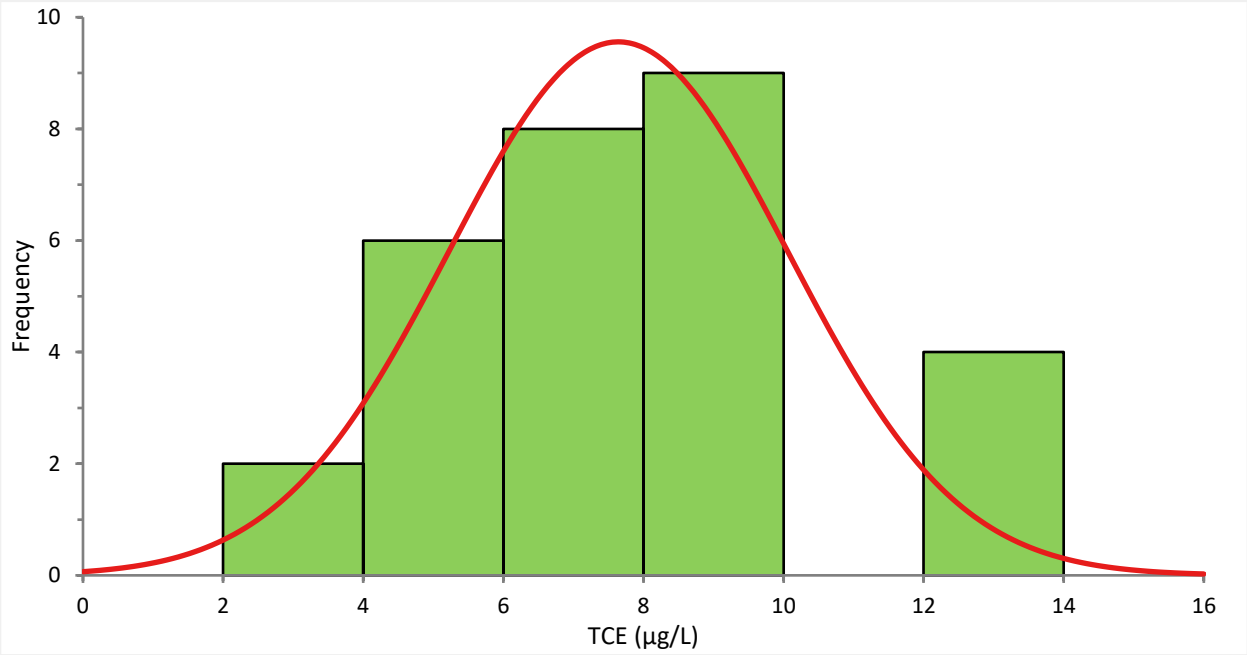
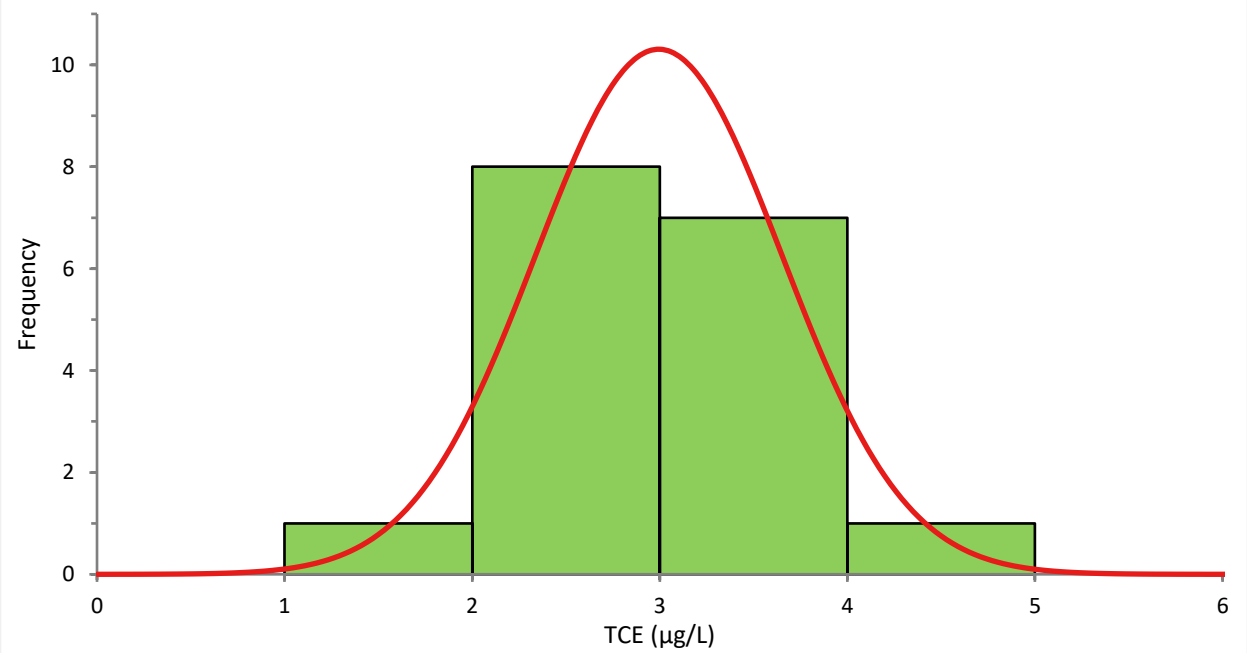
TVR-1 – TCE

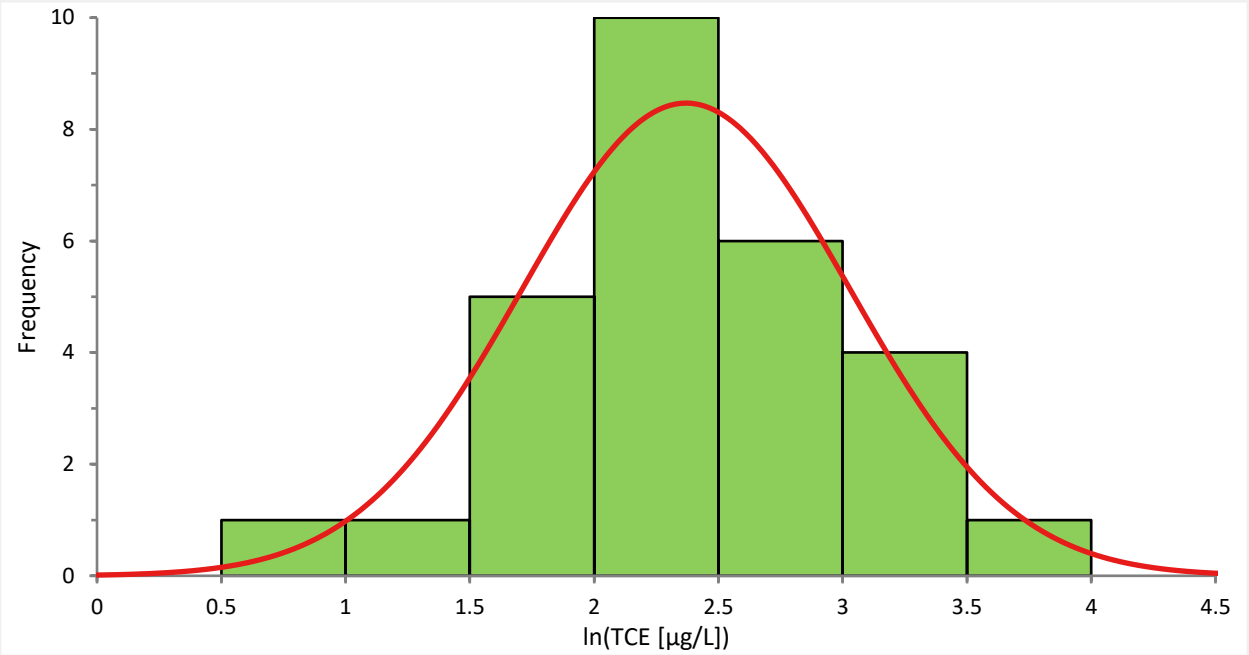


TVR-2 – TCE

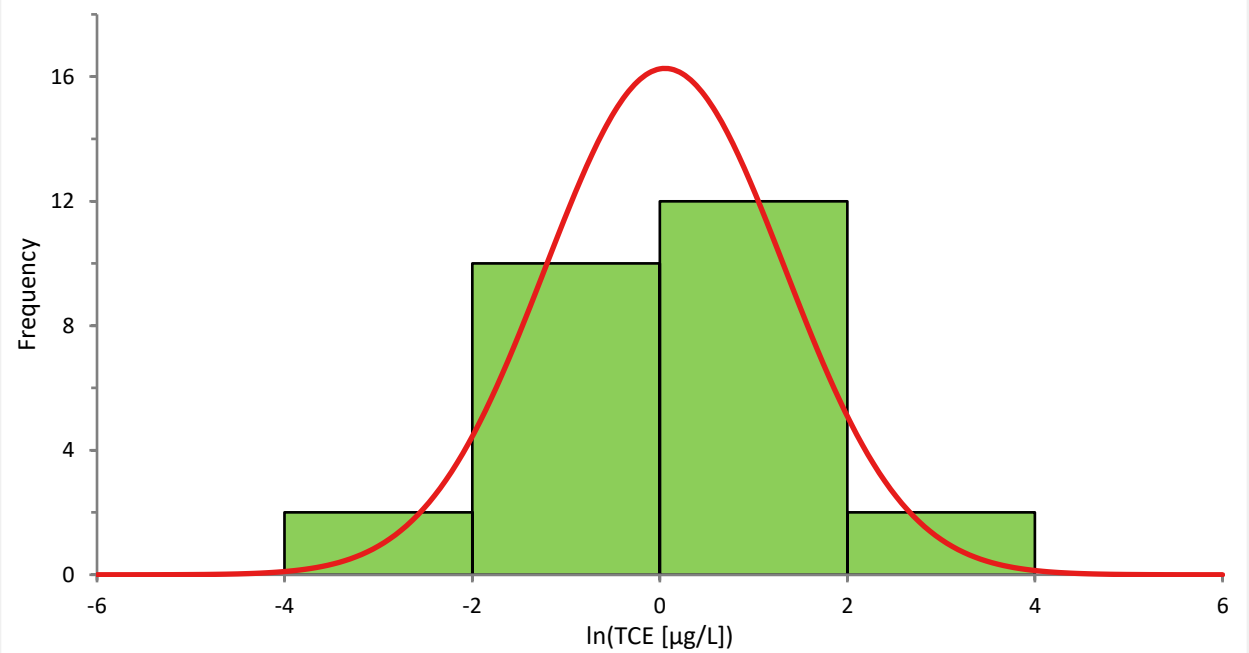


APPENDIX B
HISTOGRAMS
YAKIMA TRAINING CENTER, WASHINGTON

Ln(TVR-3) – TCE



Ln(TVR-5) – TCE



APPENDIX B
HISTOGRAMS
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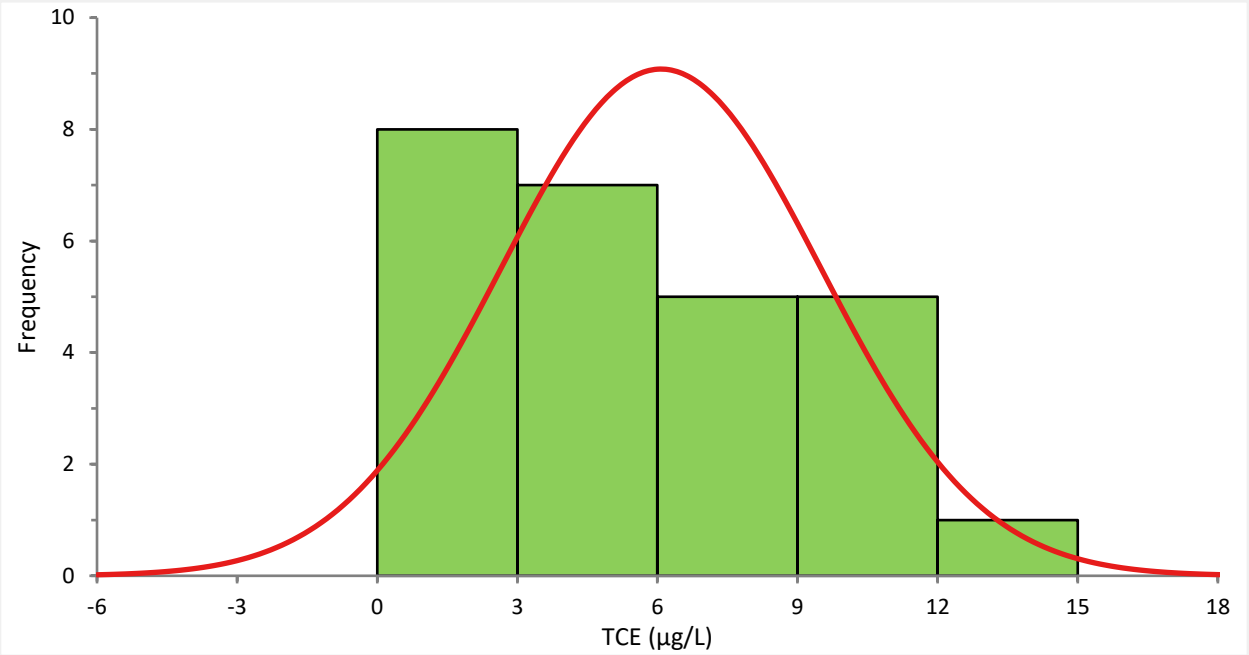
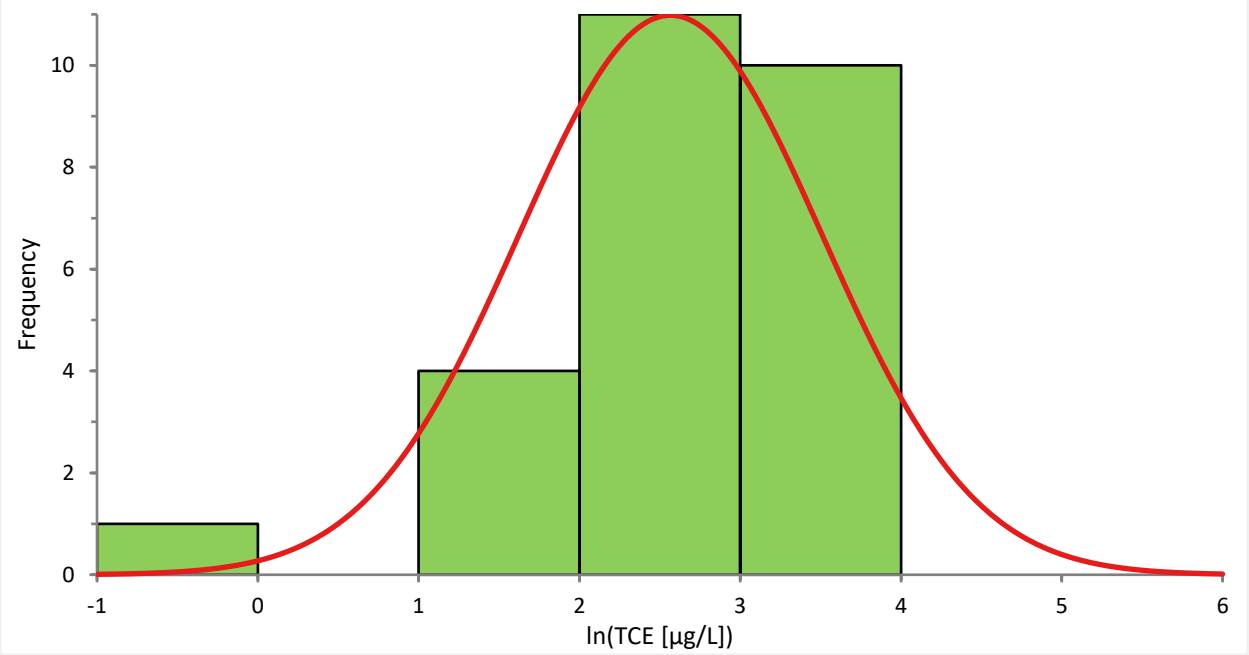
TVR-6 – TCE

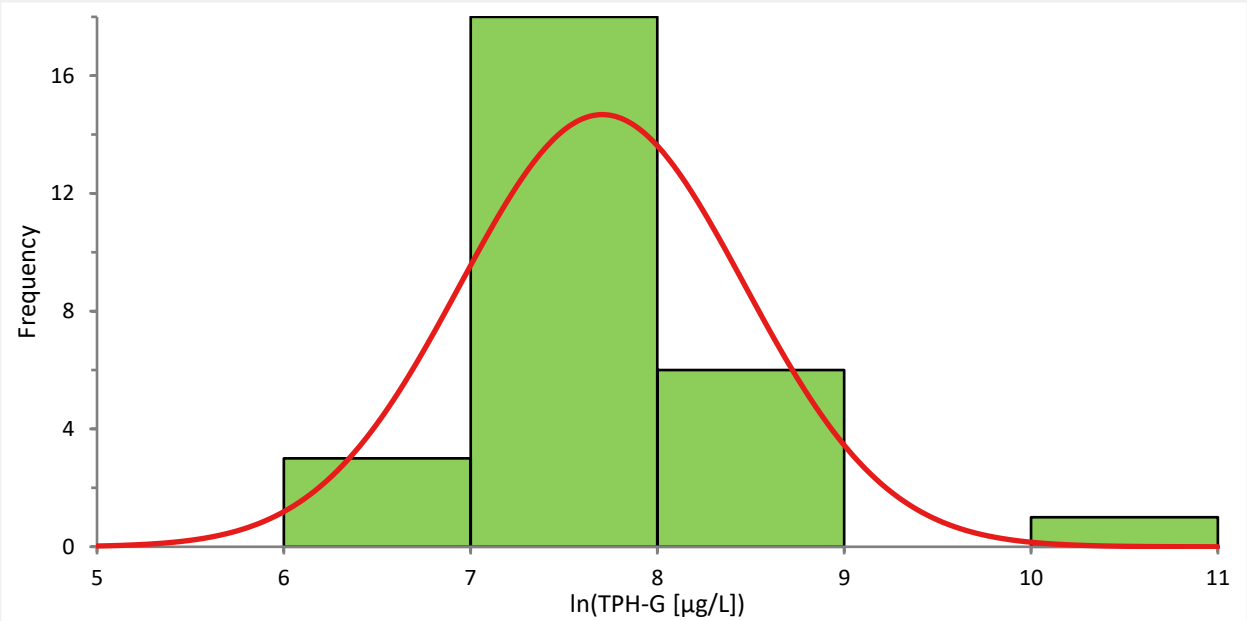


Ln(TVR-7) – TCE



APPENDIX B
HISTOGRAMS
YAKIMA TRAINING CENTER, WASHINGTON

Ln(FTP-1) – TPH-G



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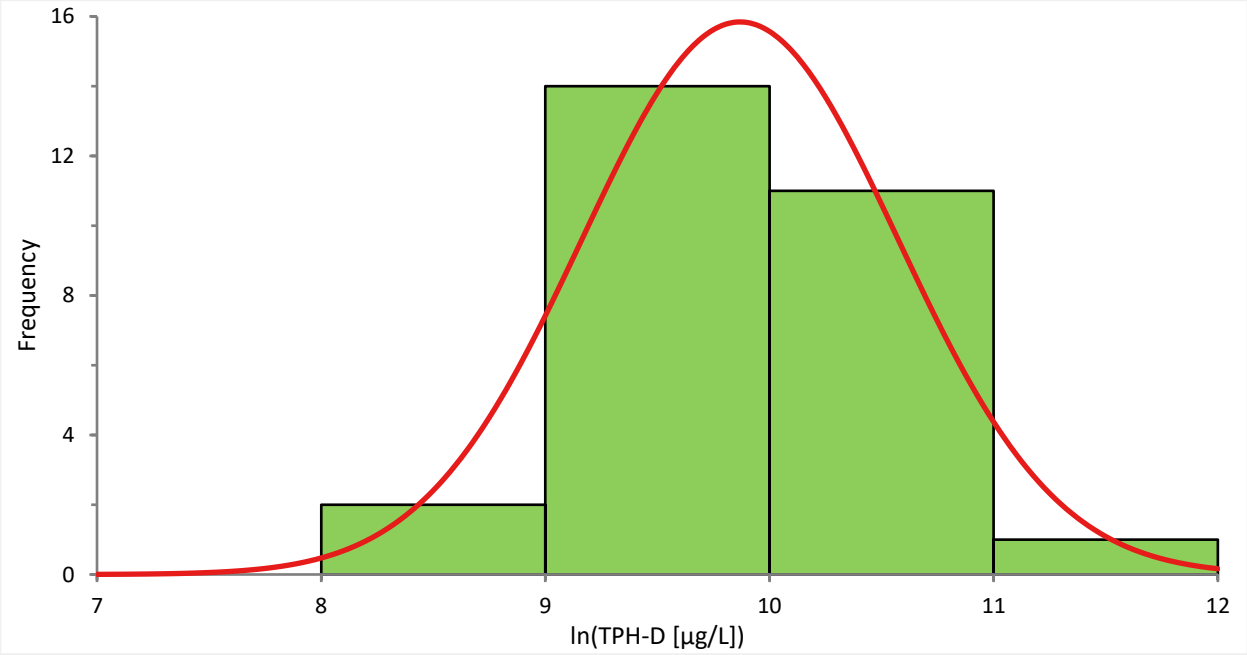
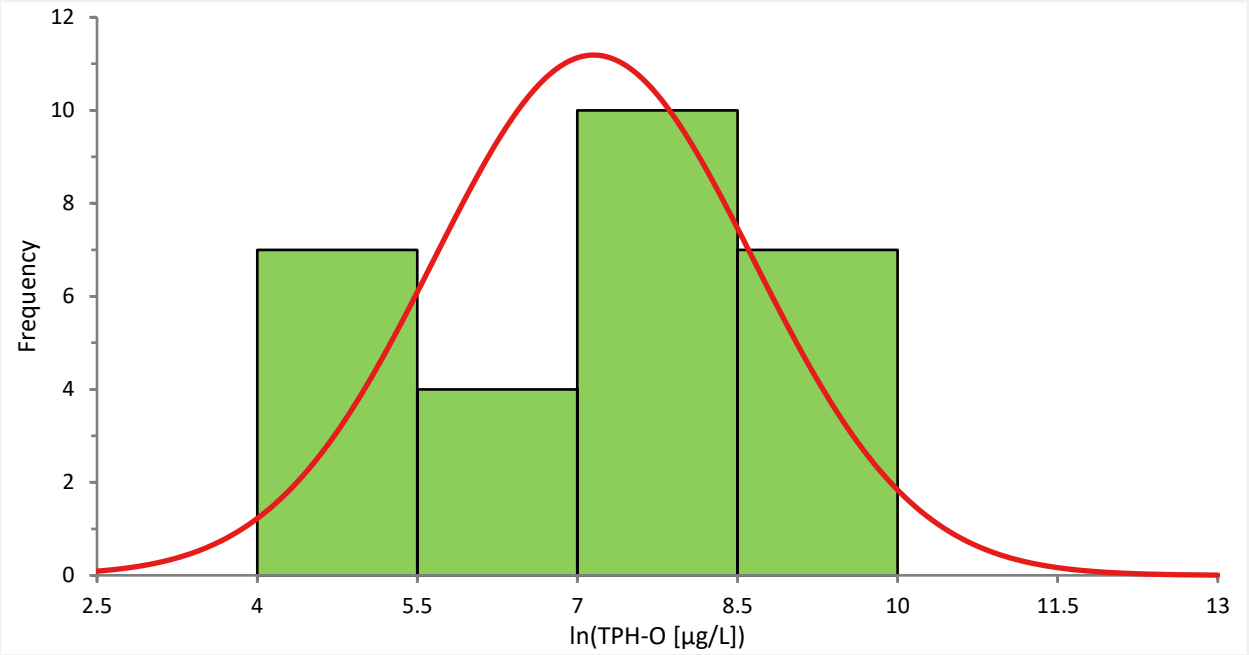


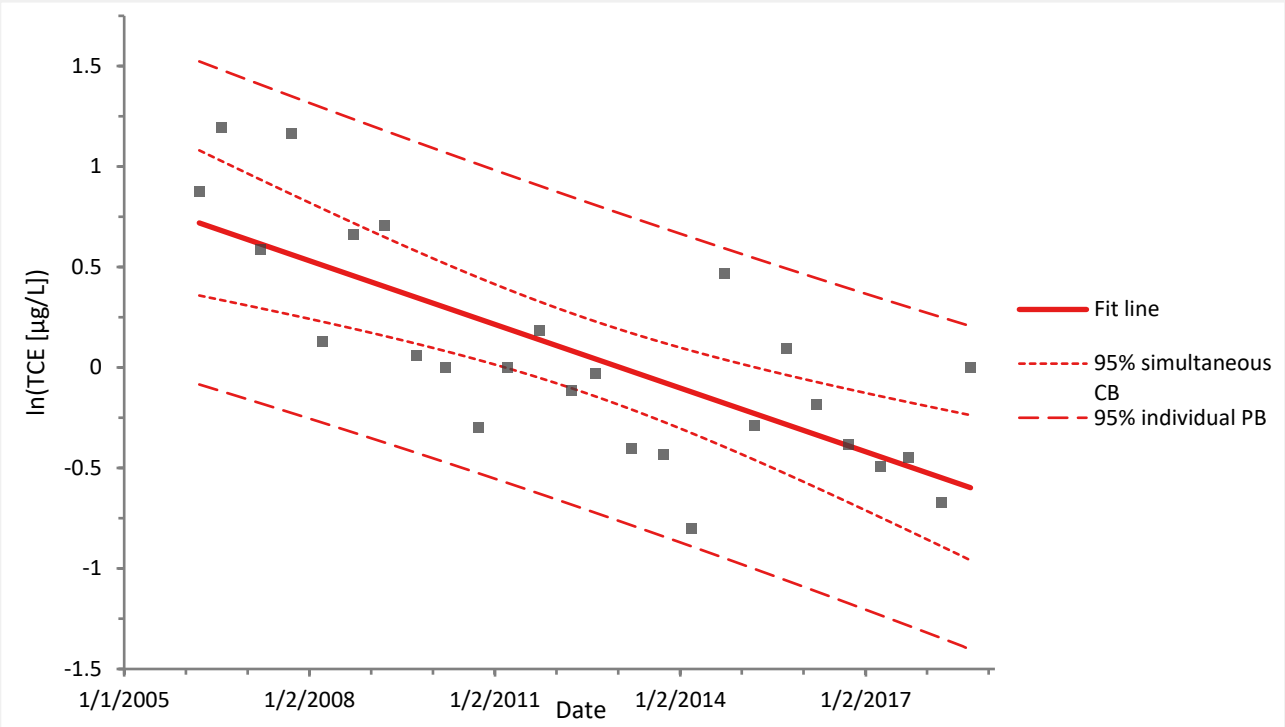
APPENDIX B
HISTOGRAMS
YAKIMA TRAINING CENTER, WASHINGTON

Ln(FTP-1) – TPH-O

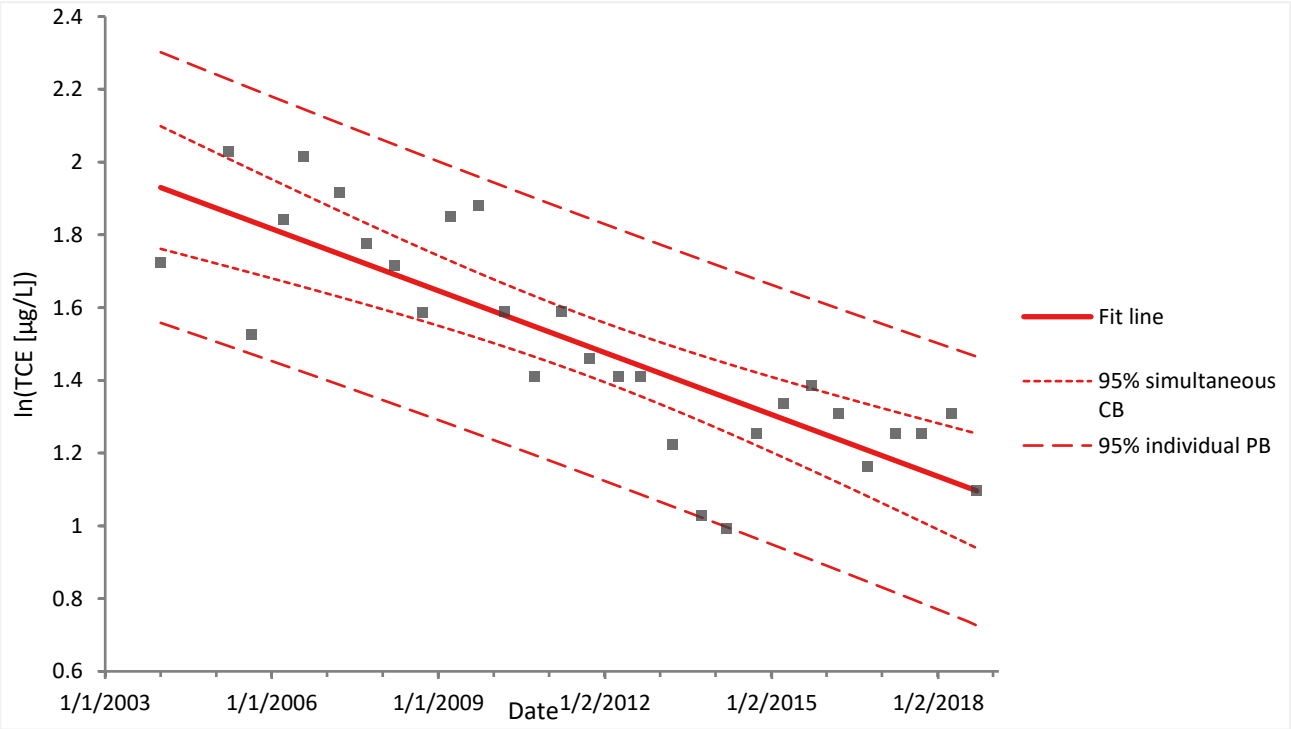


APPENDIX B
LINEAR REGRESSIONS
YAKIMA TRAINING CENTER, WASHINGTON

Ln(815-2) – TCE

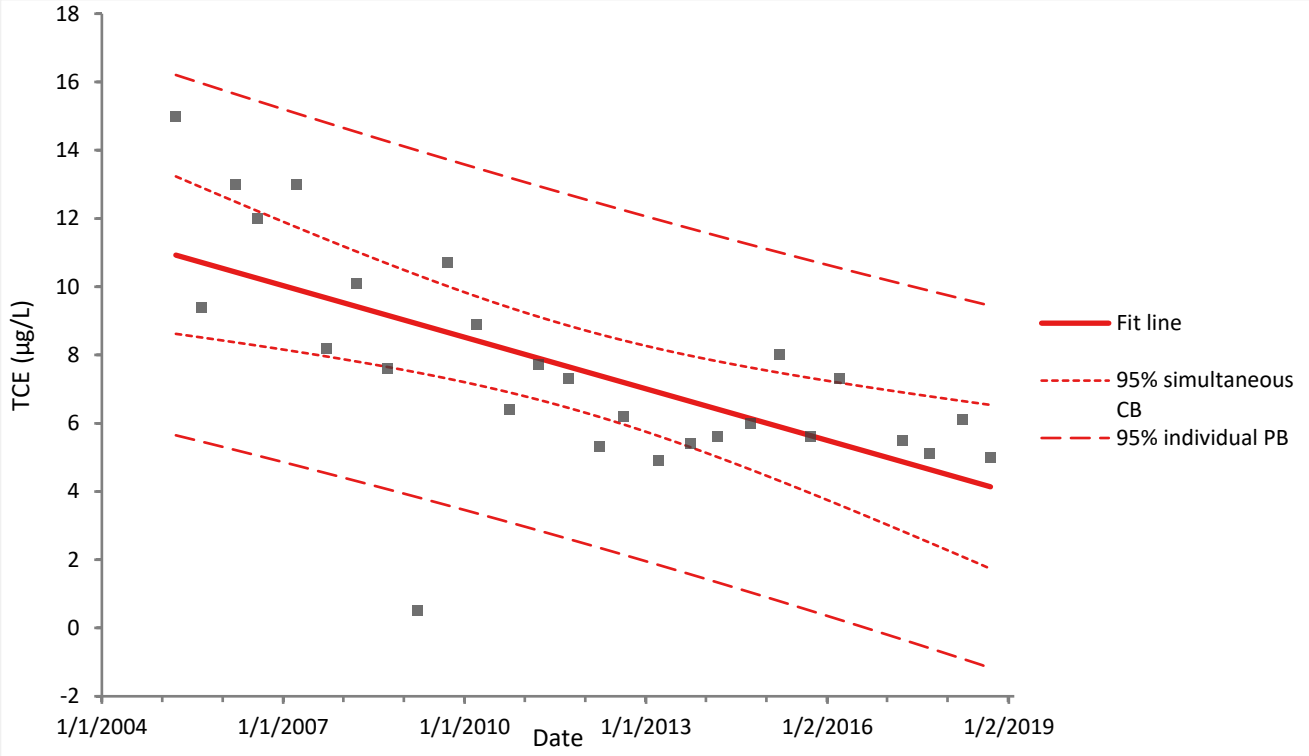


Ln(MTS-1) – TCE

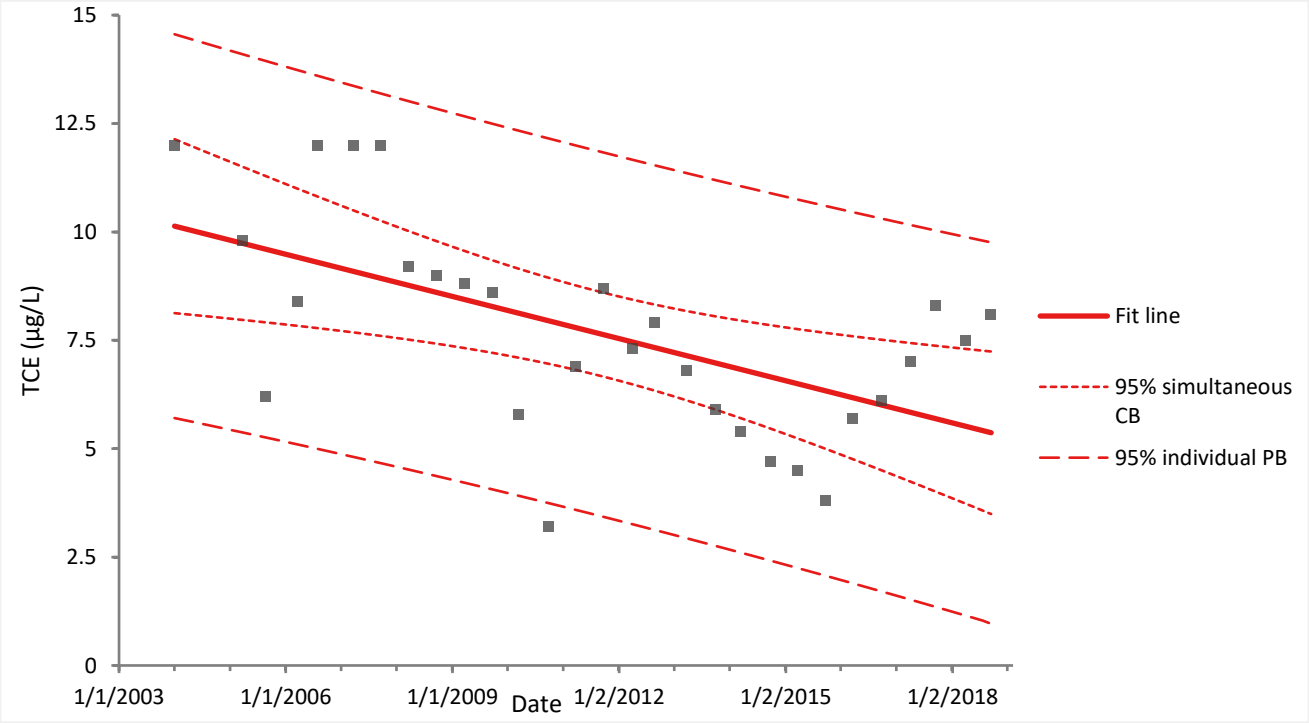


APPENDIX B
LINEAR REGRESSIONS
YAKIMA TRAINING CENTER, WASHINGTON

MTS-4 – TCE

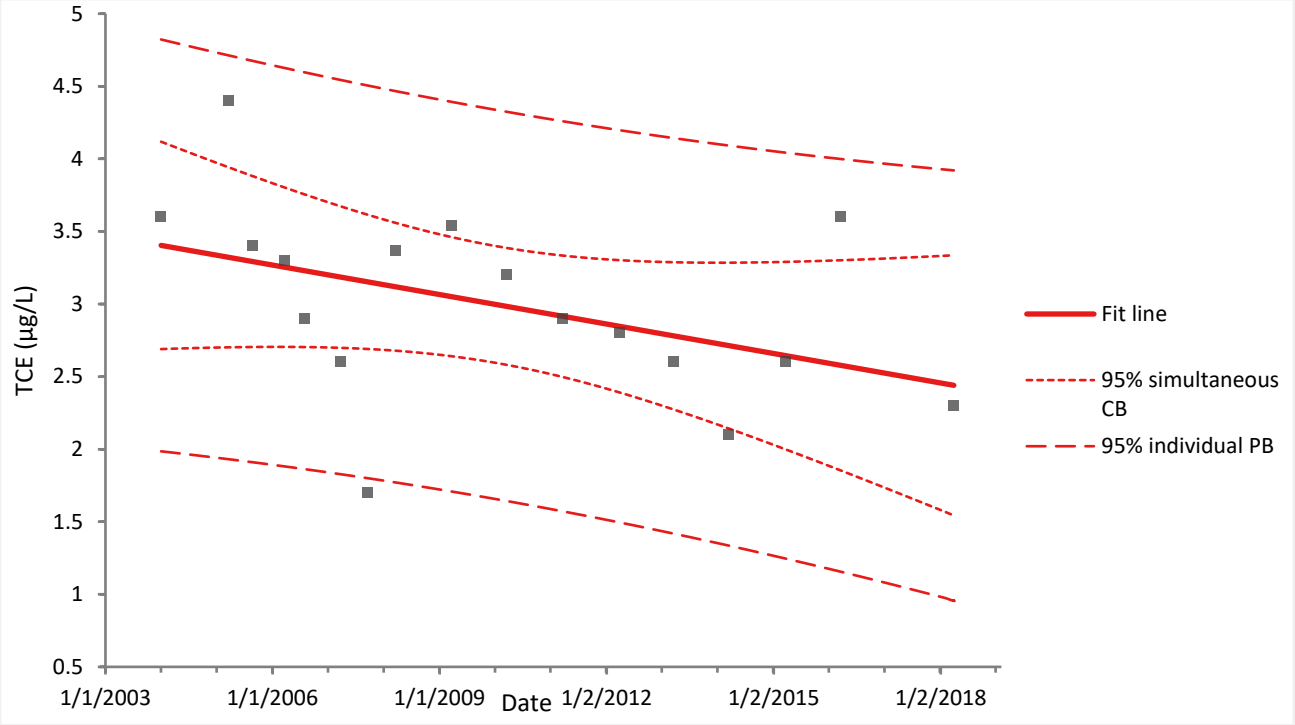


TVR-1 – TCE

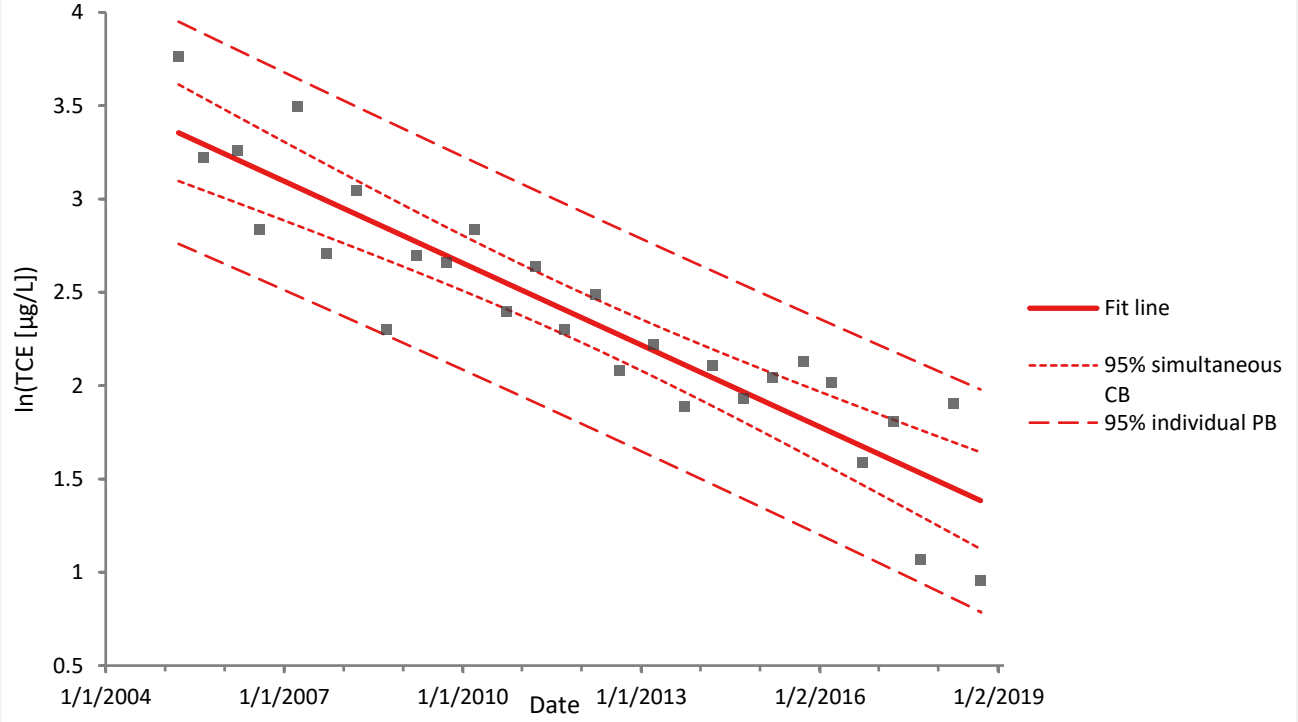


APPENDIX B
LINEAR REGRESSIONS
YAKIMA TRAINING CENTER, WASHINGTON

TVR-2 – TCE

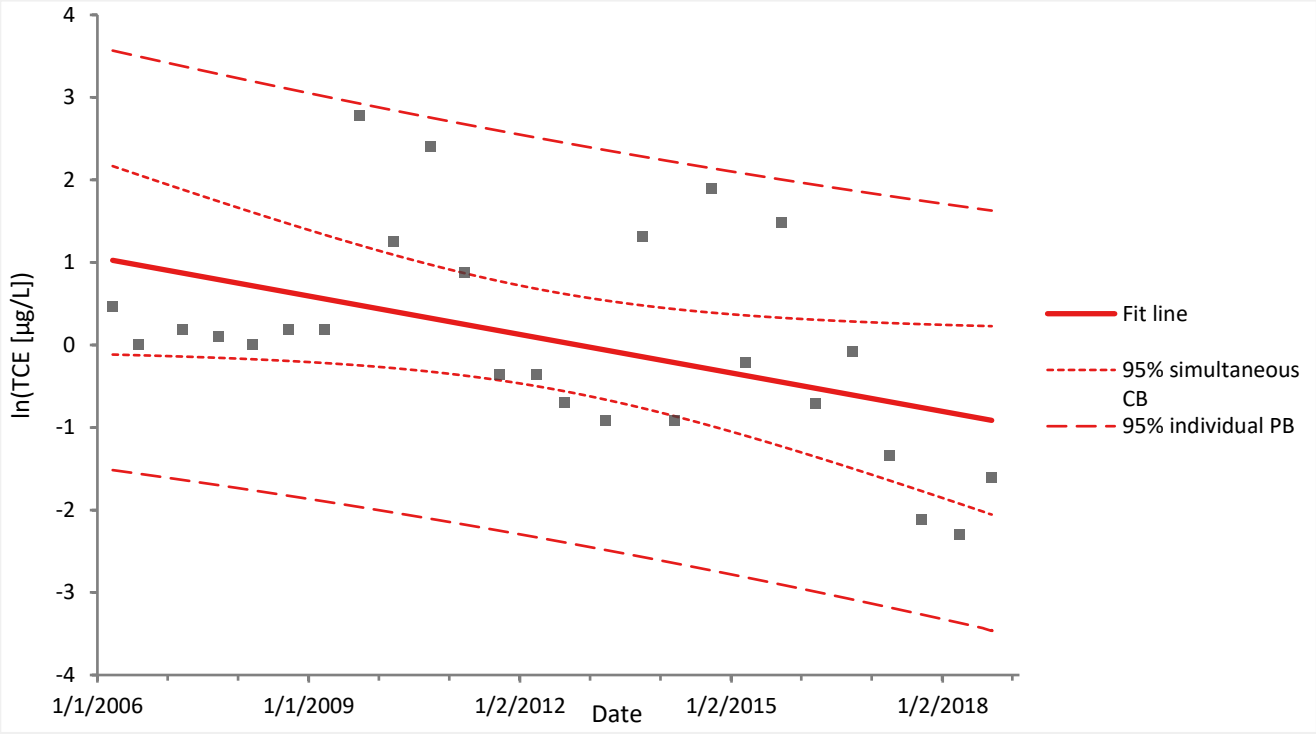


Ln(TVR-3) – TCE

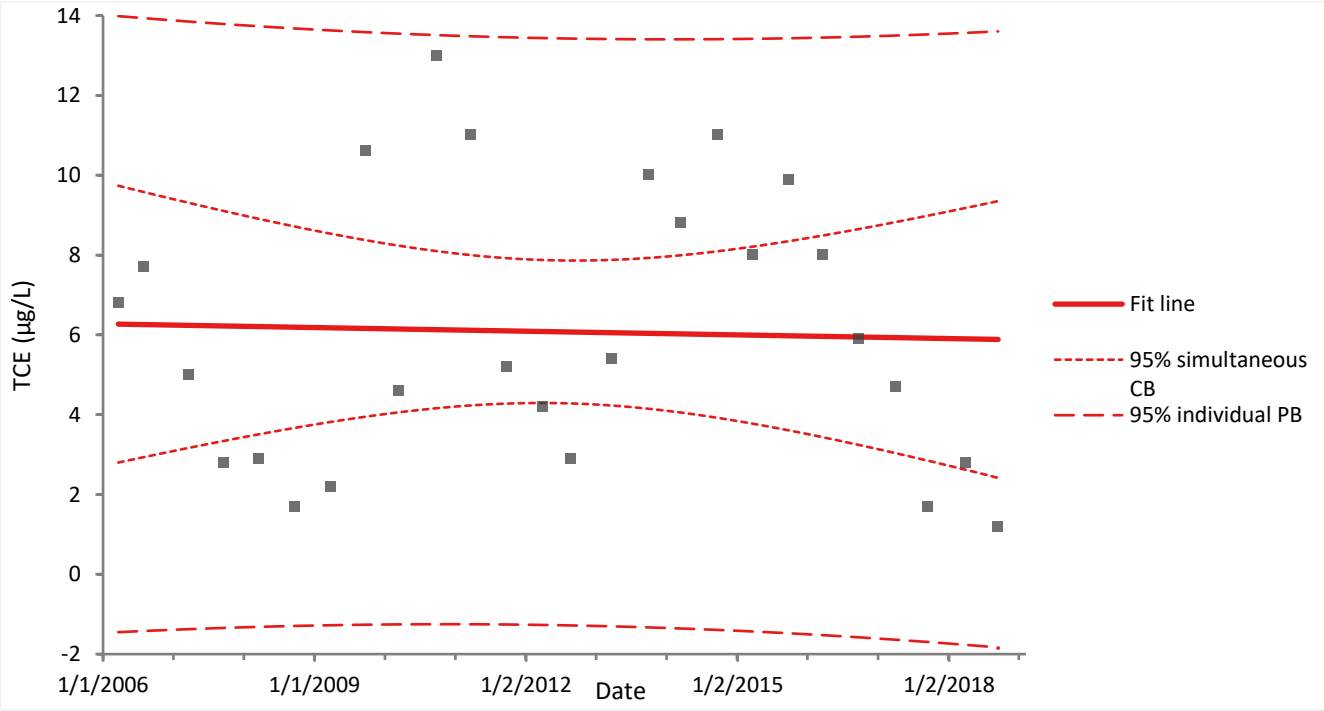


APPENDIX B
LINEAR REGRESSIONS
YAKIMA TRAINING CENTER, WASHINGTON

Ln(TVR-5) – TCE

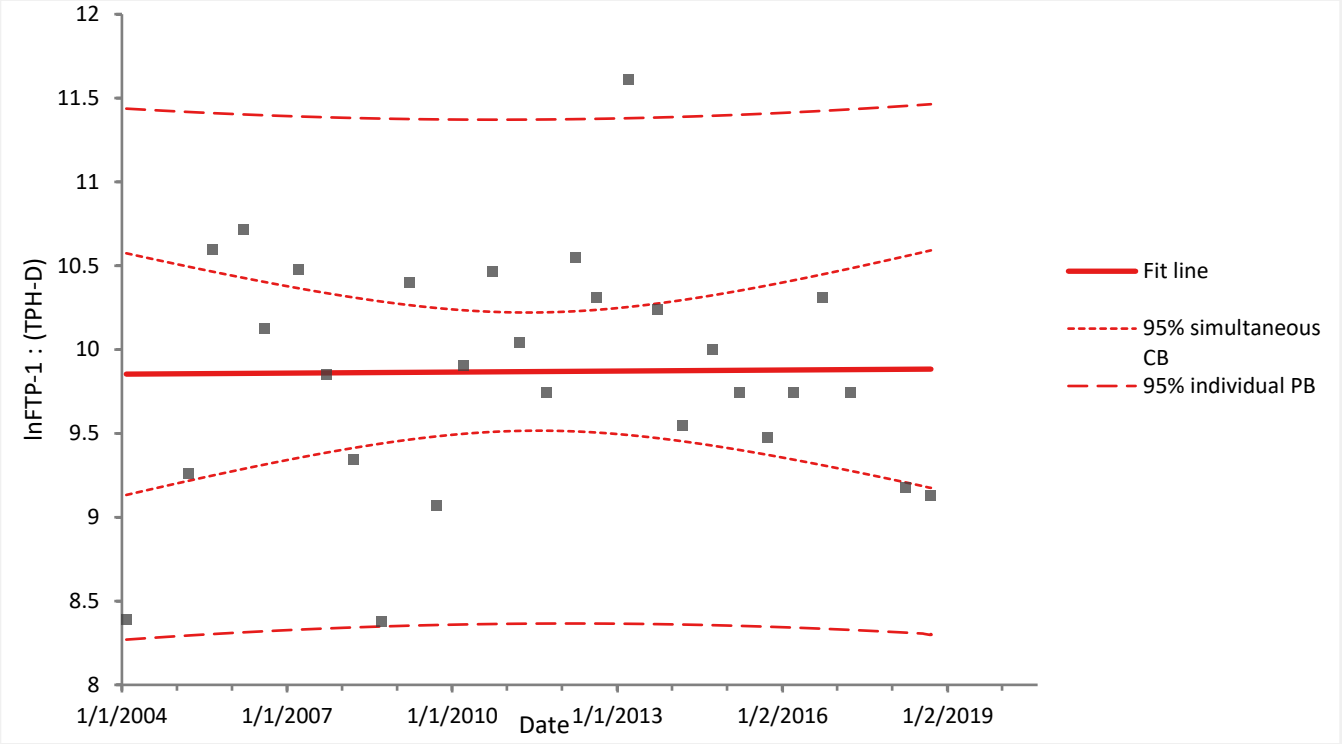


TVR-6 – TCE

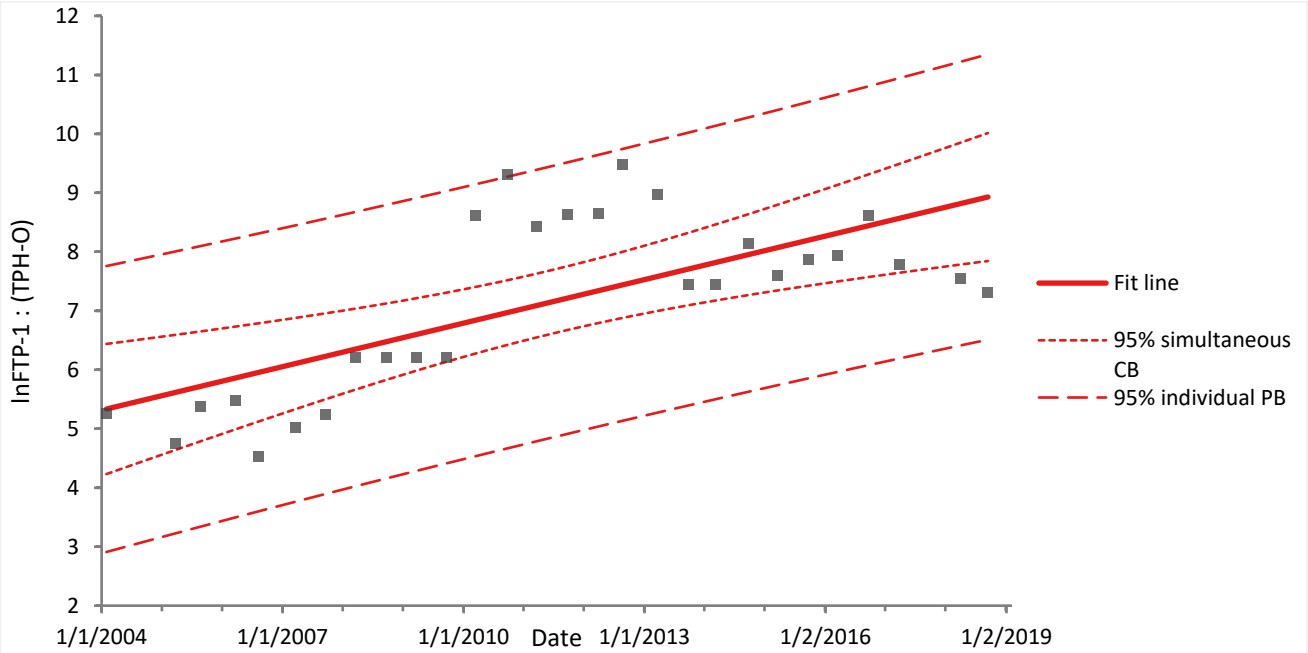


APPENDIX B
LINEAR REGRESSIONS
YAKIMA TRAINING CENTER, WASHINGTON

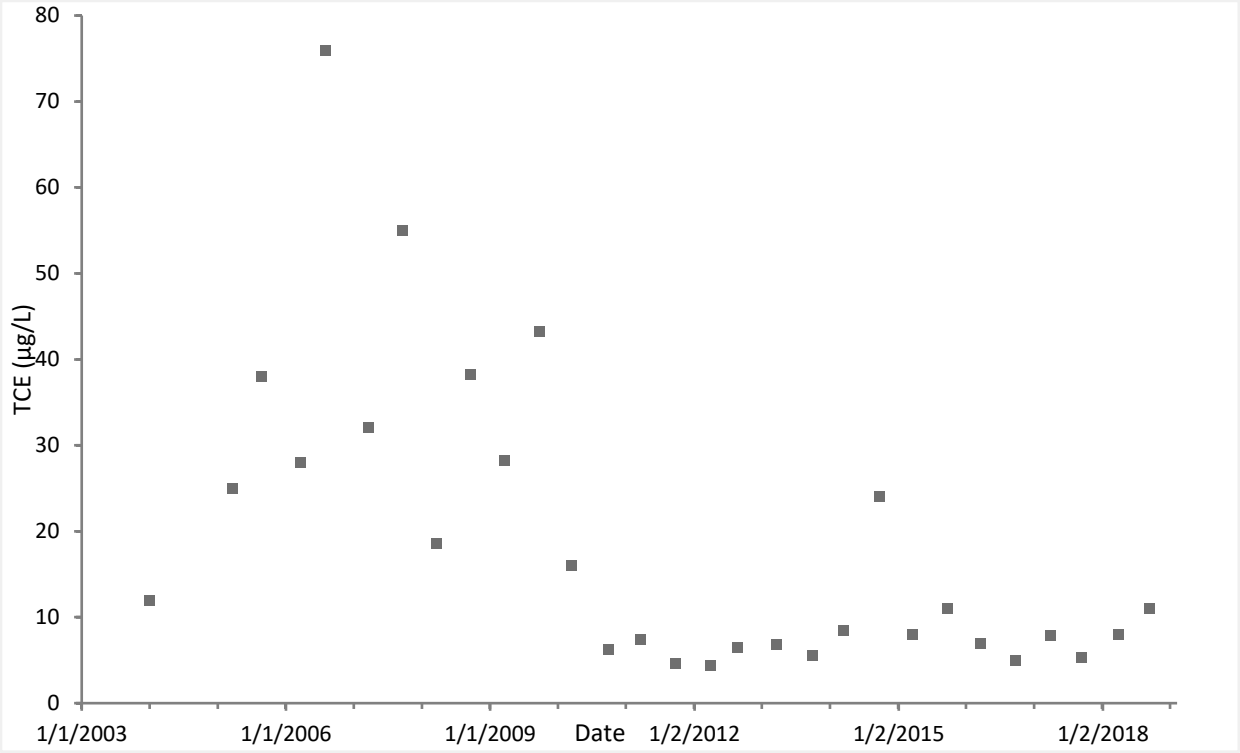
Ln(FTP-1) – TPH-D



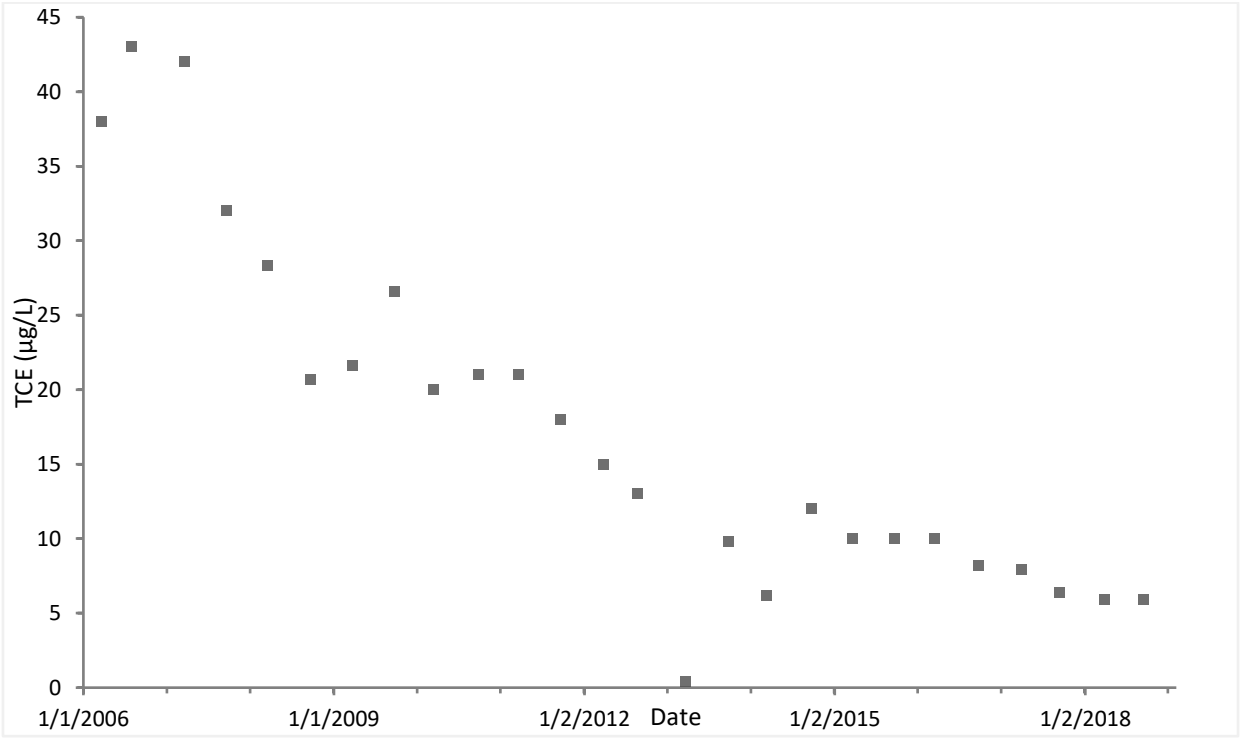
Ln(FTP-1) – TPH-O



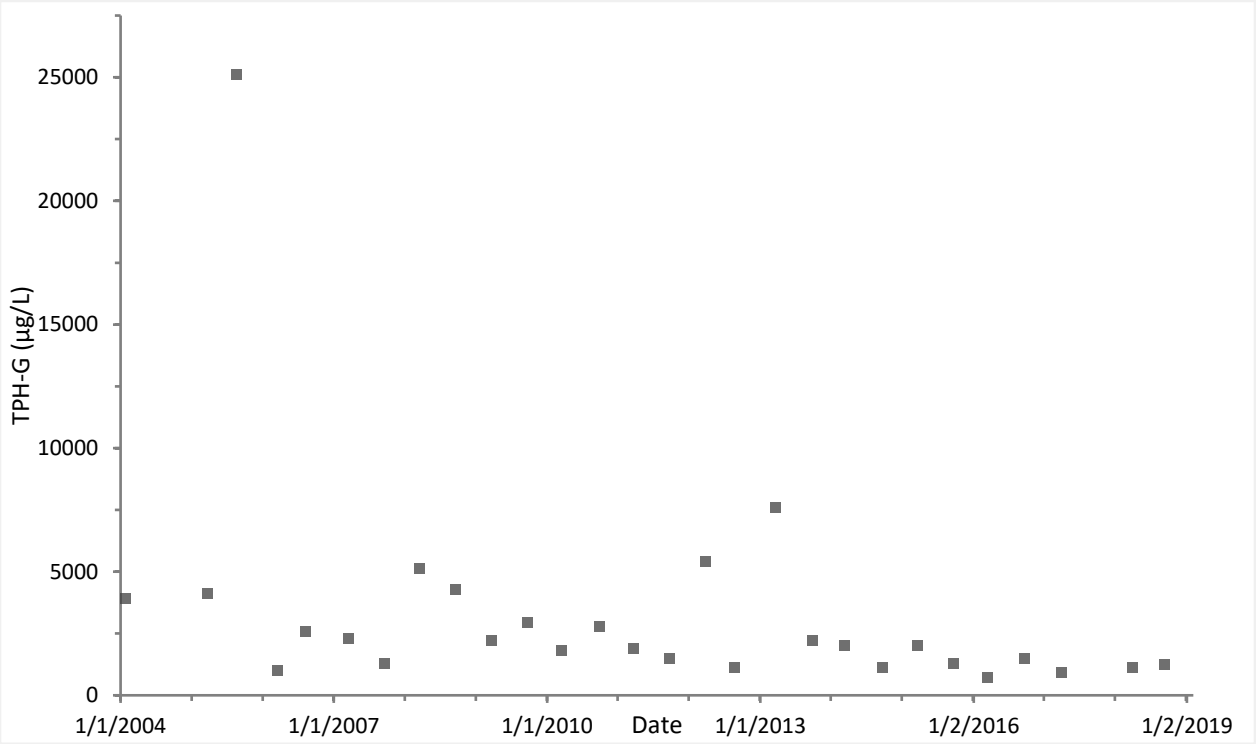
APPENDIX B
MANN-KENDALL CORRELATION SCATTER PLOTS
YAKIMA TRAINING CENTER, WASHINGTON
MTS-2 – TCE



TVR-7 – TCE



APPENDIX B
MANN-KENDALL CORRELATION SCATTER PLOTS
YAKIMA TRAINING CENTER, WASHINGTON
FTP-1 – TPH-G



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