

INTERIOR TEXACO (BUFFALO SERVICE CENTER)  
SITE CHARACTERIZATION **FINAL** REPORT  
DELTA JUNCTION, ALASKA

ADEC FILE NUMBER 120.26.001  
UST FACILITY ID 0125

July 2017



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Submitted To:  
CEM Leasing  
PO BOX 70651  
Fairbanks, Alaska 99707

By:  
Shannon & Wilson, Inc.  
2355 Hill Road  
Fairbanks, Alaska 99709

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July 31, 2017

Prepared by:

SHANNON & WILSON, INC.  
2355 Hill Road  
Fairbanks, Alaska 99709-5326

Prepared by: Valerie Webb, C.P.G.  
Senior Geologist

Reviewed by: Chris Darrah, C.P.G., CPESC  
Vice President

Prepared for:

CEM Leasing  
PO BOX 70651  
Fairbanks, Alaska 99707

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**ACRONYMS AND ABBREVIATIONS**

°C	degree Centigrade
°F	degree Fahrenheit
AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
AK	Alaska Method
bgs	below the ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
CL	cleanup level
CoC	chain of custody
COPC	contaminant of potential concern
CSM	conceptual site model
DRO	diesel range organics
EPA	Environmental Protection Agency
GAC	granular activated carbon
GRO	gasoline range organics
IC	institutional controls
LOD	limit of detection
LOQ	limit of quantitation
mg/kg	milligram per kilogram
mg/L	milligram per liter
MTG	migration-to-groundwater
PAHs	polynuclear aromatic hydrocarbons
PID	photoionization detector
ppm	parts per million
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RP	Responsible Party
RRO	residual range organics
SGS	SGS North America, Inc.
VOC	volatile organic compound

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**1.0 INTRODUCTION**

This report summarizes field observations from our site characterization of the Interior Texaco (formerly known as Delta Texaco, Alaska Mechanical Fuel Services and as the Buffalo Service Center) regulated contaminated site on September 14 through September 16, 2016 (Figure 1). The Alaska Department of Environmental Conservation (ADEC) File number for the site is 120.26.001. The purpose of this assessment was to address data gaps and evaluate what is necessary to achieve site closure. To accomplish the objective, we assessed the extent of contaminated soils, sampled and tested the groundwater quality, and evaluated threats to human health and to the environment.

Our services are provided under our agreement with the former Property owner, CEM Leasing, Inc. The objectives of our effort included preparation of a revised work plan with extensive background information of the site, installation of a series of soil borings in the former source areas to evaluate the lateral and vertical extent of contamination, sample groundwater (if encountered), sample the Kelly's Country Inn water-supply well, and prepare this summary report.

On October 27, 2016, we submitted a draft report to our client and ADEC. On February 28, 2017, we received a final version of ADEC comments. On June 26, 2017, we met with Mr. John Carnahan and Mr. Eric Breitenberger to discuss the draft report and potential future work. This final report addresses the comments we have received on the draft report in both the June 2017 meeting and the February 2017 written comments.

**1.1 Project Objectives and Scope of Services**

Our objective was to characterize soil contamination and groundwater quality at the facility. Our scope of services included preparing our September 2, 2016, *Limited Site Characterization Work Plan* (Work Plan), traveling to Delta Junction to conduct the field activities listed below, and preparing this summary report. We proposed a total of 3 days of drilling and sampling. Our

scope also included sampling groundwater in the former source areas and sampling the Kelly's Country Inn water-supply well.

The Work Plan was approved by the ADEC's Project Manager, John Carnahan on September 9, 2016. In his letter dated September 12, 2016, Mr. Carnahan provided five comments, including the recommendation to adequately distribute soil borings to ensure sufficient characterization. Mr. Carnahan also provided comments on closure requirements "to help evaluate the potential for this field effort to provide sufficient information." These comments were addressed in the field and are explained in detail in the sections, below.

Due to the existing infrastructure of the site, it was not possible to complete a site characterization or investigation of the subsurface south of the current service station building. Active fuel islands and buried, in-service USTs restricted drilling in this area.

## **2.0 SITE DESCRIPTION AND BACKGROUND**

The Property consists of a two-story building with an attached garage, tire shop, and fuel service islands south of the building. A thin, approximately 4-inch-thick layer of asphalt covers part of the site near the building. Prior to 1995, the fueling system consisted of three dispensing islands (at the northwest corner of the lot, and along the west and south side of the building), a pipe-loading rack (north of the building), and four 12,000-gallon underground storage tanks (USTs) (Figure 2). We understand the UST system was installed in 1971 and operated until 1995.

In 1995, four USTs, associated piping, and dispensing apparatus were taken out of service. UST removal was performed in accordance with the ADEC UST Regulations, 18 AAC 78, during the summer of 1995 by Inland Petro Services (formerly Soil Services, Inc.), of Fairbanks, Alaska. Shannon and Wilson personnel observed the UST removal and excavation, field-screened excavated soils, collected soil samples for analytical results, and prepared a final report. Approximately 150 cubic yards (cy) of contaminated soil were excavated.

CEM Leasing retained Shannon & Wilson to perform a series of targeted site characterization and remedial activities between 1997 and 2010. Details of the services can be found in the approved September 9, 2016 *Interior Texaco (Buffalo Service Center) Limited Site Characterization Work Plan*.

### **2.1 Contaminants of Potential Concern and Cleanup Levels**

Contaminants of potential concern (COPCs) associated with the site are DRO, GRO, RRO, BTEX, PAHs, and VOCs.

To evaluate soil and sediment sample concentrations, we compared the analytical data to Tables B1 and B2 Method Two of 18 AAC 75.341 *Migration to Groundwater for the Under 40-Inch Zone*.

To evaluate groundwater sample concentrations, we compared the analytical data to Table C of 18 AAC 75.345 *Groundwater Cleanup Levels*.

We have included an updated conceptual site model (CSM) in Appendix A.

### 3.0 FIELD ACTIVITIES

This section summarizes field activities performed between September 14 and September 16, 2016. Shannon & Wilson's field scientist James Dutt arrived in Delta Junction on September 14. Sample Collection Logs and Field Notes are included in Appendix B, completed borelogs are included in Appendix C, and selected site photographs are included in Appendix D.

#### 3.1 Site Observations

Upon arrival on site, we observed the presence of groundwater in the preexisting monitoring wells *MW-1* (at 28.9 feet below ground surface [bgs]), *MW-2* (at 33.3 feet bgs), and *MW-8* (33.4 feet bgs). Although we determined the presence of groundwater, we did not evaluate the amount of groundwater and could not determine if there was sufficient water in the existing monitoring wells to collect a sample for laboratory analysis. The groundwater gradient is generally to the northwest, sub-parallel to the Tanana River.

Over the span of three days, we advanced a total of eight borings to assess the lateral and vertical extent of hydrocarbon contamination both upgradient and downgradient of the former USTs and the western dispensing island. We also installed three temporary well points and collected water samples from the well points and from the Kelly's Country Inn well for laboratory analysis. Current infrastructure, including the current southern fuel-dispensing island, prevented investigation near the former southern pump island (Figure 2).

#### 3.2 Deviations from Work Plan

We conducted our field services consistent with our approved Work Plan, dated September 2, 2016. The following are the deviations from our amended scope of services.

The Work Plan called for the water samples to be collected using a peristaltic pump. Due to the depth of water, we opted instead to collect the water samples using a Waterra<sup>®</sup> actuator pump.



### 3.3 Investigation-Derived Waste (IDW) Management

GeoTek generated soil cuttings and excess soil not selected for laboratory analysis. These solids were used to backfill the boring from which they originated. Excess potentially contaminated soils not used for backfill were placed in a 55-gallon drum, labeled, and stored on site for proper off-site disposal.

GeoTek decontaminated their drilling tools using high-pressure steam and contained their decontamination fluids. Sampling equipment coming in contact with soil was decontaminated prior to use and reuse. We treated decontamination fluids using our granulated activated carbon (GAC) filter. The treated water was disposed on site. We transported the spent GAC to Fairbanks to be disposed with spent GAC from other Shannon & Wilson projects.

Other IDW consisted of disposable sampling equipment (nitrile gloves, plastic bags) which was disposed at the Fairbanks landfill.

### 3.4 Sample Custody, Storage, and Transport

After sample collection, we wrapped the sample bottles in bubble wrap and placed them in hard plastic coolers with adequate quantities of frozen ice-substitute to maintain sample temperatures between 0 degrees Centigrade (°C) and 6 °C until the samples reached the laboratory, using packing material as necessary to prevent bottle breakage and adhere to hazardous materials transportation regulations. A “temperature blank” was packed with the samples in each cooler. Shannon & Wilson maintained custody of the samples until submitting them to the laboratory for analysis.

Shannon & Wilson field staff departed Delta Junction on September 16. Sample coolers were closed using signed custody seals prior to departure from Delta Junction.

The water and soil samples were delivered to the SGS North America (SGS) receiving office in Fairbanks with a requested “standard turnaround” (14 calendar days, Work Order No. 1168600). Water and soil samples were analyzed for gasoline range organics (GRO), benzene, toluene, ethylbenzene, and xylenes (BTEX), diesel-range organics (DRO), residual-range organics (RRO), and polynuclear aromatic hydrocarbons (PAHs), additionally a field duplicate pair of water samples were analyzed for volatile organic compounds (VOCs) in accordance with our approved Work Plan.

## 4.0 ANALYTICAL RESULTS

We compared analytical results of soil samples to cleanup levels (CLs) listed in Alaska's 18 AAC 75.340 Table B1, Method Two – *Migration to Groundwater*. We compared analytical results of water samples collected from the temporary well points to CLs listed in Alaska's 18 AAC 75.345 Table C – *Groundwater Cleanup Levels*. CLs are tabulated in Table 1 and Table 2 alongside the analytical results.

Summaries of the analytical results of the soil and water samples are presented in Tables 1 and 2, respectively. The complete analytical laboratory reports and ADEC data-review checklists are included in Appendix E.

### Soil Boring Samples

Analytical results found to be above the ADEC migration-to-groundwater CLs include:

- GRO was detected in the sample *B-4-2016(11.0')* at a concentration of 3,400 ppm.
- DRO was detected in samples:
  - *B-2-2016(6.0')* at a concentration of 10,400 mg/kg
  - *B-4-2016(11.0')* at a concentration of 9,550 mg/kg;
  - *B-4-2016(35.0')* at a concentration of 487 mg/kg
  - *B-5-2016(27.5')/B-1002* at a concentration of 805/600 mg/kg; and
  - *B-8-2016(37.0')* at a concentration of 557 mg/kg.
- Benzene, o-xylene, and p & m -xylenes were detected in the sample *B-4-2016(11.0')* at concentrations of 0.418, 726, and 1,080 mg/kg respectively.
- The PAH analytes 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene were detected in the field duplicate pair *B-4-2016(11.0')/B-1001* at concentrations between 35.7 and 47.8 mg/kg.

Concentrations of the other analytes in soil samples were less than ADEC CLs and are summarized in Table 1.

### 4.1 Groundwater Samples

No analytes were detected above ADEC CLs in water samples collected from the temporary well points installed at boring locations where groundwater was encountered. In addition, no analytes were detected above ADEC CLs in the water samples collected from the Kelly's Country Inn well. The following analytes from the B-2 boring were detected below ADEC CLs:

- GRO was detected at estimated concentrations less than the laboratory's LOQ but greater than the laboratory's LOD in the field duplicate pair *B-2-2016/B-1004*.
- The PAH analytes benzo(a)pyrene, dibenzo(a,h)anthracene, and fluorene, were detected at estimated concentrations less than the laboratory's LOQ but greater than the laboratory's LOD in the field duplicate pair *B-2-2016/B-1004*.
- The PAH analytes 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene were detected at concentrations greater than the laboratory's LOQ but less than the associated ADEC CLs in the field duplicate pair *B-2-2016/B-1004*.
- The VOC analyte 1,2-dichloroethane was detected at an estimated concentration less than the laboratory's LOQ but greater than the laboratory's LOD in the field duplicate sample *B-1003*.

Concentrations of the other analytes in the project groundwater samples were less than the laboratory's LOD (Table 2).

## **5.0 QUALITY ASSURANCE/QUALITY CONTROL**

We reviewed the analytical results provided by SGS for laboratory QC samples and also conducted our own QA assessment for this project. We reviewed chain of custody (CoC) records and laboratory sample-receipt forms to check that we followed proper custody procedures, met sample-holding times, and kept samples properly chilled (between 0 °C and 6 °C) during shipping. Our QA-review procedures allow us to document accuracy and precision of the analytical data and check that the analyses were sufficiently sensitive to detect analytes at levels below regulatory standards.

For this report, we reviewed the soil and water data reported in SGS Work Order 1168600. The SGS laboratory report contained the case narrative, sample-receipt forms, analytical results and a copy of the CoC. Details regarding the results of our QA analyses are presented in the ADEC laboratory data-review checklist along with a copy of the original SGS laboratory report (Appendix E). Our review of the data reveals that some of the analytical samples experienced method and laboratory data-quality failures (surrogate recovery, a method blank detection, field duplicate relative percent difference (RPD) failures, etc.). None of the data-quality failures caused the data to be considered unusable. Analytical results that are considered affected by method and laboratory data-quality failures are flagged in Tables 1 and 2.

## 6.0 DISCUSSION AND RESPONSES

### 6.1 Discussion

In Mr. Carnahan's September 12, 2016 letter in response to the Work Plan, he included seven "general requirements for a closure request". Specifically:

1. The extent of hazardous substance contamination must be properly characterized.
2. The Responsible Party (RP) must demonstrate that contamination will not migrate and will not pose an unacceptable risk to human health and the environment.
3. Cleanup has been conducted to the extent practicable and potential exposure to remaining contaminant can be prevented through Institutional Controls (ICs).
4. Vapor intrusion risks have been addressed.
5. The groundwater beneath the site is not a current source of drinking water.
6. The groundwater contaminant plume is steady state or shrinking, and concentrations are decreasing.
7. Ultimately, the department must agree with a determination that residual contamination does not pose a current unacceptable risk to human health, safety or welfare, or to the environment and that future risk is mitigated through ICs.

Based on conversations, meetings, and written comments since the September 12, 2016 work plan, we have revised this section to determine a path forward to collect the missing information to request a site closure at a later date. However, for efficiency of review, we are still addressing each comment, below.

#### 6.1.1 Response to ADEC Comment #1 - Characterization

We recognize a few key data gaps in the subsurface characterization, namely along the northern perimeter of the property. Results indicate contamination is limited to a zone above the perched water table. No analytes were detected above ADEC CLs in water samples collected from the temporary well points installed at boring locations where groundwater was encountered.

In addition, soil contamination appears to be limited to the area near the former USTs (Figure 2). Specifically, to consider the vertical extent of diesel contamination, we compared the analytical and field screening results from B-4 and B-5 borings. The B-4 boring log indicates diesel

contamination is limited to a zone between 10 and 36 feet bgs. Results from the B-5 boring log indicate diesel contamination is confined to a zone between 26 and 35 feet bgs.

The horizontal extent of diesel contamination is limited to the northern portion of the site. Data from the B-1, B-3, B-7, and B-6 borings indicate the absence of contamination above ADEC CLs.

Benzene was not detected above the ADEC CLs in any samples collected between 27 and 47 feet bgs.

The analytical results from boring B-2 appear to indicate a shallow, isolated occurrence of diesel contamination, concentrated at six feet bgs, which is likely not attributable to the former USTs.

### **6.1.2 Response to ADEC Comment #2 – Contaminant Migration**

Twenty-one years have passed since the first subsurface sample. In 1995, investigation within the former western fuel island yielded the highest result for DRO being 180 mg/kg and for GRO was 4,900 mg/kg. In 2016, in the former western fuel island, the highest result for DRO was 1.19 mg/kg and for GRO was 26.7 mg/kg.

Within the former UST area, analytical results show the same order of magnitude for diesel contamination. In 1995, DRO at 11 feet bgs in the former UST area was 8,600 mg/kg and the highest result for GRO was 12,000 mg/kg. In 2016, the highest result in the former UST area at 11 feet bgs for DRO was 9,550 mg/kg and for GRO was 3,400 mg/kg.

Analytical results from the temporary well points indicate the contamination observed in 2000 samples MW-8 and MW-3 has not migrated. In 2016, analytical results indicate an absence of BTEX, diesel, and gasoline contamination in the groundwater.

### **6.1.3 Response to ADEC Comment #3 – Practicable Cleanup**

Future excavation is not practicable for safety concerns and the risk of compromising the building's structural integrity.

The SVE system was installed to assist with the passive recovery of hydrocarbons. In addition, the zone of apparent contamination is several feet below ground surface. The exposure to remaining contaminants is therefore low because of the uncontaminated-soil and partial-asphalt cover.

#### **6.1.4 Response to ADEC Comment #4 – Vapor Intrusion Risks**

Through October 1999 and March 2000, we conducted interior-air monitoring at the convenience store, service garage, and tire repair room. Field-screening results from a PID ranged from 2 to 13 ppm. Analytical results from the indoor-air sampling indicated the presence of benzene at 0.98 ppm in October 1999 (see our November 19, 1999 *Corrective Action Summary Report*). Analytes were not detected in any of the other interior air analytical samples.

In January 2000, we requested indoor air sampling and analysis be discontinued based on the results of the previous field screening and testing (see our January 31, 2000 *Corrective Action Summary Report*). Our request was approved by Clint Adler of ADEC on March 17, 2000.

In 2009, we completed a vapor intrusion assessment and an ADEC Building Inventory and Indoor Air Sampling Questionnaire.

#### **6.1.5 Response to ADEC Comment #5 – Drinking Water Source**

Identified drinking water wells in the Delta Junction area are completed at depths ranging from 100 to 240 feet. However, evidence of a perched aquifer was discovered in near proximity to the Interior Texaco site. Perched groundwater was first encountered during drilling at Interior Texaco in 1997 at a depth of approximately 33 to 34 feet bgs. Our May 1998 *Interior Texaco Release Investigation Report* concluded that this water may be perched above a low-permeability horizon, may be ephemeral, and may be of limited extent. We discontinued drilling in both borings to avoid compromising the potential low-permeability horizon.

There is no evidence that perched groundwater is in contact with the deeper groundwater aquifer. The water-supply well at Kelly's Country Inn has been sampled eight times since 1997, with no fuel-related analytes (including EDB) detected above ADEC CLs.

In a 1962 report by Waller, R.M. and Tolen, D.A., *Data On Wells And Springs Along The Richardson Highway, Alaska*, boring logs for the on-site monitoring wells included the documentation of the presence of "hard packed" or "tightly packed" gravel in "silt and clay binder" above the water-bearing aquifer.

In the 2009 *North Delta Tank Farm Groundwater Investigation Field Activities Report* prepared on behalf of the US Army, similar conclusions and observations regarding the presence of a perched aquifer were made for the site less than half a mile south of the Interior Texaco site (near the intersection of the Richardson and Alaska Highways). In the borelog for boring

OP35B/MW-3, dry silt with gravel was observed below an aquifer perched on an aquiclude of dense silty gravel. The borelog and 2009 report are available upon request.

Our 2016 observations reinforce our understanding of the hydrogeology of the area and are consistent with the previous findings and recommendations. During advancement of B-1-2016 and B-2-2016 borings, we observed moist red-brown to light gray silt at 45 and 47 feet bgs, respectively. Underlying the moist silt layer, we observed a dry, well-graded gravel with sand. These observations are consistent with the presence of a perched groundwater aquifer.

Based on our information, the migration-to-groundwater pathway is not complete at this site due to the presence of a low permeability soil zone (confining layer) near and below 45 feet bgs. See logs of borings B-1-2016 and B-2-2016 in Appendix C for further details.

However, migration or leaching to groundwater is considered a complete transport mechanism (due to perched, shallow groundwater). Based on our conversations in our June 12, 2017 coordination meeting with ADEC, we understand we should address the perched aquifer as a viable groundwater medium.

#### **6.1.6 Response to ADEC Comment #6 – Contaminant Plume**

The installation of the passive ventilation system may be aiding in the attenuation of fuel contaminants in the soil but contamination above the water table remains. During the site investigation, we collected screening samples from the eight vent stack turbines by inserting the tip of the PID into the air in the closest proximity to the top of the turbines. Table 3 summarizes the results. The turbines were found to be still (not turning) during measurements, and the data collected ranged from less than 1 to 74.5 ppm.

#### **6.1.7 Response to ADEC Comment #7 – Potential Risk to Human Health**

While exposure to contaminated soil through incidental soil ingestion is currently limited by the asphalt surface at the site, it remains a potentially complete future exposure pathway for commercial, industrial, or construction workers excavating soil at the site. PAHs, which can be absorbed dermally, may be present in areas of contaminated soil, representing another potentially complete future exposure pathway to the same receptors. Soil contamination observed in the 2016 borings do not contain benzene except for in B-4 at 11.0 feet bgs (0.481J mg/kg) and B-5 at 27.5 feet bgs (0.00684J mg/kg). There were 14 analytical soil samples collected from the investigation; only two results revealed benzene detections.

## 6.2 Recommendations

We understand the property is an active contaminated site (ADEC File No. 120.26.001) and that any actions taken will require ADEC approval. We recommend additional soil characterization, installation and sampling of groundwater monitoring wells, and a VI assessment to fill the data gaps for a site closure request. We recommend the specifics and details of the additional characterization be included in a work plan, submitted to ADEC for review and comment.

## 7.0 LIMITATIONS

This report was prepared for the use of the CEM Leasing for evaluating remaining contamination at the Interior Texaco site in Delta Junction, Alaska. This work presents our professional judgment as to the conditions in the area. Conclusions and recommendations presented here are based on sampling and analyses we performed, along with a limited review of records and other data available to the public. They should not be construed as definite conclusions about spill-site or soil conditions in the area, and it is possible our tests may not represent the highest levels of contamination in the area. We have not performed an independent evaluation of the accuracy or completeness of third-party information, and shall not be responsible for errors or omissions contained in such information.

The results included in this report should be considered representative of the time and locations at which the sampling occurred. It was not the intent of our investigation to detect the presence of contaminants other than those for which laboratory analyses were performed. No conclusions can be drawn on the presence or absence of other contaminants. The observed levels of contamination may be dependent upon seasonal changes and the passage of time. Due to such changes, or others beyond our control, our observations and recommendations applicable to this site may need to be revised. If substantial time has elapsed between submission of this report and the start of activities or action based upon it, we recommend this report be reviewed to determine the applicability of the conclusions and recommendations considering the lapsed time or changed conditions.

This report was prepared for the exclusive use of CEM Leasing. All documents prepared by Shannon & Wilson are instruments of service with respect to the project for the sole use of CEM Leasing. Only CEM Leasing shall have the right to rely upon such documents. Such documents are not intended or represented to be suitable for reuse by CEM Leasing after the passage of time, on extensions of the project, or on any other project. Any such reuse without written verification or adaptation by Shannon & Wilson, as appropriate for the specific purpose intended, shall be at the user's sole risk.



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When transferring documents in electronic media format, Shannon & Wilson does not make any representations as to long-term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used for the document's creation.

Shannon & Wilson, Inc. has prepared the attachment, "*Important Information about your Environmental Site Assessment/Evaluation Report*" in Appendix F to assist you and others in understanding the uses and limitations of our reports.

## 8.0 REFERENCES

- Alaska Department of Environmental Conservation (ADEC), 2003, 18 AAC 75: Oil and other hazardous substances pollution control: Juneau, Alaska, available <http://dec.alaska.gov/commish/regulations/>.
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**TABLE 1  
ANALYTICAL RESULTS FOR SOIL SAMPLES**

Analytical Method	Analyte	ADEC Soil Cleanup Level †	Units	B-1-2016(47.0')	B-2-2016(6.0')	B-2-2016(36.0')	B-2-2016(47.5')	B-2-2016(49.5')	B-3-2016(33.0')	B-4-2016(11.0')	B-1001	B-4-2016(35.0')	B-5-2016(27.5')	B-1002	B-6-2016(36.0')	B-7-2016(37.0')	B-8-2016(37.0')
				PS	PS	PS	PS	PS	PS	PS	DUP	PS	PS	DUP	PS	PS	PS
8270D SIM (PAH)	1-Methylnaphthalene	6.2	mg/kg	--	--	--	--	--	--	<b>39.2</b>	<b>35.7</b>	--	--	--	--	--	--
	2-Methylnaphthalene	6.1	mg/kg	--	--	--	--	--	--	<b>47.8</b>	<b>42.9</b>	--	--	--	--	--	--
	Acenaphthene	180	mg/kg	--	--	--	--	--	--	<0.156	<0.155	--	--	--	--	--	--
	Acenaphthylene	180	mg/kg	--	--	--	--	--	--	<0.156	<0.155	--	--	--	--	--	--
	Anthracene	3,000	mg/kg	--	--	--	--	--	--	0.578	0.506	--	--	--	--	--	--
	Benzo(a)anthracene	3.6	mg/kg	--	--	--	--	--	--	<0.156	<0.155	--	--	--	--	--	--
	Benzo(a)pyrene	2.1	mg/kg	--	--	--	--	--	--	<0.156	<0.155	--	--	--	--	--	--
	Benzo(b)fluoranthene	12	mg/kg	--	--	--	--	--	--	<0.156	<0.155	--	--	--	--	--	--
	Benzo(g,h,i)perylene	38,700	mg/kg	--	--	--	--	--	--	<0.156	<0.155	--	--	--	--	--	--
	Benzo(k)fluoranthene	120	mg/kg	--	--	--	--	--	--	<0.156	<0.155	--	--	--	--	--	--
	Chrysene	360	mg/kg	--	--	--	--	--	--	<0.156	<0.155	--	--	--	--	--	--
	Dibenzo(a,h)anthracene	4.0	mg/kg	--	--	--	--	--	--	<0.156	<0.155	--	--	--	--	--	--
	Fluoranthene	1,400	mg/kg	--	--	--	--	--	--	<0.156	<0.155	--	--	--	--	--	--
	Fluorene	220	mg/kg	--	--	--	--	--	--	2.40	2.17	--	--	--	--	--	--
	Indeno(1,2,3-cd)pyrene	41	mg/kg	--	--	--	--	--	--	<0.156	<0.155	--	--	--	--	--	--
	Naphthalene	20	mg/kg	--	--	--	--	--	--	<b>40.4</b>	<b>36.7</b>	--	--	--	--	--	--
Phenanthrene	3,000	mg/kg	--	--	--	--	--	--	2.23	2.08	--	--	--	--	--	--	
Pyrene	1,000	mg/kg	--	--	--	--	--	--	0.109J	0.112J	--	--	--	--	--	--	
AK101	Gasoline Range Organics	300	mg/kg	10.6	61.4JH*	5.71JH*	38.3JH*	<3.07B*	3.19J	<b>3,400JH*</b>	--	2.77J	18.3JH*	17.4JH*	1.19J	1.81J	1.52J
AK102	Diesel Range Organics	250	mg/kg	<13.3	<b>10,400</b>	18.6J	56.5	11.9J	28.6	<b>9,550</b>	--	<b>487</b>	<b>805</b>	<b>600</b>	26.7	<10.7	<b>557</b>
AK103	Residual Range Organics	11,000	mg/kg	16.7J	258	14.6J	23.7J	18.3J	23.1	175	--	63.7JH*	20.4	<22.5B*	163	<10.7	46.0
SM21 2540G	Total Solids	N/A	%	74.4	79.0	92.5	74.6	76.4	93.0	79.7	79.7	95.8	96.9	97.2	95.4	93.5	96.4
SW8021B	Benzene	0.025	mg/kg	<0.0150	<0.0103	<0.0136	<0.0160	<0.0104	0.00735J	<b>0.418J</b>	--	<0.00840	0.00684J	<0.00830	<0.00720	<0.00815	<0.00645
	Ethylbenzene	6.9	mg/kg	<0.0301	0.0136J	<0.0272	1.39	0.0732	<0.0184	1.01	--	<0.0168	0.0428	0.0419	<0.0144	<0.0164	<0.0129
	o-Xylene	63*	mg/kg	<0.0601B*	1.63	<0.0543B*	1.83	0.138	0.159	<b>726</b>	--	0.154	0.271J*	0.159J*	<0.0340B*	<0.0327B*	<0.0432B*
	P & M -Xylene	63*	mg/kg	<0.120B*	0.485	<0.109B*	4.41	0.151JH*	0.253	<b>1,080</b>	--	0.251	0.388J*	<0.0678B*	<0.0725B*	<0.0653B*	<0.0671B*
	Toluene	6.5	mg/kg	0.0709	0.0149J	<0.0272	0.224	<0.0207	0.0246J	3.62	--	0.0137J	0.0185J	<0.0166	<0.0144	<0.0164	<0.0129

**Notes:**

- ADEC = Alaska Department of Environmental Conservation
- † = ADEC Soil-Cleanup Levels from 18 AAC 75.340 Table B1 & B2 Method Two Under 40 Inch Zone - Migration to Groundwater
- \* = cleanup level for total xylenes is 63.0 mg/L
- mg/kg = milligrams per kilogram
- PS = project sample
- DUP = field-duplicate sample
- PAH = polynuclear aromatic hydrocarbon
- = analysis not requested
- < = analyte not detected; limit of detection (LOD) listed. Flag applied by the laboratory
- bold** = Result exceeds the ADEC Soil-Cleanup Level
- J = Estimated concentration, detected greater than the detection limit (DL) and less than the limit of quantitation (LOQ). Flag applied by the laboratory.
- J\* = Estimated concentration due to a field duplicate relative percent difference (RPD) failure. Flag applied by Shannon & Wilson, Inc.
- JH\* = Estimated concentration, biased high, due to laboratory QC failures. Flag applied by Shannon & Wilson, Inc.
- B\* = Non-detect result, no bias, due to trip or method blank detections. Flag applied by Shannon & Wilson, Inc.

**TABLE 2  
ANALYTICAL RESULTS FOR WATER SAMPLES**

Analytical Method	Analyte	ADEC Groundwater Cleanup Level†	Units	B-1-2016 PS	KACI PS	B-1003 DUP of KACI	B-2-2016 PS	B-1004 DUP of B-2-2016	B-6-2016 PS
8270D SIM (PAH)	1-Methylnaphthalene	0.15	mg/L	--	--	--	0.000731	0.000796	--
	2-Methylnaphthalene	0.15	mg/L	--	--	--	0.000279	0.000292	--
	Acenaphthene	2.2	mg/L	--	--	--	<0.0000270	<0.0000256	--
	Acenaphthylene	2.2	mg/L	--	--	--	<0.0000270	<0.0000256	--
	Anthracene	11.0	mg/L	--	--	--	<0.0000270	<0.0000256	--
	Benzo(a)anthracene	0.0012	mg/L	--	--	--	<0.0000539B*	<0.0000512B*	--
	Benzo(a)pyrene	0.0002	mg/L	--	--	--	0.0000110J	0.0000104J	--
	Benzo(b)fluoranthene	0.0012	mg/L	--	--	--	<0.0000270	<0.0000256	--
	Benzo(g,h,i)perylene	1.1	mg/L	--	--	--	<0.0000270	<0.0000256	--
	Benzo(k)fluoranthene	0.012	mg/L	--	--	--	<0.0000270	<0.0000256	--
	Chrysene	0.12	mg/L	--	--	--	<0.0000270	<0.0000256	--
	Dibenzo(a,h)anthracene	0.00012	mg/L	--	--	--	0.0000119J	0.0000122J	--
	Fluoranthene	1.5	mg/L	--	--	--	<0.0000539B*	<0.0000512B*	--
	Fluorene	1.5	mg/L	--	--	--	0.0000288J	<0.0000256	--
	Indeno(1,2,3-cd)pyrene	0.0012	mg/L	--	--	--	<0.0000270	<0.0000256	--
	Naphthalene	0.73	mg/L	--	--	--	0.000234	0.000236	--
Phenanthrene	11	mg/L	--	--	--	<0.0000539B*	<0.0000512B*	--	
Pyrene	1.1	mg/L	--	--	--	<0.0000539B*	<0.0000512B*	--	
AK101	GRO	2.2	mg/L	<0.0500	<0.0500	--	0.0354J	0.0315J	<0.0500
AK102	DRO	1.5	mg/L	<0.566B*	<0.641B*	--	<1.11B*	<1.04B*	<0.688B*
AK103	RRO	1.1	mg/L	<0.236	<0.267	--	<0.265	<0.265	<0.286
SW8021B	Benzene	0.005	mg/L	<0.000250	<0.000250	--	<0.000250	<0.000250	<0.000250
	Ethylbenzene	0.7	mg/L	<0.000500	<0.000500	--	<0.000500	<0.000500	<0.000500
	o-Xylene	10.0*	mg/L	<0.000500	<0.000500	--	<0.000500	<0.000500	<0.000500
	P & M Xylene	10.0*	mg/L	<0.00100	<0.00100	--	<0.00100	<0.00100	<0.00100
	Toluene	1.0	mg/L	<0.000500	--	--	<0.000500	<0.000500	<0.000500
SW 8260B	1,1,1,2-Tetrachloroethane	-	mg/L	--	<0.000250	<0.000250	--	--	--
	1,1,1-Trichloroethane	0.2	mg/L	--	<0.000500	<0.000500	--	--	--
	1,1,2,2-Tetrachloroethane	0.0043	mg/L	--	<0.000250	<0.000250	--	--	--
	1,1,2-Trichloroethane	0.005	mg/L	--	<0.000500	<0.000500	--	--	--
	1,1-Dichloroethane	7.3	mg/L	--	<0.000500	<0.000500	--	--	--
	1,1-Dichloroethene	0.007	mg/L	--	<0.000500	<0.000500	--	--	--
	1,1-Dichloropropene	-	mg/L	--	<0.000500	<0.000500	--	--	--

**TABLE 2  
ANALYTICAL RESULTS FOR WATER SAMPLES, CONTINUED**

Analytical Method	Analyte	ADEC Groundwater Cleanup Level†	Units	B-1-2016 PS	KACI PS	B-1003 DUP of KACI	B-2-2016 PS	B-1004 DUP of B-2-2016	B-6-2016 PS
SW8260B, continued	1,2,3- Trichlorobenzene	-	mg/L	--	<0.000500	<0.000500	--	--	--
	1,2,3- Trichloropropane	0.00012	mg/L	--	<b>&lt;0.000500</b>	<b>&lt;0.000500</b>	--	--	--
	1,2,4- Trichlorobenzene	0.07	mg/L	--	<0.000500	<0.000500	--	--	--
	1,2,4- Trimethylbenzene	1.8	mg/L	--	<0.000500	<0.000500	--	--	--
	1,2-Dibromo-3- chloropropane	-	mg/L	--	<0.00500	<0.00500	--	--	--
	1,2-Dibromoethane	0.00005	mg/L	--	<b>&lt;0.000500</b>	<b>&lt;0.000500</b>	--	--	--
	1,2-Dichlorobenzene	0.6	mg/L	--	<0.000500	<0.000500	--	--	--
	1,2-Dichloroethane	0.005	mg/L	--	<0.000250J*	0.000290J*	--	--	--
	1,2-Dichloropropane	0.005	mg/L	--	<0.000500	<0.000500	--	--	--
	1,3,5- Trimethylbenzene	1.8	mg/L	--	<0.000500	<0.000500	--	--	--
	1,3-Dichlorobenzene	3.3	mg/L	--	<0.000500	<0.000500	--	--	--
	1,3-Dichloropropane	-	mg/L	--	<0.000250	<0.000250	--	--	--
	1,4-Dichlorobenzene	0.075	mg/L	--	<0.000250	<0.000250	--	--	--
	2,2-Dichloropropane	-	mg/L	--	<0.000500	<0.000500	--	--	--
	2-Butanone(MEK)	22	mg/L	--	<0.00500	<0.00500	--	--	--
	2-Chlorotoluene	-	mg/L	--	<0.000500	<0.000500	--	--	--
	2-Hexanone	-	mg/L	--	<0.00500	<0.00500	--	--	--
	4-Chlorotoluene	-	mg/L	--	<0.000500	<0.000500	--	--	--
	4-Methyl-2 pentanone (MIBK)	2.9	mg/L	--	<0.00500	<0.00500	--	--	--
	Benzene	0.005	mg/L	--	--	<0.000200	--	--	--
	Bromobenzene	-	mg/L	--	<0.000500	<0.000500	--	--	--
	Bromochloromethane	-	mg/L	--	<0.000500	<0.000500	--	--	--
	Bromodichloromethane	0.014	mg/L	--	<0.000250	<0.000250	--	--	--
	Bromoform	0.11	mg/L	--	<0.000500	<0.000500	--	--	--
	Bromomethane	0.051	mg/L	--	<0.00500	<0.00500	--	--	--
	Carbon disulfide	3.7	mg/L	--	<0.00500	<0.00500	--	--	--
	Carbon tetrachloride	0.005	mg/L	--	<0.000500	<0.000500	--	--	--
	Chlorobenzene	0.1	mg/L	--	<0.000250	<0.000250	--	--	--
	Chloroethane	0.29	mg/L	--	<0.000500	<0.000500	--	--	--
	Chloroform	0.14	mg/L	--	<0.000500	<0.000500	--	--	--
Chloromethane	0.066	mg/L	--	<0.000500	<0.000500	--	--	--	

**TABLE 2  
ANALYTICAL RESULTS FOR WATER SAMPLES, CONTINUED**

Analytical Method	Analyte	ADEC Groundwater Cleanup Level†	Units	B-1-2016 PS	KACI PS	B-1003 DUP of KACI	B-2-2016 PS	B-1004 DUP of B-2-2016	B-6-2016 PS
SW8260B continued	Chloroform	0.07	mg/L	--	<0.000500	<0.000500	--	--	--
	Chloromethane	0.0085	mg/L	--	<0.000500	<0.000500	--	--	--
	cis-1,2-Dichloroethene	0.01	mg/L	--	<0.000500	<0.000500	--	--	--
	cis-1,3-Dichloropropene	0.37	mg/L	--	<0.000250	<0.000250	--	--	--
	Dibromochloromethane	7.3	mg/L	--	<0.000250	<0.000250	--	--	--
	Dibromomethane	0.7	mg/L	--	<0.000500	<0.000500	--	--	--
	Dichlorodifluoromethane	0.0073	mg/L	--	<0.000500	<0.000500	--	--	--
	Ethylbenzene	3.7	mg/L	--	--	<0.000500	--	--	--
	Hexachlorobutadiene	0.005	mg/L	--	<0.000500	<0.000500	--	--	--
	Isopropylbenzene	0.47	mg/L	--	<0.000500	<0.000500	--	--	--
	Methylene chloride	0.73	mg/L	--	<0.00250	<0.00250	--	--	--
	Methyl-t-butyl ether	0.37	mg/L	--	<0.00500	<0.00500	--	--	--
	Naphthalene	0.37	mg/L	--	<0.00500	<0.00500	--	--	--
	n-Butylbenzene	10.0*	mg/L	--	<0.000500	<0.000500	--	--	--
	n-Propylbenzene	10.0*	mg/L	--	<0.000500	<0.000500	--	--	--
	o-Xylene	-	mg/L	--	--	<0.000500	--	--	--
	P & M -Xylene	0.37	mg/L	--	--	<0.00100	--	--	--
	p-Isopropyltoluene	0.1	mg/L	--	<0.000500	<0.000500	--	--	--
	sec-Butylbenzene	0.37	mg/L	--	<0.000500	<0.000500	--	--	--
	Styrene	0.005	mg/L	--	<0.000500	<0.000500	--	--	--
	tert-Butylbenzene	1.0	mg/L	--	<0.000500	<0.000500	--	--	--
	Tetrachloroethene	10	mg/L	--	<0.000500	<0.000500	--	--	--
	Toluene	0.1	mg/L	--	<0.000500	<0.000500	--	--	--
	Total Xylenes	0.0085	mg/L	--	<0.00150	<0.00150	--	--	--
	trans-1,2-Dichloroethene	0.005	mg/L	--	<0.000500	<0.000500	--	--	--
	trans-1,3-Dichloropropene	11	mg/L	--	<0.000500	<0.000500	--	--	--
	Trichloroethene	1100	mg/L	--	<0.000500	<0.000500	--	--	--
	Trichlorofluoromethane	37	mg/L	--	<0.000500	<0.000500	--	--	--
Trichlorotrifluoroethane	0.002	mg/L	--	<0.00500	<0.00500	--	--	--	
Vinyl acetate	37	mg/L	--	<0.00500	<0.00500	--	--	--	
Vinyl chloride	0.002	mg/L	--	<0.000500	<0.000500	--	--	--	

**TABLE 2**  
**ANALYTICAL RESULTS FOR WATER SAMPLES, CONTINUED**

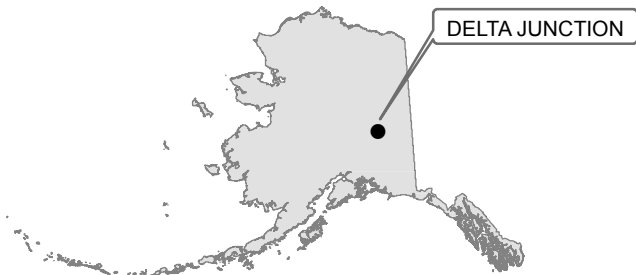
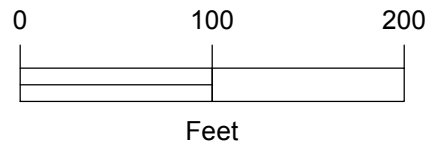
**Notes:**

†	= ADEC Water-Cleanup Levels from 18 AAC 75.345 Table C Groundwater Cleanup Levels
*	= Cleanup level represents total xylenes
mg/L	= milligrams per liter
PS	= project sample
DUP	= field-duplicate sample
PAH	
--	
-	
<	
<b>bold</b>	
J	
J*	
B*	



**TABLE 3  
RESULTS FOR TURBINE VENT STACK SAMPLING**

Sample Location	Stack Location	Sample Date	Wind Speed	PID (ppm)
VS-1	West Side of Building near former fuel island	10/1/1999	10 mph	366
		10/23/1999	5 mph	220
		12/20/1999	5 mph	0
		3/29/2000	15 mph	463
		7/12/2000	2 mph	183
		10/4/2000	10 mph	274
		7/21/2001	1 mph	210
		10/1/2008	5 mph	<1
		9/14/2016	5 mph	9.8
VS-2	Single Stack on South Side of Building	10/1/1999	10 mph	660
		10/23/1999	5 mph	520
		12/20/1999	5 mph	70
		3/29/2000	15 mph	245
		7/12/2000	2 mph	476
		10/4/2000	10 mph	536
		7/21/2001	1 mph	570
		10/1/2008	5 mph	<1
		9/14/2016	5 mph	2.4
VS-3	West Side of Building near former fuel island	10/1/1999	10 mph	1,918
		10/23/1999	5 mph	1,300
		12/20/1999	5 mph	1,150
		3/29/2000	15 mph	1,268
		7/12/2000	2 mph	998
		10/4/2000	10 mph	1,098
		7/21/2001	1 mph	1,120
		10/1/2008	5 mph	5
		9/14/2016	5 mph	13.2
VS-4	West Side of Building near former fuel island	10/1/1999	10 mph	2,000
		10/23/1999	5 mph	700
		12/20/1999	5 mph	30
		3/29/2000	15 mph	2,000
		7/12/2000	2 mph	898
		10/4/2000	10 mph	1,538
		7/21/2001	1 mph	1,300
		10/1/2008	5 mph	<1
		9/14/2016	5 mph	38.4
VS-5	West Side of Building near former fuel island	10/1/1999	10 mph	>2,000
		10/23/1999	5 mph	450
		12/20/1999	5 mph	130
		3/29/2000	15 mph	1,324
		7/12/2000	2 mph	579
		10/4/2000	10 mph	1,207
		7/21/2001	1 mph	350
		10/1/2008	5 mph	2
		9/14/2016	5 mph	74.5
VS-6	North Side of Building near USTs	10/1/1999	10 mph	742
		10/23/1999	5 mph	440
		12/20/1999	5 mph	100
		3/29/2000	15 mph	133
		7/12/2000	2 mph	413
		10/4/2000	10 mph	369
		7/21/2001	1 mph	395
		10/1/2008	5 mph	<1
		9/14/2016	5 mph	3.5
VS-7	North Side of Building near Former USTs	10/1/1999	10 mph	1,541
		10/23/1999	5 mph	1,000
		12/20/1999	5 mph	120
		3/29/2000	15 mph	433
		7/12/2000	2 mph	824
		10/4/2000	10 mph	701
		7/21/2001	1 mph	720
		10/1/2008	5 mph	<1
		9/14/2016	5 mph	<1
VS-8	North Side of Building near Former USTs	10/1/1999	10 mph	948
		10/23/1999	5 mph	610
		12/20/1999	5 mph	40
		3/29/2000	15 mph	595
		7/12/2000	2 mph	583
		10/4/2000	10 mph	411
		7/21/2001	1 mph	480
		10/1/2008	5 mph	<1
		9/14/2016	5 mph	1.4



Interior Texaco Limited Site Characterization  
Delta Junction, Alaska

**VICINITY MAP**

July 2017

31-1-11809-006

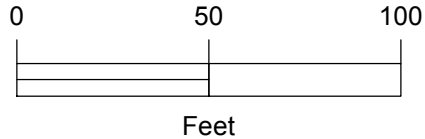
**SHANNON & WILSON, INC.**  
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

**Figure 1**



**LEGEND**

- ⊕ 1999 Monitoring Wells
- Vapor Extraction Stacks (#1-#8)
- Concentrations of analytes above ADEC Cleanup Levels
- Concentrations of analytes below ADEC Cleanup Levels
- temporary well point (water concentrations below ADEC Cleanup Levels)
- ▨ New USTs (installed in 1995)
- ▭ 1997 Excavation Limits
- ▭ Former USTs
- ▭ Loading Rack
- - - - - Approximate Property Boundary
- ▨ Former fuel dispensing island
- ▨ New fuel dispensing island



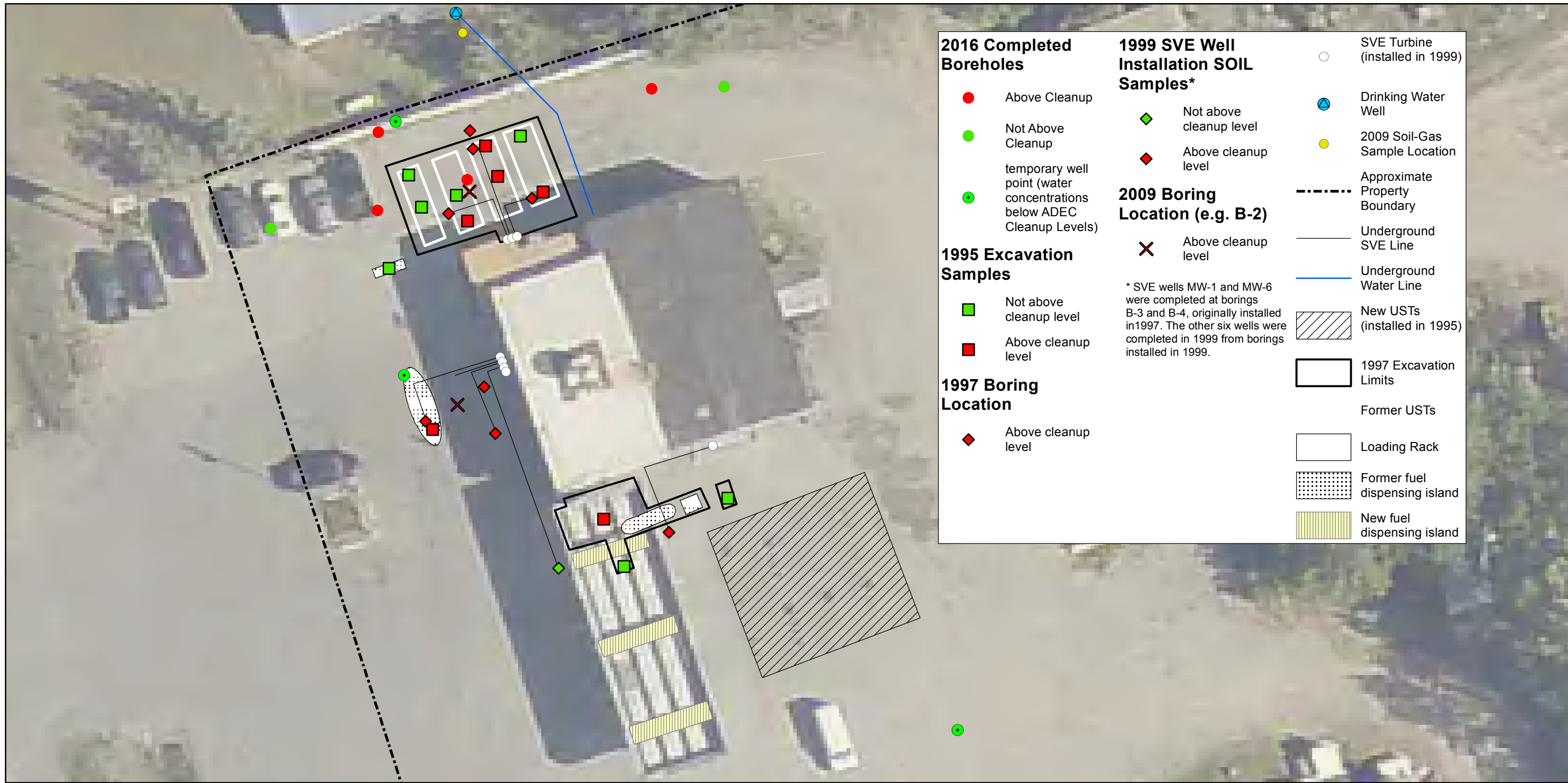
Interior Texaco Limited Site Characterization  
Delta Junction, Alaska

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**2016 COMPLETED BORINGS**

July 2017 31-1-11809-006

**SHANNON & WILSON, INC.** **Figure 2**  
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS



**2016 Completed Boreholes**

- Above Cleanup
- Not Above Cleanup
- temporary well point (water concentrations below ADEC Cleanup Levels)

**1995 Excavation Samples**

- Not above cleanup level
- Above cleanup level

**1997 Boring Location**

- ◆ Above cleanup level

**1999 SVE Well Installation SOIL Samples\***

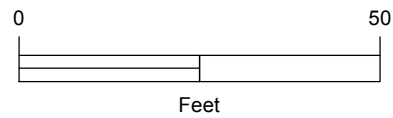
- ◆ Not above cleanup level
- ◆ Above cleanup level

**2009 Boring Location (e.g. B-2)**

- ✕ Above cleanup level

\* SVE wells MW-1 and MW-6 were completed at borings B-3 and B-4, originally installed in 1997. The other six wells were completed in 1999 from borings installed in 1999.

- SVE Turbine (installed in 1999)
- Drinking Water Well
- 2009 Soil-Gas Sample Location
- Approximate Property Boundary
- Underground SVE Line
- Underground Water Line
- ▨ New USTs (installed in 1995)
- ▭ 1997 Excavation Limits
- ▭ Former USTs
- ▭ Loading Rack
- ▨ Former fuel dispensing island
- ▨ New fuel dispensing island



Interior Texaco Limited Site Characterization  
Delta Junction, Alaska

**COMPREHENSIVE TO-DATE CHARACTERIZATION**

July 2017 31-1-11809-006

SHANNON & WILSON, INC.  
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

**Figure 3**

## **APPENDIX A**

### **CONCEPTUAL SITE MODEL (CSM)**

- Human Health CSM Graphic Form
- Human Health CSM Scoping Form

# HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Interior Texaco, ADEC File No. 120.26.001

Delta Junction, Alaska

Completed By: Valerie Webb, CPG

Date Completed: July 16, 2017

**Instructions: Follow the numbered directions below. Do not consider contaminant concentrations or engineering/land use controls when describing pathways.**

**(1)** Check the media that could be directly affected by the release.

**(2)** For each medium identified in (1), follow the top arrow and check possible transport mechanisms: Check additional media under (1) if the media acts as a secondary source.

## Media Transport Mechanisms

Surface Soil (0-2 ft bgs)	<input checked="" type="checkbox"/> Direct release to surface soil	check soil
	<input checked="" type="checkbox"/> Migration to subsurface	check soil
	<input type="checkbox"/> Migration to groundwater	check groundwater
	<input checked="" type="checkbox"/> Volatilization	check air
	<input type="checkbox"/> Runoff or erosion	check surface water
	Uptake by plants or animals	check biota
	Other (list):	

Subsurface Soil (2-15 ft bgs)	<input checked="" type="checkbox"/> Direct release to subsurface soil	check soil
	<input type="checkbox"/> Migration to groundwater	check groundwater
	<input checked="" type="checkbox"/> Volatilization	check air
	<input type="checkbox"/> Uptake by plants or animals	check biota
	<input type="checkbox"/> Other (list):	

Ground-water	<input checked="" type="checkbox"/> Direct release to groundwater	check groundwater
	<input type="checkbox"/> Volatilization	check air
	<input checked="" type="checkbox"/> Flow to surface water body	check surface water
	<input type="checkbox"/> Flow to sediment	check sediment
	<input type="checkbox"/> Uptake by plants or animals	check biota
	Other (list):	

Surface Water	<input type="checkbox"/> Direct release to surface water	check surface water
	<input type="checkbox"/> Volatilization	check air
	<input type="checkbox"/> Sedimentation	check sediment
	<input type="checkbox"/> Uptake by plants or animals	check biota
	<input type="checkbox"/> Other (list):	

Sediment	<input type="checkbox"/> Direct release to sediment	check sediment
	<input type="checkbox"/> Resuspension, runoff, or erosion	check surface water
	<input type="checkbox"/> Uptake by plants or animals	check biota
	<input type="checkbox"/> Other (list):	

**(3)** Check all exposure media identified in (2).

## Exposure Media

<input checked="" type="checkbox"/> soil	<input checked="" type="checkbox"/> Incidental Soil Ingestion
	<input checked="" type="checkbox"/> Dermal Absorption of Contaminants from Soil
	<input type="checkbox"/> Inhalation of Fugitive Dust

<input checked="" type="checkbox"/> groundwater	<input type="checkbox"/> Ingestion of Groundwater
	<input checked="" type="checkbox"/> Dermal Absorption of Contaminants in Groundwater
	<input type="checkbox"/> Inhalation of Volatile Compounds in Tap Water

<input checked="" type="checkbox"/> air	<input checked="" type="checkbox"/> Inhalation of Outdoor Air
	<input checked="" type="checkbox"/> Inhalation of Indoor Air
	<input type="checkbox"/> Inhalation of Fugitive Dust

<input type="checkbox"/> surface water	<input type="checkbox"/> Ingestion of Surface Water
	<input type="checkbox"/> Dermal Absorption of Contaminants in Surface Water
	<input type="checkbox"/> Inhalation of Volatile Compounds in Tap Water

<input type="checkbox"/> sediment	<input type="checkbox"/> Direct Contact with Sediment
	<input type="checkbox"/> Ingestion of Wild or Farmed Foods

<input type="checkbox"/> biota	<input type="checkbox"/> Ingestion of Wild or Farmed Foods

**(4)** Check all pathways that could be complete. The pathways identified in this column must agree with Sections 2 and 3 of the Human Health CSM Scoping Form.

## Exposure Pathway/Route

	Residents (adults or children)	Commercial or industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other
<input checked="" type="checkbox"/> Incidental Soil Ingestion	F						
<input checked="" type="checkbox"/> Dermal Absorption of Contaminants from Soil	F						
<input type="checkbox"/> Inhalation of Fugitive Dust							
<input type="checkbox"/> Ingestion of Groundwater							
<input checked="" type="checkbox"/> Dermal Absorption of Contaminants in Groundwater	C/F	C/F	C/F				
<input type="checkbox"/> Inhalation of Volatile Compounds in Tap Water							
<input checked="" type="checkbox"/> Inhalation of Outdoor Air	C/F	C/F	C/F				
<input checked="" type="checkbox"/> Inhalation of Indoor Air	C/F	C/F	C/F				
<input type="checkbox"/> Inhalation of Fugitive Dust							
<input type="checkbox"/> Ingestion of Surface Water							
<input type="checkbox"/> Dermal Absorption of Contaminants in Surface Water							
<input type="checkbox"/> Inhalation of Volatile Compounds in Tap Water							
<input type="checkbox"/> Direct Contact with Sediment							
<input type="checkbox"/> Ingestion of Wild or Farmed Foods							

**(5)** Identify the receptors potentially affected by each exposure pathway: Enter "C" for current receptors, "F" for future receptors, "C/F" for both current and future receptors, or "-" for insignificant exposure.

### Current & Future Receptors

# Human Health Conceptual Site Model Scoping Form

**Site Name:** Interior Texaco, Delta Junction, Alaska  
**File Number:** ADEC File No. 120.26.001  
**Completed by:** Valerie Webb, CPG

## Introduction

The form should be used to reach agreement with the Alaska Department of Environmental Conservation (DEC) about which exposure pathways should be further investigated during site characterization. From this information, a CSM graphic and text must be submitted with the site characterization work plan.

*General Instructions: Follow the italicized instructions in each section below.*

## 1. General Information:

**Sources** (*check potential sources at the site*)

- |   |                                       |
|---|---------------------------------------|
| <input checked="" type="checkbox"/> USTs                          | <input type="checkbox"/> Vehicles     |
| <input type="checkbox"/> ASTs                                     | <input type="checkbox"/> Landfills    |
| <input checked="" type="checkbox"/> Dispensers/fuel loading racks | <input type="checkbox"/> Transformers |
| <input type="checkbox"/> Drums                                    | <input type="checkbox"/> Other: _____ |

**Release Mechanisms** (*check potential release mechanisms at the site*)

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Spills | <input type="checkbox"/> Direct discharge |
| <input checked="" type="checkbox"/> Leaks  | <input type="checkbox"/> Burning          |
|  | <input type="checkbox"/> Other: _____     |

**Impacted Media** (*check potentially-impacted media at the site*)

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Surface soil (0-2 feet bgs*)  | <input checked="" type="checkbox"/> Groundwater |
| <input checked="" type="checkbox"/> Subsurface Soil (>2 feet bgs) | <input type="checkbox"/> Surface water          |
| <input checked="" type="checkbox"/> Air                           | <input type="checkbox"/> Other: _____           |

**Receptors** (*check receptors that could be affected by contamination at the site*)

- |   |  |
|---|--|
| <input type="checkbox"/> Residents (adult or child)                       | <input checked="" type="checkbox"/> Site visitor |
| <input checked="" type="checkbox"/> Commercial or industrial worker       | <input checked="" type="checkbox"/> Trespasser   |
| <input checked="" type="checkbox"/> Construction worker                   | <input type="checkbox"/> Recreational user       |
| <input type="checkbox"/> Subsistence harvester (i.e., gathers wild foods) | <input type="checkbox"/> Farmer                  |
| <input type="checkbox"/> Subsistence consumer (i.e., eats wild foods)     | <input type="checkbox"/> Other: _____            |

\* bgs – below ground surface

**2. Exposure Pathways:** (The answers to the following questions will identify complete exposure pathways at the site. Check each box where the answer to the question is "yes".)

**a) Direct Contact –**

**1 Incidental Soil Ingestion**

Is soil contaminated anywhere between 0 and 15 feet bgs?

Do people use the site or is there a chance they will use the site in the future?

If both boxes are checked, label this pathway complete: complete

**2 Dermal Absorption of Contaminants from Soil**

Is soil contaminated anywhere between 0 and 15 feet bgs?

Do people use the site or is there a chance they will use the site in the future?

Can the soil contaminants permeate the skin? (Contaminants listed below, or within the groups listed below, should be evaluated for dermal absorption).

- |                                |                   |
|--------------------------------|-------------------|
| Arsenic                        | Lindane           |
| Cadmium                        | PAHs              |
| Chlordane                      | Pentachlorophenol |
| 2,4-dichlorophenoxyacetic acid | PCBs              |
| Dioxins                        | SVOCs             |
| DDT                            |                   |

If all of the boxes are checked, label this pathway complete: \_\_\_\_\_

**b) Ingestion –**

**1 Ingestion of Groundwater**

Have contaminants been detected or are they expected to be detected in the groundwater, OR are contaminants expected to migrate to groundwater in the future?

Could the potentially affected groundwater be used as a current or future drinking water source? Please note, only leave the box unchecked if ADEC has determined the groundwater is not a currently or reasonably expected future source of drinking water according to 18 AAC 75.350.

If both the boxes are checked, label this pathway complete: \_\_\_\_\_



## 2 Ingestion of Surface Water

Have contaminants been detected or are they expected to be detected in surface water OR are contaminants expected to migrate to surface water in the future?

Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? *Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities).*

*If both boxes are checked, label this pathway complete:* \_\_\_\_\_

## 3 Ingestion of Wild Foods

Is the site in an area that is used or reasonably could be used for hunting, fishing, or harvesting of wild food?

Do the site contaminants have the potential to bioaccumulate (*see Appendix A*)?

Are site contaminants located where they would have the potential to be taken up into biota? (i.e. the top 6 feet of soil, in groundwater that **could be** connected to surface water, etc.)

*If all of the boxes are checked, label this pathway complete:* \_\_\_\_\_

## c) Inhalation

### 1 Inhalation of Outdoor Air

Is soil contaminated anywhere between 0 and 15 feet bgs?

Do people use the site or is there a chance they will use the site in the future?

Are the contaminants in soil volatile (*See Appendix B*)?

*If all of the boxes are checked, label this pathway complete:* complete

### 2 Inhalation of Indoor Air

Are occupied buildings on the site or reasonably expected to be placed on the site in an area that could be affected by contaminant vapors? (i.e., within 100 feet, horizontally or vertically, of the contaminated soil or groundwater, or subject to “preferential pathways” that promote easy airflow, like utility conduits or rock fractures)

Are volatile compounds present in soil or groundwater (*See Appendix C*)?

*If both boxes are checked, label this pathway complete:* complete

**3. Additional Exposure Pathways:** *(Although there are no definitive questions provided in this section, these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)*

**Dermal Exposure to Contaminants in Groundwater and Surface Water**

Exposure from this pathway may need to be assessed only in cases where DEC water-quality or drinking-water standards are not being applied as cleanup levels. Examples of conditions that may warrant further investigation include:

- Climate permits recreational use of waters for swimming,
- Climate permits exposure to groundwater during activities, such as construction, without protective clothing, or
- Groundwater or surface water is used for household purposes.

*Check the box if further evaluation of this pathway is needed:*

Comments:

**Inhalation of Volatile Compounds in Household Water**

Exposure from this pathway may need to be assessed only in cases where DEC water-quality or drinking-water standards are not being applied as cleanup levels. Examples of conditions that may warrant further investigation include:

- The contaminated water is used for household purposes such as showering, laundering, and dish washing, and
- The contaminants of concern are volatile (common volatile contaminants are listed in Appendix B)

*Check the box if further evaluation of this pathway is needed:*

Comments:

**Inhalation of Fugitive Dust**

Generally DEC soil ingestion cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway, although this is not true in the case of chromium. Examples of conditions that may warrant further investigation include:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- Dust particles are less than 10 micrometers. This size can be inhaled and would be of concern for determining if this pathway is complete.

*Check the box if further evaluation of this pathway is needed:*

Comments:

### Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during recreational or some types of subsistence activities. People then incidentally **ingest** sediment from normal hand-to-mouth activities. In addition, **dermal absorption of contaminants** may be of concern if people come in contact with sediment and the contaminants are able to permeate the skin (see dermal exposure to soil section). This type of exposure is rare but it should be investigated if:

- Climate permits recreational activities around sediment, and/or
- Community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

ADEC soil ingestion cleanup levels are protective of direct contact with sediment. If they are determined to be over-protective for sediment exposure at a particular site, other screening levels could be adopted or developed.

*Check the box if further evaluation of this pathway is needed:*

Comments:

### **4. Other Comments** *(Provide other comments as necessary to support the information provided in this form.)*

The mobility of contamination from soil at the site is limited by a number of factors. The soils are very dense, and at some depths, fine-grained; these low-permeability soils reduce vapor migration both horizontally and vertically. Volatization to outdoor air is further limited by the presence of asphalt pavement over much of the source-area soils. However, volatization to outdoor and indoor air cannot be completely ruled out; air should be considered a potential exposure medium for the site.

Leaching or subsurface migration downward to the deep (80 feet to 100 feet bgs) groundwater aquifer is limited by a confining layer. Shallow, perched groundwater has been identified in previous site work, in the vapor extraction wells, and samples of the perched groundwater collected in 1999 and 2000 contained fuel contamination above ADEC Table C groundwater cleanup levels. However, we observed perched groundwater only intermittently, often in insufficient quantities to collect samples. There is no evidence that perched groundwater is in contact with the deeper groundwater aquifer; the nearby water-supply well at Kelly's Country Inn has been sampled eight times since 1997, with no fuel-related analytes (including EDB) detected above PQLs. Therefore, while migration or leaching to groundwater is considered a complete transport mechanism (due to perched, shallow groundwater), we do not consider groundwater to be an exposure medium for this site.

A number of exposure pathways to contaminated soil or air (the identified exposure media) remain potentially complete for the site. These exposure pathways are described below. Human receptors are primarily commercial or industrial workers (including fueling-station staff) and site visitors (including customers), trespassers, or recreational users. Potential future receptors include construction workers. There are currently no residences within 100 feet of the site, and the Inn and the fueling station do not have permanent occupants. Also, there is no farming or subsistence harvesting taking place within at least 500 feet of the site. While exposure to contaminated soil through incidental soil ingestion is currently limited by the asphalt surface at the site, it remains a potentially complete future exposure pathway for commercial, industrial, or construction workers excavating soil at the site (e.g. if the current USTs and pump island were removed or upgraded). PAHs, which can be absorbed dermally, may be present in areas of contaminated soil, representing another potentially complete future exposure pathway to the same receptors.

Potential exposure pathways are visually represented in the CSM graphic. We did not evaluate potential risks to ecological receptors.

## APPENDIX A

### BIOACCUMULATIVE COMPOUNDS

**Table A-1: List of Compounds of Potential Concern for Bioaccumulation**

Organic compounds are identified as bioaccumulative if they have a BCF equal to or greater than 1,000 or a log  $K_{ow}$  greater than 3.5. Inorganic compounds are identified as bioaccumulative if they are listed as such by EPA (2000). Those compounds in Table X of 18 AAC 75.345 that are bioaccumulative, based on the definition above, are listed below.

Aldrin	DDT	Lead
Arsenic	Dibenzo(a,h)anthracene	Mercury
Benzo(a)anthracene	Dieldrin	Methoxychlor
Benzo(a)pyrene	Dioxin	Nickel
Benzo(b)fluoranthene	Endrin	PCBs
Benzo(k)fluoranthene	Fluoranthene	
Cadmium	Heptachlor	Pyrene
Chlordane	Heptachlor epoxide	Selenium
Chrysene	Hexachlorobenzene	Silver
Copper	Hexachlorocyclopentadiene	Toxaphene
DDD	Indeno(1,2,3-c,d)pyrene	Zinc
DDE		

Because BCF values can relatively easily be measured or estimated, the BCF is frequently used to determine the potential for a chemical to bioaccumulate. A compound with a BCF greater than 1,000 is considered to bioaccumulate in tissue (EPA 2004b).

For inorganic compounds, the BCF approach has not been shown to be effective in estimating the compound's ability to bioaccumulate. Information available, either through scientific literature or site-specific data, regarding the bioaccumulative potential of an inorganic site contaminant should be used to determine if the pathway is complete.

The list was developed by including organic compounds that either have a BCF equal to or greater than 1,000 or a log  $K_{ow}$  greater than 3.5 and inorganic compounds that are listed by the United States Environmental Protection Agency (EPA) as being bioaccumulative (EPA 2000). The BCF can also be estimated from a chemical's physical and chemical properties. A chemical's octanol-water partitioning coefficient ( $K_{ow}$ ) along with defined regression equations can be used to estimate the BCF. EPA's Persistent, Bioaccumulative, and Toxic (PBT) Profiler (EPA 2004) can be used to estimate the BCF using the  $K_{ow}$  and linear regressions presented by Meylan et al. (1996). The PBT Profiler is located at <http://www.pbtprofiler.net/>. For compounds not found in the PBT Profiler, DEC recommends using a log  $K_{ow}$  greater than 3.5 to determine if a compound is bioaccumulative.

## APPENDIX B

### VOLATILE COMPOUNDS

**Table B-1: List of Volatile Compounds of Potential Concern**

Common volatile contaminants of concern at contaminated sites. A chemical is defined as volatile if the Henry's Law constant is  $1 \times 10^{-5}$  atm-m<sup>3</sup>/mol or greater and the molecular weight less than 200 g/mole (g/mole; EPA 2004a). Those compounds in Table X of 18 AAC 75.345 that are volatile, based on the definition above, are listed below.

Acenaphthene	1,4-dichlorobenzene	Pyrene
Acetone	1,1-dichloroethane	Styrene
Anthracene	1,2-dichloroethane	1,1,2,2-tetrachloroethane
Benzene	1,1-dichloroethylene	Tetrachloroethylene
Bis(2-chlorethyl)ether	Cis-1,2-dichloroethylene	Toluene
Bromodichloromethane	Trans-1,2-dichloroethylene	1,2,4-trichlorobenzene
Carbon disulfide	1,2-dichloropropane	1,1,1-trichloroethane
Carbon tetrachloride	1,3-dichloropropane	1,1,2-trichloroethane
Chlorobenzene	Ethylbenzene	Trichloroethylene
Chlorodibromomethane	Fluorene	Vinyl acetate
Chloroform	Methyl bromide	Vinyl chloride
2-chlorophenol	Methylene chloride	Xylenes
Cyanide	Naphthalene	GRO
1,2-dichlorobenzene	Nitrobenzene	DRO

## APPENDIX C

### COMPOUNDS OF CONCERN FOR VAPOR MIGRATION

**Table C-1: List of Compounds of Potential Concern for the Vapor Migration**

A chemical is considered sufficiently toxic if the vapor concentration of the pure component poses an incremental lifetime cancer risk greater than  $10^{-6}$  or a non-cancer hazard index greater than 1. A chemical is considered sufficiently volatile if its Henry's Law constant is  $1 \times 10^{-5}$  atm-m<sup>3</sup>/mol or greater.

Acenaphthene	Dibenzofuran	Hexachlorobenzene
Acetaldehyde	1,2-Dibromo-3-chloropropane	Hexachlorocyclopentadiene
Acetone	1,2-Dibromoethane (EDB)	Hexachloroethane
Acetonitrile	1,3-Dichlorobenzene	Hexane
Acetophenone	1,2-Dichlorobenzene	Hydrogen cyanide
Acrolein	1,4-Dichlorobenzene	Isobutanol
Acrylonitrile	2-Nitropropane	Mercury (elemental)
Aldrin	N-Nitroso-di-n-butylamine	Methacrylonitrile
alpha-HCH (alpha-BHC)	n-Propylbenzene	Methoxychlor
Benzaldehyde	o-Nitrotoluene	Methyl acetate
Benzene	o-Xylene	Methyl acrylate
Benzo(b)fluoranthene	p-Xylene	Methyl bromide
Benzylchloride	Pyrene	Methyl chloride (chloromethane)
beta-Chloronaphthalene	sec-Butylbenzene	Methylcyclohexane
Biphenyl	Styrene	Methylene bromide
Bis(2-chloroethyl)ether	tert-Butylbenzene	Methylene chloride
Bis(2-chloroisopropyl)ether	1,1,1,2-Tetrachloroethane	Methylethylketone (2-butanone)
Bis(chloromethyl)ether	1,1,2,2-Tetrachloroethane	Methylisobutylketone
Bromodichloromethane	Tetrachloroethylene	Methylmethacrylate
Bromoform	Dichlorodifluoromethane	2-Methylnaphthalene
1,3-Butadiene	1,1-Dichloroethane	MTBE
Carbon disulfide	1,2-Dichloroethane	m-Xylene
Carbon tetrachloride	1,1-Dichloroethylene	Naphthalene
Chlordane	1,2-Dichloropropane	n-Butylbenzene
2-Chloro-1,3-butadiene (chloroprene)	1,3-Dichloropropene	Nitrobenzene
Chlorobenzene	Dieldrin	Toluene
1-Chlorobutane	Endosulfan	trans-1,2-Dichloroethylene
Chlorodibromomethane	Epichlorohydrin	1,1,2-Trichloro-1,2,2-trifluoroethane
Chlorodifluoromethane	Ethyl ether	1,2,4-Trichlorobenzene
Chloroethane (ethyl chloride)	Ethylacetate	1,1,2-Trichloroethane
Chloroform	Ethylbenzene	1,1,1-Trichloroethane
2-Chlorophenol	Ethylene oxide	Trichloroethylene
2-Chloropropane	Ethylmethacrylate	Trichlorofluoromethane
Chrysene	Fluorene	1,2,3-Trichloropropane
cis-1,2-Dichloroethylene	Furan	1,2,4-Trimethylbenzene
Crotonaldehyde (2-butenal)	Gamma-HCH (Lindane)	1,3,5-Trimethylbenzene
Cumene	Heptachlor	Vinyl acetate
DDE	Hexachloro-1,3-butadiene	Vinyl chloride (chloroethene)

Source: EPA 2002.

Guidance on Developing Conceptual Site Models  
January 31, 2005

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DRAFT

**APPENDIX B**  
**SAMPLE COLLECTION LOGS**  
**AND FIELD NOTES**









**MONITORING WELL SAMPLING LOG**

*KELLEY'S ALASKA COUNTRY INN*

Owner-Client \_\_\_\_\_ Project No. 31-1-11809-003  
 Location INTERIOR TEXAS Page 1  
 Weather 50's; OVERCAST Date 9-15-16  
 Sampling Personnel JLD Well No. CLASS B PUBLIC

Sample No. KACI (9-15-16) Diameter & Type of Casing 6"  
 Time 18:15 Time Started 17:45  
 Duplicate B-1003 Time 18:45 Time Completed 18:30

*VOCs* →

Measuring Point [MP] \_\_\_\_\_ MP Elevation \_\_\_\_\_  
 Height of MP [Above] [Below] Land Surface \_\_\_\_\_  
 Water Level Elevation \_\_\_\_\_ Total Depth of Well Below MP \_\_\_\_\_  
 Depth to Water Below MP \_\_\_\_\_  
 Purging Method \_\_\_\_\_ Feet of Water in Well \_\_\_\_\_  
 Pumping Start 17:44 Gallons per foot \_\_\_\_\_  
 Pumping End 18:09 Gallons in Well \_\_\_\_\_  
 Gallons Pumped \_\_\_\_\_  
 Packer set at \_\_\_\_\_ feet below MP  
 Ice at \_\_\_\_\_ feet below MP Purge Water 100 Gal

**FIELD PARAMETERS**

Time	Temp [°C]	Conductivity [µmhos per cm]	Dissolved Oxygen [mg per L]	pH	Eh [ORP] [mV]	Water Clarity [visual]
17:49	7.5	238.0	6.02	6.74	151.8	CLEAR
17:54	6.9	233.8	7.05	6.87	115.5	"
17:59	7.0	235.8	6.91	6.91	112.4	"
18:04	7.1	236.4	6.95	6.94	110.4	"
18:09	7.1	235.4	6.92	6.96	109.8	"

*20 Gal/purge  
40 "  
60 "  
80 "  
100 "*

Sampling Method Purge w/ garden hose then sample @ port  
 Notes \_\_\_\_\_

**HACH TESTS (mg/L)**

Lab SGS Dissolved Oxygen \_\_\_\_\_  
 Sampling Containers  Trip Blank  Ferrous Iron \_\_\_\_\_  
 Lab Supplied \_\_\_\_\_  
 S&W Supplied \_\_\_\_\_  
 Total Iron \_\_\_\_\_  
 Sulfate \_\_\_\_\_  
 Nitrate \_\_\_\_\_  
 Sulfide \_\_\_\_\_  
 Manganese (filtered) \_\_\_\_\_  
 Total Manganese \_\_\_\_\_  
 Alkalinity \_\_\_\_\_  
 Tubing N/A

**Analyses**  
 - VOCs  
 - GRO/BTEX  
 - DRO/RO

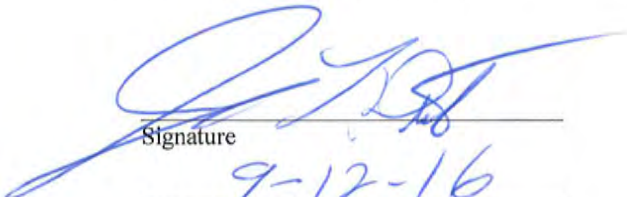
**WELL CASING VOLUMES**

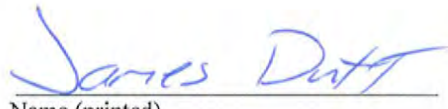
Diameter of Well [ID-inches]	1 1/4	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

**SITE SAFETY & HEALTH PLAN  
PERSONAL ACKNOWLEDGEMENT FORM**

**Interior Texaco  
Limited Site Characterization  
Delta Junction, Alaska**

I have reviewed this document and understand its contents and requirements. A copy of the above-referenced document has been made available to me. I agree to abide by the requirements of this Site Safety & Health Plan.

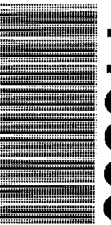
  
\_\_\_\_\_  
Signature  
  
9-12-16  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Name (printed)  
  
SEW  
\_\_\_\_\_  
Representing



CHA

1168600



Locations Nationwide

Alaska	Maryland
New Jersey	New York
North Carolina	Indiana
West Virginia	Kentucky

www.us.sgs.com

Instructions: Sections 1 - 5 must be filled out.  
Omissions may delay the onset of analysis.

Page 1 of 2

CLIENT: <i>MT Geiold Texaco - Stanton + Wilkerson</i> CONTACT: <i>WLEBR</i> PHONE NO: <i>907-458-3152</i> PROJECT: <i>WLEBR</i> PMSID/ PERMIT#: NAME: <i>MT Geiold Texaco</i> E-MAIL: <i>WLEBR@shank1.com</i> REPORTS TO: <i>Valeine Webb</i> INVOICE TO: <i>Valeine Webb</i> QUOTE #: P.O. #:				Section 1 PROJECT: <i>WLEBR</i> PMSID/ PERMIT#: NAME: <i>MT Geiold Texaco</i> E-MAIL: <i>WLEBR@shank1.com</i> REPORTS TO: <i>Valeine Webb</i> INVOICE TO: <i>Valeine Webb</i> QUOTE #: P.O. #:				Section 2 PROJECT: <i>WLEBR</i> PMSID/ PERMIT#: NAME: <i>MT Geiold Texaco</i> E-MAIL: <i>WLEBR@shank1.com</i> REPORTS TO: <i>Valeine Webb</i> INVOICE TO: <i>Valeine Webb</i> QUOTE #: P.O. #:				Section 3 PROJECT: <i>WLEBR</i> PMSID/ PERMIT#: NAME: <i>MT Geiold Texaco</i> E-MAIL: <i>WLEBR@shank1.com</i> REPORTS TO: <i>Valeine Webb</i> INVOICE TO: <i>Valeine Webb</i> QUOTE #: P.O. #:			
RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	#	CONTAINER	Type C = COMP G = GRAB M = Multi In-mental Soils	GRO/BTEX	DRO/RO	PAH	VOC	REMARKS/ LOC ID			
	<i>B-1-2016 (9-15-16)</i>	<i>09/15/16</i>	<i>20:00</i>	<i>GW</i>	<i>5</i>	<i>G</i>	<i>/</i>	<i>/</i>	<i>/</i>	<i>/</i>	<i>/</i>				
	<i>B-6-2016 (9-16-16)</i>	<i>09/16/16</i>	<i>12:50</i>	<i>GW</i>	<i>5</i>	<i>G</i>	<i>/</i>	<i>/</i>	<i>/</i>	<i>/</i>	<i>/</i>				
	<i>B-2-2016 (9-15-16)</i>	<i>09/15/16</i>	<i>19:10</i>	<i>GW</i>	<i>5</i>	<i>G</i>	<i>/</i>	<i>/</i>	<i>/</i>	<i>/</i>	<i>/</i>				
	<i>B-1004 KSI</i>	<i>09/15/16</i>	<i>19:40</i>	<i>GW</i>	<i>5</i>	<i>G</i>	<i>/</i>	<i>/</i>	<i>/</i>	<i>/</i>	<i>/</i>				
	<i>KACI (9-15-16)</i>	<i>09/15/16</i>	<i>18:15</i>	<i>GW</i>	<i>8</i>	<i>G</i>	<i>/</i>	<i>/</i>	<i>/</i>	<i>/</i>	<i>/</i>				
	<i>B-1003</i>	<i>09/15/16</i>	<i>18:45</i>	<i>GW</i>	<i>3</i>	<i>G</i>	<i>/</i>	<i>/</i>	<i>/</i>	<i>/</i>	<i>/</i>				
	<i>B-6-2016 (360')</i>	<i>09/16/16</i>	<i>11:40</i>	<i>SOIL</i>	<i>2</i>	<i>G</i>	<i>/</i>	<i>/</i>	<i>/</i>	<i>/</i>	<i>/</i>				
	<i>B-5-2016 (27.5')</i>	<i>09/15/16</i>	<i>16:25</i>	<i>SOIL</i>	<i>2</i>	<i>G</i>	<i>/</i>	<i>/</i>	<i>/</i>	<i>/</i>	<i>/</i>				
	<i>B-7-2016 (370')</i>	<i>09/16/16</i>	<i>15:20</i>	<i>SOIL</i>	<i>2</i>	<i>G</i>	<i>/</i>	<i>/</i>	<i>/</i>	<i>/</i>	<i>/</i>				
	<i>B-8-2016 (370')</i>	<i>09/16/16</i>	<i>17:45</i>	<i>SOIL</i>	<i>2</i>	<i>G</i>	<i>/</i>	<i>/</i>	<i>/</i>	<i>/</i>	<i>/</i>				
Relinquished By: (1)	<i>[Signature]</i>	Date	Time	Received By:											
Relinquished By: (2)	<i>[Signature]</i>	<i>9/19/16</i>	<i>10:00</i>	<i>Erin Blake</i>											
Relinquished By: (3)	<i>Erin Blake</i>	<i>9/19/16</i>	<i>10:30</i>	<i>[Signature]</i>											
Relinquished By: (4)		Date	Time	Received For Laboratory By:											
Section 4				DOD Project?	Yes	No	Data Deliverable Requirements:								
Cooler ID:															
Requested Turnaround Time and/or Special Instructions:				<i>Standard turnaround MSA-SGS-2016</i>											
Temp Blank °C: <i>5.4</i>				Chain of Custody Seal: (Circle)				INTACT <input checked="" type="checkbox"/> BROKEN <input type="checkbox"/> ABSENT <input type="checkbox"/>							
(See attached Sample Receipt Form)				(See attached Sample Receipt Form)											

[ ] 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301  
 [ ] 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

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**Instructions: Sections 1 - 5 must be filled out.**  
**Omissions may delay the onset of analysis.**

Section 1				Section 3				Section 4			
CLIENT:		PHONE NO:		PRESERVATIVE				DOD Project? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Data Deliverable Requirements:	
CONTACT:		PROJECT/ PMSID/ PERMIT#:									
PROJECT NAME:		E-MAIL:									
REPORTS TO:		QUOTE #:									
INVOICE TO:		P.O. #:									
RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mmm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	#	CONTAINER TYPE	REMARKS/ LOC ID				
	B-1-2016 (47.0')	09/14/16	13:35	SOIL	2	G	GRO/BTEX				
	B-2-2016 (6.0')	09/14/16	15:25	SOIL	2	G	DRO/PPO				
	B-2-2016 (36.0')	09/14/16	16:50	SOIL	2	G	PAH				
	B-2-2016 (47.5')	09/14/16	18:00	SOIL	2	G					
	B-2-2016 (49.5')	09/14/16	18:10	SOIL	2	G					
	B-3-2016 (33.0')	09/15/16	12:40	SOIL	2	G					
	B-4-2016 (11.0')	09/15/16	13:20	SOIL	3	G					
	B-4-2016 (35.0')	09/15/16	14:40	SOIL	2	G					
	B-1001	09/15/16	13:50	SOIL	1	G					
	B-1002	09/15/16	16:50	SOIL	2	G					
Section 2				Section 3				Section 4			
Relinquished By: (1)		Date		Time		Received By:		Cooler ID:		Requested Turnaround Time and/or Special Instructions:	
[Signature]		9/16/16		1000		[Signature]				9-19/16	
Relinquished By: (2)		Date		Time		Received By:		Temp Blank °C:		Chain of Custody Seal: (Circle)	
[Signature]		9/16/16		1030		[Signature]		5.4		INTACT	
Relinquished By: (3)		Date		Time		Received By:		or Ambient [ ]		BROKEN	
[Signature]										ABSENT	
Relinquished By: (4)		Date		Time		Received For Laboratory By:		(See attached Sample Receipt Form)		(See attached Sample Receipt Form)	

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INTERIOR

TEXACO

31-11809-003

JLD

9-14-16 76 9-16-16

8-14-16

31-1-11809-003

1

40's-50's - P. Sunny

0600 - Travel FAI TO Delta Junction

0800 - ON-SITE

- meet w/ Val (Saw) &  
GeoTek Alaska (Mike)

0830 - site walk over w/ Val  
& owners/client

WL CHECK

0840 - DTW 33.3 From TOC [MW-2] DRY

0845 - DTW 28.9' " [M-1/B-4] DRY

0850 - DTW 33.4' " [MW-6/B-3] DRY

0950: Calibrate PID #1

1000: SET up on BORING

B-1-2016 - UPGRADIENT

- SEE FIELD LOG OF BORING -

- Drilled 0 - 50 FT BGS

- Note: Confining Layer  $\approx$  47' bgs  
GW @ 34' bgs to

13:35

14:18

Soil Sample collected @ 47.0'

B-1-2016 (47.0') @ 13:35

14:20 SP-16 system used to collect  
GW Sample From this location

9-14-16 (Cont'D)

31-1-11809-003

2

1440: Mob to Boring

B-2-2016 - Downgradient

1508: Begin Drilling

SEE FIELD LOG OF BORING

- Drilled 0 - 50 FT bgs

- SOIL SAMPLES

B-2-2016 (6.0') @ 1525

B-2-2016 (35.0') @ 1650

B-2-2016 (47.5') @ 1800

B-2-2016 (49.5') @ 1810

1900: SP-16 system placed for  
Collection of GW Sampling

1630: WIND TURBINE VENT STACKS

- USED PID TO take samples @  
ports

- Note: None of the 8 Turbines were  
moving despite 5-10 MPH winds

VENT STACK

PID READING

B-4/MW-1

9.8 PPM

MW-2

2.4 PPM

MW-3

13.2 PPM

Rite in the Rain

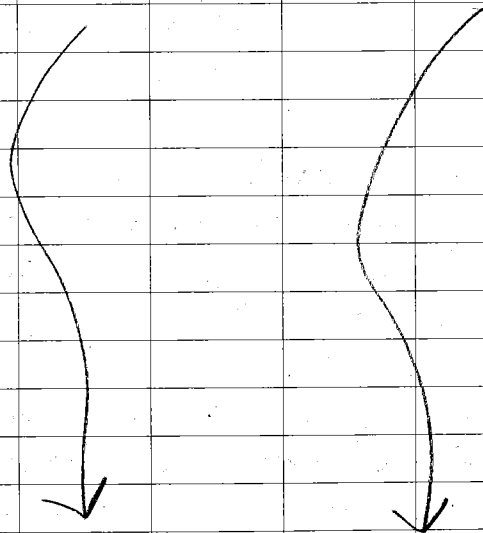


9-14-16 (Cont'd)

VENT STACK	PID
MW-4	38.4 PPM
MW-5	74.5 PPM
B-3/mw-6	3.5 PPM
MW-7	2.1 PPM
MW-8	1.4 PPM

19:30 - OFF-SITE

-NOTE: SP-16 points left in  
B-1-2016 & B-2-2016 for  
sampling tomorrow.



9-15-16

0700: ON-SITE - 40s; OVERCAST

0715: Calibrated PID #1

Fresh Air CO

100ppm = 100.0ppm ✓

0730: Used 1/4" tubing & Geopump  
to begin Water Sampling

B-2-2016 W/L ≈ 36.5' bgs

- Pump not able to pull water  
- Trouble shooting & tried another  
geopump.

0815: Continue trouble shooting.

0830: Tried Geotek Waterterra

Foot valve - NOT right tubing  
but should work. Need 3/8" OD  
1/4" ID.

0900: Talked to Geotek - they do not  
have enough inner rods to  
drill another boring since SP-16  
Systems in B-1-2016 &  
B-2-2016.

0930: Pulling SP-16 out of  
B-2-2016 in order to keep drilling  
- will push in SP-16 to collect  
GW sample later

Rite in the Rain

9-15-16 (cont'd)

10:00 - Set up on B-3-2016

10:15 - Begin drilling

B-3-2016

SEE FIELD LOG OF BORING

- Drilled 0 - 35' bgs

- GW @ 34.0' bgs D. Drilling

12:40 <sup>Soil</sup> - Sample collected from  
Vadose zone @ 33 FT.- No PID hits or indications of  
contamination.

Sample B-3-2016(33.0') @ 1240

- GRO/BTEX, DRO, PPO

- Boring backfilled with cuttings  
from boring.12:50 B-4-2016

SEE FIELD LOG OF BORING

Drilled 0 - 40' bgs

- GW @ 36.0' bgs D. Drilling

Soil Samples

B-4-2016(11.0') @ 1320 PID 526PPM

B-1001 @ 1350 - PAH DUP OF B-4-2016(11.0')

B-4-2016(35.0') @ 1440

9-15-16 (cont'd)

- B-4-2016(11.0') - PAH, GRO/BTEX  
DRO/PRO

- B-1001 - PAH

- B-4-2016(35') - GRO/BTEX, DRO/PRO

15:10: Cuttings containerized (55-gal)  
drum - @ site.15:20 B-5-2016

SEE FIELD LOG OF BORING

- Drilled 0 - 40.0' bgs

- GW @ 37.0' bgs

Soil SamplesB-5-2016(27.5') @ 1625 PID=243  
PPMB-1002 @ 1650 - Dup for  
GRO/BTEX & DRO/PRO17:30 - Geotek placing SP-16  
System back into B-2-2016  
So a GW sample can be collected.NOTE: Drill Cuttings from Borings  
B-2-2016, B-4-2016, & B-5-2016  
placed in 55 gal - labeled drum  
on NE property boundary.

31-1-11809-003  
9-15-16 (cont'd)

7

17:35 - Sampling Class B Public well  
@ Kelleys Alaska Country Inn

17:40 - Calibrated YSI Pro Plus A

- See Calibration Log -
- used garden hose to purge then sample  
part to sample
- 100 gal. purged - readings stabilized
- SEE MONITORING WELL SAMPLING LOG -  
SAMPLES

KACI (9-15-16) @ 18:15

VOC's, GRO/BTEX, ORDARO

B-1003 @ 18:45

- Duplicate For VOC's

18:50 - B-2-2016

Water Sampling

- Used a WaterTerra 55-10  
(Foot Valve) & 3/8" OD 1/4" ID  
Tubing ( $\approx$  50 FT) to purge  
water from SP-16 system

18:55: DTW from ground surface  
= 36.8'

Note: Screened From 39.0' To 35.0'

31-1-11809-003  
9-15-16 (cont'd)

8

- Purged  $\approx$  2.5 gallons from  
boring. V. Turbid brown to  
start & SL. Turbid brown @  
time of sampling

19:10 Sampling @ 19:10

B-2-2016 (9-15-16) - PAH, GRO/BTEX,  
DRO/RRO

B-1004 - Duplicate For

B-2-2016 (9-15-16) - PAH, GRO/BTEX,  
DRO/RRO @ 19:40

- Note: W/ probe deacid in  
water/lignin & water rinse.
- Purge water & decol water  
run through GAG Drum #2  
& discharged @ site.

19:25 - B-1-2016

Water Sampling

- Used a WaterTerra 55-10 (Foot Valve)  
& 3/8" OD 1/4" ID Tubing to purge  
water through SP-16 system.

19:30 - DTW From ground surface  
= 34.9'

Note: Screened From 38 to 34 FT.

9-15-16 (Contd)

- Purged  $\approx$  2.5 gallons from  
 boring. U. Turbid brown @  
 start to sl. turbid brown @  
 time of sampling

20:00 - Sampling

B-1-2016 (9-15-16) @ 20:00  
 GAO/BTEX, PRO/ARO

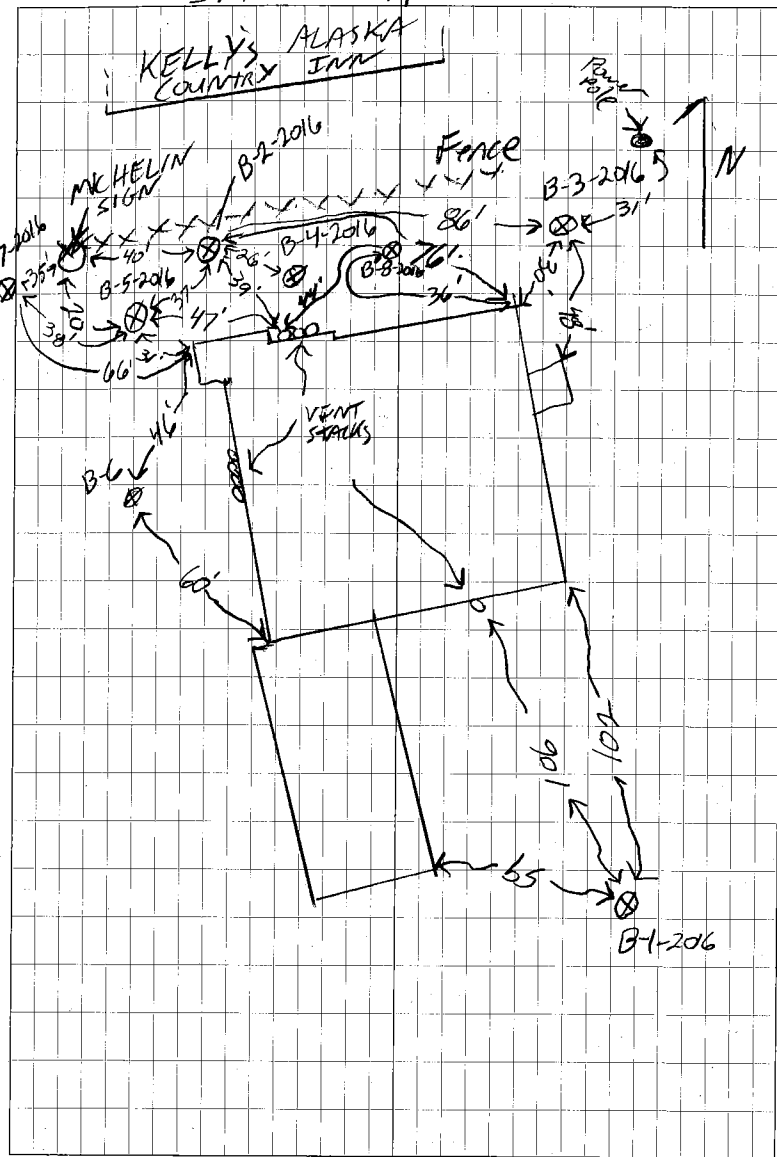
Note: Purge water & down water  
 from WL indicator put  
 through GAC DRUM #1  
 & discharged @ site.

- Parameters not taken due  
 to sampling method.

20:30

~~20:30~~ - OFF-SITE

## SITE MAP



9-16-16

0700: ON-SITE

- Generated site map (See Page 10)
- Measured swing ties to borings

0730: Geotek AK on-site Pulling

SP-16 system out of B-2-2016

0800: Calibrated PID #1 (MiniRae 2000)  
See Calibration Log

0845: BORING B-6-2016

SEE FIELD LOG OF BORING

- Drilled @ -40 bgs
- GW @ ~37.0'

11:50 Done drilling

Note Liners last 10 FT became  
stuck in barrel causing delays.

11:40 SAMPLING - Soil

B-6-2016 (36.0') @ 11:40

PID = 0.0 - BTEX/GRO, DRO/PPO

- Geotek placing SP-16 into borehole  
for GW collection.

9-16-16 (Cont'd)

1220: GW Sampling  
B-6-2016

- Used a water terra SS-10 (Fast Valve)  
& 3/8" OD 1/4" ID tubing to purge  
water through SP-16 system

- DTW From GS = 36.5'

- Note - screened from 39 FT to 34 FT.

- Purged ~2.0 Gal From boring.

- V. Turbid brown @ begin to

51, turbid brown @ sampling

12:50: GW SAMPLING

B-6-2016 (9-16-16) @ 12:50

- GRO/BTEX, DRO/PPO.

- Purge water & decan water from  
W/L indicator put through GAC  
Drum #1 & discharged @ site

- No parameters collected.

- ~50' Tubing used.

Note: Boring backfilled w/ cuttings

& place gravel placed to  
ground surface. Asphalt not  
patched per owners request

31-1-11809-003  
9-16-16 (Cont'd)

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1320: mob to B-7-2016

- SEE FIELD LOG OF BORING -
- Drilled 0-40' bgs
- GW @ ~38.0' bgs

1515: Done drilling

1520: Sampling Soil

- B-7-2016 (370') @ 1520
- PID = 0.0 BTEX/GRO, DRO/ARO
- Boring backfilled w/ cuttings

1530: mob to Boring B-8-2016

- SEE FIELD LOG OF BORING -
- Drilled 0-40FT bgs
- GW @ 37.5' bgs

1730: Done Drilling

1745: SAMPLING SOIL

- B-8-2016 (370') @ 17:45
- PID = 0.0 BTEX/GRO, DRO/ARO

31-1-11809-003  
9-16-16 (Cont'd)

114

1745: Geotek Pulling SP-16 From  
Boring B-1-2016.

NOTE: All samples kept on  
gel ice in Lab-supplied coolers  
for transport back to  
Fairbanks SW office.

18:15 - mob off site

- Travel back to FAIRBANKS  
to drop off samples & paperwork.

20:00 - @ office.

**APPENDIX C**  
**SOIL BORING LOGS**

Shannon & Wilson, Inc. (S&W), uses a soil identification system modified from the Unified Soil Classification System (USCS). Elements of the USCS and other definitions are provided on this and the following pages. Soil descriptions are based on visual-manual procedures (ASTM D2488) and laboratory testing procedures (ASTM D2487), if performed.

**S&W INORGANIC SOIL CONSTITUENT DEFINITIONS**

CONSTITUENT <sup>2</sup>	FINE-GRAINED SOILS (50% or more fines) <sup>1</sup>	COARSE-GRAINED SOILS (less than 50% fines) <sup>1</sup>
Major	<b>Silt, Lean Clay, Elastic Silt<sub>3</sub>, or Fat Clay</b>	<b>Sand or Gravel<sup>4</sup></b>
Modifying (Secondary) Precedes major constituent	30% or more coarse-grained: <b>Sandy or Gravelly<sup>4</sup></b>	More than 12% fine-grained: <b>Silty or Clayey<sup>3</sup></b>
Minor Follows major constituent	15% to 30% coarse-grained: <b>with Sand or with Gravel<sup>4</sup></b> 30% or more total coarse-grained and lesser coarse-grained constituent is 15% or more: <b>with Sand or with Gravel<sup>5</sup></b>	5% to 12% fine-grained: <b>with Silt or with Clay<sup>3</sup></b> 15% or more of a second coarse-grained constituent: <b>with Sand or with Gravel<sup>5</sup></b>

<sup>1</sup>All percentages are by weight of total specimen passing a 3-inch sieve.  
<sup>2</sup>The order of terms is: *Modifying Major with Minor*.  
<sup>3</sup>Determined based on behavior.  
<sup>4</sup>Determined based on which constituent comprises a larger percentage.  
<sup>5</sup>Whichever is the lesser constituent.

**MOISTURE CONTENT TERMS**

Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, from below water table

**STANDARD PENETRATION TEST (SPT) SPECIFICATIONS**

Hammer:	140 pounds with a 30-inch free fall. Rope on 6- to 10-inch-diam. cathead 2-1/4 rope turns, > 100 rpm
	NOTE: If automatic hammers are used, blow counts shown on boring logs should be adjusted to account for efficiency of hammer.
Sampler:	10 to 30 inches long Shoe I.D. = 1.375 inches Barrel I.D. = 1.5 inches Barrel O.D. = 2 inches
N-Value:	Sum blow counts for second and third 6-inch increments. Refusal: 50 blows for 6 inches or less; 10 blows for 0 inches.
	NOTE: Penetration resistances (N-values) shown on boring logs are as recorded in the field and have not been corrected for hammer efficiency, overburden, or other factors.

**PARTICLE SIZE DEFINITIONS**

DESCRIPTION	SIEVE NUMBER AND/OR APPROXIMATE SIZE
FINES	< #200 (0.075 mm = 0.003 in.)
SAND Fine Medium Coarse	#200 to #40 (0.075 to 0.4 mm; 0.003 to 0.02 in.) #40 to #10 (0.4 to 2 mm; 0.02 to 0.08 in.) #10 to #4 (2 to 4.75 mm; 0.08 to 0.187 in.)
GRAVEL Fine Coarse	#4 to 3/4 in. (4.75 to 19 mm; 0.187 to 0.75 in.) 3/4 to 3 in. (19 to 76 mm)
COBBLES	3 to 12 in. (76 to 305 mm)
BOULDERS	> 12 in. (305 mm)

**RELATIVE DENSITY / CONSISTENCY**

COHESIONLESS SOILS		COHESIVE SOILS	
N, SPT, BLOWS/FT.	RELATIVE DENSITY	N, SPT, BLOWS/FT.	RELATIVE CONSISTENCY
< 4	Very loose	< 2	Very soft
4 - 10	Loose	2 - 4	Soft
10 - 30	Medium dense	4 - 8	Medium stiff
30 - 50	Dense	8 - 15	Stiff
> 50	Very dense	15 - 30	Very stiff
		> 30	Hard

**WELL AND BACKFILL SYMBOLS**

	Bentonite Cement Grout		Surface Cement Seal
	Bentonite Grout		Asphalt or Cap
	Bentonite Chips		Slough
	Silica Sand		Inclinometer or Non-perforated Casing
	Perforated or Screened Casing		Vibrating Wire Piezometer

**PERCENTAGES TERMS<sup>1,2</sup>**

Trace	< 5%
Few	5 to 10%
Little	15 to 25%
Some	30 to 45%
Mostly	50 to 100%

<sup>1</sup>Gravel, sand, and fines estimated by mass. Other constituents, such as organics, cobbles, and boulders, estimated by volume.

<sup>2</sup>Reprinted, with permission, from ASTM D2488 - 09a Standard Practice for Description and Identification of Soils (Visual-Manual Procedure), copyright ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428. A copy of the complete standard may be obtained from ASTM International, www.astm.org.

Interior Texaco  
Delta Junction, Alaska

**SOIL DESCRIPTION AND LOG KEY**
















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Sheet 1 of 3



**UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)**  
 (Modified From USACE Tech Memo 3-357, ASTM D2487, and ASTM D2488)

MAJOR DIVISIONS			GROUP/GRAPHIC SYMBOL	TYPICAL IDENTIFICATIONS
COARSE-GRAINED SOILS <i>(more than 50% retained on No. 200 sieve)</i>	Gravels <i>(more than 50% of coarse fraction retained on No. 4 sieve)</i>	Gravel <i>(less than 5% fines)</i>	GW 	Well-Graded Gravel; Well-Graded Gravel with Sand
			GP 	Poorly Graded Gravel; Poorly Graded Gravel with Sand
		Silty or Clayey Gravel <i>(more than 12% fines)</i>	GM 	Silty Gravel; Silty Gravel with Sand
			GC 	Clayey Gravel; Clayey Gravel with Sand
	Sands <i>(50% or more of coarse fraction passes the No. 4 sieve)</i>	Sand <i>(less than 5% fines)</i>	SW 	Well-Graded Sand; Well-Graded Sand with Gravel
			SP 	Poorly Graded Sand; Poorly Graded Sand with Gravel
		Silty or Clayey Sand <i>(more than 12% fines)</i>	SM 	Silty Sand; Silty Sand with Gravel
			SC 	Clayey Sand; Clayey Sand with Gravel
FINE-GRAINED SOILS <i>(50% or more passes the No. 200 sieve)</i>	Silt and Clays <i>(liquid limit less than 50)</i>	Inorganic	ML 	Silt; Silt with Sand or Gravel; Sandy or Gravelly Silt
			CL 	Lean Clay; Lean Clay with Sand or Gravel; Sandy or Gravelly Lean Clay
		Organic	OL 	Organic Silt or Clay; Organic Silt or Clay with Sand or Gravel; Sandy or Gravelly Organic Silt or Clay
	Silt and Clays <i>(liquid limit 50 or more)</i>	Inorganic	MH 	Elastic Silt; Elastic Silt with Sand or Gravel; Sandy or Gravelly Elastic Silt
			CH 	Fat Clay; Fat Clay with Sand or Gravel; Sandy or Gravelly Fat Clay
		Organic	OH 	Organic Silt or Clay; Organic Silt or Clay with Sand or Gravel; Sandy or Gravelly Organic Silt or Clay
HIGHLY-ORGANIC SOILS	Primarily organic matter, dark in color, and organic odor	PT 	Peat or other highly organic soils (see ASTM D4427)	

NOTE: No. 4 size = 4.75 mm = 0.187 in.; No. 200 size = 0.075 mm = 0.003 in.

NOTES

- Dual symbols (*symbols separated by a hyphen, i.e., SP-SM, Sand with Silt*) are used for soils with between 5% and 12% fines or when the liquid limit and plasticity index values plot in the CL-ML area of the plasticity chart. Graphics shown on the logs for these soil types are a combination of the two graphic symbols (e.g., SP and SM).
- Borderline symbols (*symbols separated by a slash, i.e., CL/ML, Lean Clay to Silt; SP-SM/SM, Sand with Silt to Silty Sand*) indicate that the soil properties are close to the defining boundary between two groups.

Interior Texaco Delta Junction, Alaska	
<b>SOIL DESCRIPTION AND LOG KEY</b>	
31-1-11809-003	
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### GRADATION TERMS

Poorly Graded	Narrow range of grain sizes present or, within the range of grain sizes present, one or more sizes are missing (Gap Graded). Meets criteria in ASTM D2487, if tested.
Well-Graded	Full range and even distribution of grain sizes present. Meets criteria in ASTM D2487, if tested.

### CEMENTATION TERMS<sup>1</sup>

Weak	Crumbles or breaks with handling or slight finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

### PLASTICITY<sup>2</sup>

DESCRIPTION	VISUAL-MANUAL CRITERIA	APPROX. PLASTICITY INDEX RANGE
Nonplastic	A 1/8-in. thread cannot be rolled at any water content.	< 4
Low	A thread can barely be rolled and a lump cannot be formed when drier than the plastic limit.	4 to 10
Medium	A thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. A lump crumbles when drier than the plastic limit.	10 to 20
High	It takes considerable time rolling and kneading to reach the plastic limit. A thread can be rerolled several times after reaching the plastic limit. A lump can be formed without crumbling when drier than the plastic limit.	> 20

### ADDITIONAL TERMS

Mottled	Irregular patches of different colors.
Bioturbated	Soil disturbance or mixing by plants or animals.
Diamict	Nonsorted sediment; sand and gravel in silt and/or clay matrix.
Cuttings	Material brought to surface by drilling.
Slough	Material that caved from sides of borehole.
Sheared	Disturbed texture, mix of strengths.

### PARTICLE ANGULARITY AND SHAPE TERMS<sup>1</sup>

Angular	Sharp edges and unpolished planar surfaces.
Subangular	Similar to angular, but with rounded edges.
Subrounded	Nearly planar sides with well-rounded edges.
Rounded	Smoothly curved sides with no edges.
Flat	Width/thickness ratio > 3.
Elongated	Length/width ratio > 3.

### ACRONYMS AND ABBREVIATIONS

ATD	At Time of Drilling
Diam.	Diameter
Elev.	Elevation
ft.	Feet
FeO	Iron Oxide
gal.	Gallons
Horiz.	Horizontal
HSA	Hollow Stem Auger
I.D.	Inside Diameter
in.	Inches
lbs.	Pounds
MgO	Magnesium Oxide
mm	Millimeter
MnO	Manganese Oxide
NA	Not Applicable or Not Available
NP	Nonplastic
O.D.	Outside Diameter
OW	Observation Well
pcf	Pounds per Cubic Foot
PID	Photo-Ionization Detector
PMT	Pressuremeter Test
ppm	Parts per Million
psi	Pounds per Square Inch
PVC	Polyvinyl Chloride
rpm	Rotations per Minute
SPT	Standard Penetration Test
USCS	Unified Soil Classification System
q <sub>u</sub>	Unconfined Compressive Strength
VWP	Vibrating Wire Piezometer
Vert.	Vertical
WOH	Weight of Hammer
WOR	Weight of Rods
Wt.	Weight

### STRUCTURE TERMS<sup>1</sup>

Interbedded	Alternating layers of varying material or color with layers at least 1/4-inch thick; singular: bed.
Laminated	Alternating layers of varying material or color with layers less than 1/4-inch thick; singular: lamination.
Fissured	Breaks along definite planes or fractures with little resistance.
Slickensided	Fracture planes appear polished or glossy; sometimes striated.
Blocky	Cohesive soil that can be broken down into small angular lumps that resist further breakdown.
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay.
Homogeneous	Same color and appearance throughout.

Interior Texaco  
Delta Junction, Alaska

## SOIL DESCRIPTION AND LOG KEY

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Sheet 3 of 3

<sup>1</sup>Reprinted, with permission, from ASTM D2488 - 09a Standard Practice for Description and Identification of Soils (Visual-Manual Procedure), copyright ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428. A copy of the complete standard may be obtained from ASTM International, www.astm.org.

<sup>2</sup>Adapted, with permission, from ASTM D2488 - 09a Standard Practice for Description and Identification of Soils (Visual-Manual Procedure), copyright ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428. A copy of the complete standard may be obtained from ASTM International, www.astm.org.

# ENVIRONMENTAL BOREHOLE LOG

Date Started	9/14/16	Location	Upgradient, SE	Depth Water First Encountered (ft)	34.0
Date Completed	9/14/16	Drilling Company	Geotek Alaska	Drilling Method	8040DT, Geoprobe
Total Depth (ft)	50.0	Sampling Method	Macrocore	Hammer: Weight (lbs)	Drop (in)
Borehole Diam. (in)	2.25	Ground Elev. (ft)	1159.0	Monument Elev. (ft)	NA
				PVC Elev. (ft)	NA

Depth (ft)	Environmental Sample Number	Interval	Blow Count Blows/Ft	Recovery(%)	PID (ppm)	Time	Depth (ft)	Lithologic Description	Soil Log	Well Log	Depth (ft)
								<b>Ground Surface</b>			
					0		0.3	Asphalt pavement.			
5					0		3.2	Brown, Poorly Graded Gravel with Sand (GP) to Well-Graded Gravel with Sand (GW); moist to dry.			5
10					0		6.0	Brown to light gray, Silt with Sand (ML); moist.			10
15					0		11.0	Brown, Poorly Graded Sand with Silt (SP-SM); moist.			15
20					0			Brown to light gray, Poorly Graded Gravel with Sand (GP) to Well-Graded Gravel with Sand (GW); dry.			20
25					0						25
30					0						30
35					0		34.5	Brown to light gray, Poorly Graded Gravel with Silt and Sand (GP-GM) to Well-Graded Gravel with Silt and Sand (GW-GM); wet.			35
40					0	20:00					40
45					0		45.0	Red-brown to light gray, Silt (ML); wet.			45
50	B-1-2016 (47.0')				0	13:35	48.5	- Sample B-1A-2016 (47') had a moisture content of 35.4%			50
55					0		50.0	- Sample B-1B-2016 (47') had a moisture content of 33.8%			50
								Brown to light gray, Poorly Graded Gravel with Sand (GP) to Well-Graded Gravel with Sand (GW); dry.			55
								Boring terminated at 50.0 feet.			

Typ: Rev: Log: ENV\_MASTER 31-1-11809-003.GPJ SHAN\_WIL\_GDT 10/27/16

### NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
3. Groundwater level, if indicated above, is for the date specified and may vary.
4. Refer to KEY for explanation of "Symbols" and definitions.
5. USCS designation is based on visual-manual classification unless otherwise noted.

### LEGEND


Interior Texaco Limited Site Characterization  
Delta Junction, Alaska

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FIG. B-1

# ENVIRONMENTAL BOREHOLE LOG

Date Started	9/14/16	Location	Downgradient, N. Building	Depth Water First Encountered (ft)	37.0
Date Completed	9/14/16	Drilling Company	Geotek Alaska	Drilling Method	8040DT, Geoprobe
Total Depth (ft)	50.0	Sampling Method	Macrocore	Hammer: Weight (lbs)	Drop (in)
Borehole Diam. (in)	2.25	Ground Elev. (ft)	1159.0	Monument Elev. (ft)	NA
				PVC Elev. (ft)	NA

Depth (ft)	Environmental Sample Number	Interval	Blow Count Blows/Ft	Recovery(%)	PID (ppm)	Time	Depth (ft)	Lithologic Description	Soil Log	Well Log	Depth (ft)
							0.3	<b>Ground Surface</b>			
					95			Asphalt pavement.			
5	B-2-2016 (6.0')				205		4.2	Brown and light gray, <i>Poorly Graded Gravel with Sand (GP) to Well-Graded Gravel with Sand (GW)</i> ; dry.			5
					257		7.0	Brown to light gray, <i>Silt (ML)</i> ; moist.			
10					54.6			Brown, <i>Poorly Graded Sand (SP)</i> ; moist.			10
					16.1		11.0	Brown, <i>Poorly Graded Sand with Gravel (SP) to Well-Graded Sand with Gravel (SW)</i> ; moist.			15
15					10.1						
					5.4		16.0	Brown to light gray, <i>Poorly Graded Gravel with Sand (GP) to Well-Graded Gravel with Sand (GW)</i> ; moist; wet below 37.0 feet.			20
20					4.1						
					0						
25					0						
					0						
30					0						
35	B-2-2016 (36.0')										
40											
45							47.0	Red-brown to light gray, <i>Silt (ML)</i> ; wet.			45
	B-2-2016 (47.5')						49.5	Red-brown to light gray, <i>Silt with Gravel (ML)</i> ; dry.			50
50	B-2-2016 (49.5')						50.0	Boring terminated at 50.0 feet.			50
55											55

Typ: Rev: Log: ENV MASTER 31-1-11809-003.GPJ SHAN\_WIL\_GDT 10/27/16

### NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
3. Groundwater level, if indicated above, is for the date specified and may vary.
4. Refer to KEY for explanation of "Symbols" and definitions.
5. USCS designation is based on visual-manual classification unless otherwise noted.

### LEGEND

- |                                |                            |
|--------------------------------|----------------------------|
| 2-inch O.D. Split Spoon Sample | Ground Water Level ATD     |
| 3-inch O.D. Split Spoon Sample | Ground Water Level in Well |

Interior Texaco Limited Site Characterization  
Delta Junction, Alaska

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**FIG. B-2**

# ENVIRONMENTAL BOREHOLE LOG

Date Started	9/15/16	Location	Downgradient, NE	Depth Water First Encountered (ft)	34.0
Date Completed	9/15/16	Drilling Company	Geotek Alaska	Drilling Method	8040DT, Geoprobe
Total Depth (ft)	35.0	Sampling Method	Macrocore	Hammer: Weight (lbs)	Drop (in)
Borehole Diam. (in)	2.25	Ground Elev. (ft)	1159.0	Monument Elev. (ft)	NA
				PVC Elev. (ft)	NA

Depth (ft)	Environmental Sample Number	Interval	Blow Count Blows/Ft	Recovery(%)	PID (ppm)	Time	Depth (ft)	Lithologic Description	Soil Log	Well Log	Depth (ft)
							0.3	<b>Ground Surface</b>			
					0		0.3	Asphalt pavement.			
5					0		4.7	Brown, Poorly Graded Sand with Silt (SP-SM) to Well-Graded Sand with Silt (SW-SM); moist.			5
					0		7.5	Brown to light gray, Silt (ML); moist.			
10					0		11.0	Brown, Poorly Graded Sand with Gravel (SP) to Well-Graded Sand with Gravel (SW); moist to dry.			10
15					0		16.5	Brown to light gray, Well-Graded Gravel with Sand (GW); dry to moist to wet below 34 feet.			15
20					0						20
25					0						25
30					0						30
35	B-3-2016 (33.0')				0		35.0	Boring terminated at 35.0 feet.			35
40											40
45											45
50											50
55											55

Typ: \_\_\_\_\_  
 Rev: \_\_\_\_\_  
 Log: \_\_\_\_\_  
 ENV MASTER 31-1-11809-003.GPJ SHAN\_WIL\_GDT 10/27/16

### NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
3. Groundwater level, if indicated above, is for the date specified and may vary.
4. Refer to KEY for explanation of "Symbols" and definitions.
5. USCS designation is based on visual-manual classification unless otherwise noted.

### LEGEND

- |  |  |
|--|--|
| [Symbol] 2-inch O.D. Split Spoon Sample<br>[Symbol] 3-inch O.D. Split Spoon Sample | [Symbol] Ground Water Level ATD<br>[Symbol] Ground Water Level in Well |
|--|--|

Interior Texaco Limited Site Characterization Delta Junction, Alaska	
<h2 style="margin: 0;">LOG OF BORING B-3-2016</h2>	
October 2016	31-1-11809-003
<b>SHANNON &amp; WILSON, INC.</b> Geotechnical and Environmental Consultants	<b>FIG. B-3</b>

# ENVIRONMENTAL BOREHOLE LOG

Date Started	9/15/16	Location	Former UST Area	Depth Water First Encountered (ft)	36.0
Date Completed	9/15/16	Drilling Company	Geotek Alaska	Drilling Method	8040DT, Geoprobe
Total Depth (ft)	40.0	Sampling Method	Macrocore	Hammer: Weight (lbs)	Drop (in)
Borehole Diam. (in)	2.25	Ground Elev. (ft)	1159.0	Monument Elev. (ft)	NA
				PVC Elev. (ft)	NA

Depth (ft)	Environmental Sample Number	Interval	Blow Count Blows/Ft	Recovery(%)	PID (ppm)	Time	Depth (ft)	Lithologic Description	Soil Log	Well Log	Depth (ft)
							0.3	Ground Surface Asphalt pavement.			
5					8.9			Brown, Silt with Gravel (ML); moist.			5
10	B-4-2016 (11.0') B-1001				4.8						10
15					11.4						15
20					79.8		12.5	Brown, Poorly Graded Sand with Gravel (GP) to Well-Graded Sand with Gravel (SW); moist.			20
25					526						25
30					241		18.0	Brown to light gray, Well-Graded Gravel with Sand (GW); moist to dry.			30
35	B-4-2016 (35.0')				184						35
40					302		40.0	Boring terminated at 40.0 feet.			40
45					94						45
50					104						50
55					19.4						55
					124						
					24						
					19						
					9.4						

Typ: \_\_\_\_\_  
 Rev: \_\_\_\_\_  
 Log: \_\_\_\_\_

### NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
3. Groundwater level, if indicated above, is for the date specified and may vary.
4. Refer to KEY for explanation of "Symbols" and definitions.
5. USCS designation is based on visual-manual classification unless otherwise noted.

### LEGEND

- |  |  |
|--|--|
| I 2-inch O.D. Split Spoon Sample<br>III 3-inch O.D. Split Spoon Sample | ▽ Ground Water Level ATD<br>▼ Ground Water Level in Well |
|--|--|

Interior Texaco Limited Site Characterization  
Delta Junction, Alaska

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




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**FIG. B-4**

ENV MASTER 31-1-11809-003.GPJ SHAN\_WIL\_GDT 10/27/16

# ENVIRONMENTAL BOREHOLE LOG

Date Started	9/15/16	Location	Former UST Area	Depth Water First Encountered (ft)	37.0
Date Completed	9/15/16	Drilling Company	Geotek Alaska	Drilling Method	8040DT, Geoprobe
Total Depth (ft)	40.0	Sampling Method	Macrocore	Hammer: Weight (lbs)	Drop (in)
Borehole Diam. (in)	2.25	Ground Elev. (ft)	1159.0	Monument Elev. (ft)	NA
				PVC Elev. (ft)	NA





Depth (ft)	Environmental Sample Number	Interval	Blow Count Blows/Ft	Recovery(%)	PID (ppm)	Time	Depth (ft)	Lithologic Description	Soil Log	Well Log	Depth (ft)
							0.3	Ground Surface			
					0		3.5	Asphalt pavement. Brown, Poorly Graded Sand with Silt and Gravel (SP-SM) to Well-Graded Sand with Silt and Gravel (SW-SM); moist.			
5					0		9.5	Brown, Silt (ML); moist. Brown, Poorly Graded Sand with Silt (SP-SM); moist.			5
10					0		15.5	Red-brown, Sandy Silt (ML); moist.			10
15					0		18.5	Brown and gray, Poorly Graded Sand with Gravel (SP) to Well-Graded Sand with Gravel (SW); moist to dry.			15
20					0		26.0	Brown to light gray, Well-Graded Gravel with Sand (GW); dry; wet below 37.0 feet.			20
25	B-5-2016 (27.5')				243						25
30	B-1002				24.5						30
35					10.4						35
40					8.3						40
45					0		40.0	Boring terminated at 40.0 feet.			45
50											50
55											55

Typ: Rev: Log:

### NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
3. Groundwater level, if indicated above, is for the date specified and may vary.
4. Refer to KEY for explanation of "Symbols" and definitions.
5. USCS designation is based on visual-manual classification unless otherwise noted.

### LEGEND

- |  |  |
|--|--|
|  2-inch O.D. Split Spoon Sample |  Ground Water Level ATD     |
|  3-inch O.D. Split Spoon Sample |  Ground Water Level in Well |

Interior Texaco Limited Site Characterization  
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**FIG. B-5**

ENV. MASTER 31-1-11809-003.GPJ SHAN\_WIL\_GDT\_10/27/16

# ENVIRONMENTAL BOREHOLE LOG

Date Started	9/16/16	Location	Former Western Fuel Island	Depth Water First Encountered (ft)	37.0
Date Completed	9/16/16	Drilling Company	Geotek Alaska	Drilling Method	8040DT, Geoprobe
Total Depth (ft)	40.0	Sampling Method	Macrocore	Hammer: Weight (lbs)	Drop (in)
Borehole Diam. (in)	2.25	Ground Elev. (ft)	1159.0	Monument Elev. (ft)	NA
				PVC Elev. (ft)	NA

Depth (ft)	Environmental Sample Number	Interval	Blow Count Blows/Ft	Recovery(%)	PID (ppm)	Time	Depth (ft)	Lithologic Description	Soil Log	Well Log	Depth (ft)
							0.3	<b>Ground Surface</b>			
					0		1.5	Asphalt pavement.			
5					0		9.5	Brown, Poorly Graded Sand with Gravel (SP) to Well-Graded Sand with Gravel (SW); moist. Brown, Sandy Silt (ML); moist.			5
10					0		17.0	Brown, Poorly Graded Sand (SP); moist.			10
15					0		19.0	Brown, Silt (ML); wet.			15
20					0		30.0	Brown to light gray, Well-Graded Gravel with Sand (GW); dry.			20
25					0		40.0	Light to dark gray, Well-Graded Gravel with Sand (GW); moist to dry.			25
30					0						30
35	B-6-2016 (36')				0						35
40					0						40
45					0						45
50					0						50
55					0						55
							40.0	Boring terminated at 40.0 feet. Boring completed 9/16/2016			40

Typ: Rev: Log: ENV MASTER 31-1-11809-003.GPJ SHAN\_WIL\_GDT\_10/27/16

### NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
3. Groundwater level, if indicated above, is for the date specified and may vary.
4. Refer to KEY for explanation of "Symbols" and definitions.
5. USCS designation is based on visual-manual classification unless otherwise noted.

### LEGEND

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li> 2-inch O.D. Split Spoon Sample</li> <li> 3-inch O.D. Split Spoon Sample</li> </ul> | <ul style="list-style-type: none"> <li> Ground Water Level ATD</li> <li> Ground Water Level in Well</li> </ul> |
|--|--|

Interior Texaco Limited Site Characterization Delta Junction, Alaska	
<b>LOG OF BORING B-6-2016</b>	
October 2016	31-1-11809-003
<b>SHANNON &amp; WILSON, INC.</b> Geotechnical and Environmental Consultants	<b>FIG. B-6</b>



# ENVIRONMENTAL BOREHOLE LOG

Date Started	9/16/16	Location	West of Former UST Area	Depth Water First Encountered (ft)	38.0
Date Completed	9/16/16	Drilling Company	Geotek Alaska	Drilling Method	8040DT, Geoprobe
Total Depth (ft)	40.0	Sampling Method	Macrocore	Hammer: Weight (lbs)	Drop (in)
Borehole Diam. (in)	2.25	Ground Elev. (ft)	1159.0	Monument Elev. (ft)	NA
				PVC Elev. (ft)	NA

Depth (ft)	Environmental Sample Number	Interval	Blow Count Blows/Ft	Recovery(%)	PID (ppm)	Time	Depth (ft)	Lithologic Description	Soil Log	Well Log	Depth (ft)
							0.3	<b>Ground Surface</b>			
					0		2.0	Brown, <i>Poorly Graded Sand with Gravel (SP)</i> to <i>Well-Graded Sand with Gravel (SW)</i> ; moist.			5
5					0			Brown, <i>Silty Sand (SM)</i> ; moist.			10
10					0		11.5	Brown, <i>Poorly Graded Sand (SP)</i> ; moist.			15
15					0		16.5	Brown, <i>Silt (ML)</i> ; wet.			20
20					0		18.5	Brown and light gray, <i>Poorly Graded Gravel with Sand (GP)</i> to <i>Well-Graded Gravel with Sand (GW)</i> ; dry.			25
25					0						30
30					0						35
35					0						40
40	B-7-2016 (37')				0		40.0	Boring terminated at 40.0 feet.			45
45											50
50											55
55											60

Typ: \_\_\_\_\_  
 Rev: \_\_\_\_\_  
 Log: \_\_\_\_\_

### NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
3. Groundwater level, if indicated above, is for the date specified and may vary.
4. Refer to KEY for explanation of "Symbols" and definitions.
5. USCS designation is based on visual-manual classification unless otherwise noted.

### LEGEND

- |                                |                            |
|--------------------------------|----------------------------|
| 2-inch O.D. Split Spoon Sample | Ground Water Level ATD     |
| 3-inch O.D. Split Spoon Sample | Ground Water Level in Well |

Interior Texaco Limited Site Characterization  
Delta Junction, Alaska

LOG OF BORING B-7-2016

October 2016
31-1-11809-003

**SHANNON & WILSON, INC.**  
Geotechnical and Environmental Consultants
**FIG. B-7**

ENV MASTER 31-1-11809-003.GPJ SHAN\_WIL\_GDT 10/27/16

# ENVIRONMENTAL BOREHOLE LOG

Date Started	9/16/16	Location	East of Former UST Area	Depth Water First Encountered (ft)	37.5
Date Completed	9/16/16	Drilling Company	Geotek Alaska	Drilling Method	8040DT, Geoprobe
Total Depth (ft)	40.0	Sampling Method	Macrocore	Hammer: Weight (lbs)	Drop (in)
Borehole Diam. (in)	2.25	Ground Elev. (ft)	1159.0	Monument Elev. (ft)	NA
				PVC Elev. (ft)	NA

Depth (ft)	Environmental Sample Number	Interval	Blow Count Blows/Ft	Recovery(%)	PID (ppm)	Time	Depth (ft)	Lithologic Description	Soil Log	Well Log	Depth (ft)
								<b>Ground Surface</b>			
					0		0.3	Asphalt pavement.			
5					0		4.0	Brown, <i>Poorly Graded Sand with Silt and Gravel (SP-SM) to Well-Graded Sand with Silt and Gravel (SW-SM)</i> ; moist.			5
10					0		7.5	Brown and light gray, <i>Silt (ML)</i> ; moist. Brown, <i>Poorly Graded Sand (SP)</i> ; moist.			10
15					0		13.5	Brown and light gray, <i>Poorly Graded Gravel with Sand (GP) to Well-Graded Gravel with Sand (GW)</i> ; moist to dry.			15
20					0						20
25					0						25
30					0						30
35					0						35
40	B-8-2016 (37')				0		40.0	Boring terminated at 40.0 feet.			40
45											45
50											50
55											55

Typ: Rev: Log: ENV MASTER 31-1-11809-003.GPJ SHAN\_WIL\_GDT 10/27/16

### NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
3. Groundwater level, if indicated above, is for the date specified and may vary.
4. Refer to KEY for explanation of "Symbols" and definitions.
5. USCS designation is based on visual-manual classification unless otherwise noted.

### LEGEND

- |  |  |
|--|--|
| I 2-inch O.D. Split Spoon Sample<br>III 3-inch O.D. Split Spoon Sample | ▽ Ground Water Level ATD<br>▼ Ground Water Level in Well |
|--|--|

Interior Texaco Limited Site Characterization Delta Junction, Alaska	
<b>LOG OF BORING B-8-2016</b>	
October 2016	31-1-11809-003
<b>SHANNON &amp; WILSON, INC.</b> Geotechnical and Environmental Consultants	<b>FIG. B-8</b>

**APPENDIX D**  
**SELECTED SITE PHOTOGRAPHS**



**Photo 1: Overview of the Interior Texaco project site. (September 14, 2016)**



**Photo 2: Location of boring B-1-2016. South east side of service station. Temporary Well Installed (SP-16). (September 14, 2016)**



**Photo 3: View of lithology in Boring B-1-2016. Top left at ground surface. Bottom right at 50-ft bgs. Each liner is 5 ft in length. (September 14, 2016)**



**Photo 4: B-2-2016 Close up of the confining layer. (September 14, 2016)**



**Photo 5: View of well and sample port at Kelly's Alaska Country Inn. (September 15, 2016)**



**Photo 6: Boring B-6-2016. Temporary well point installed (SP-16). (September 16, 2016)**



**Photo 7: Boring B-7-2016. Near the northwest property corner.  
(September 16, 2016)**



**Photo 8: Boring B-8-2016. Located just east of the former tank pit.  
(September 16, 2016)**

**APPENDIX E**

**SGS LABORATORY REPORT AND ADEC DATA REVIEW  
CHECKLIST FOR ANALYTICAL RESULTS**

**WORK ORDER NO. 1168600**





Laboratory Report of Analysis

To: Shannon & Wilson-Fairbanks  
5430 Fairbanks Street, Suite 3  
Anchorage, AK 99518  
907-479-0600

Report Number: 1168600

Client Project: Interior Texaco

Dear Valerie Webb,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Jennifer at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,  
SGS North America Inc.

Alaska Division Technical Director

Stephen Ede

2016.10.10

13:17:41 -08'00'

Jennifer Dawkins  
Project Manager

Date

Print Date: 10/10/2016 11:35:47AM

SGS North America Inc. | 200 West Potter Drive, Anchorage, AK 99518  
t 907.562.2343 f 907.561.5301 www.us.sgs.com

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## Case Narrative

**Customer: SHANFBK**

**Shannon & Wilson-Fairbanks**

**Project: 1168600**

**Interior Texaco**

Refer to the sample receipt form for information on sample condition.

**1168600008 PS 27.5'**

AK101 - Surrogate recovery for 4-bromofluorobenzene (214%) does not meet QC criteria due to matrix interference.

**1168600012 PS 6.0'**

AK101 - Surrogate recovery for 4-bromofluorobenzene (198%) does not meet QC criteria due to matrix interference.

**1168600014 PS 47.5'**

AK101 - Surrogate recovery for 4-bromofluorobenzene (184%) does not meet QC criteria due to matrix interference.

**1168600017 PS 11.0'**

AK101 - Surrogate recovery for 4-bromofluorobenzene (997%) does not meet QC criteria due to matrix interference.

AK102 - Surrogate recovery for 5a-androstane (271%) does not meet QC criteria due to sample dilution (40X).

8270D SIM - PAH surrogate recovery for 2-fluorobiphenyl (216%) does not meet QC criteria due to sample dilution (50X).

**1168600019 PS B-1001**

8270D SIM - PAH surrogate recovery for 2-fluorobiphenyl (209%) does not meet QC criteria due to sample dilution (50X).

**1168600020 PS B-1002**

AK101 - Surrogate recovery for 4-bromofluorobenzene (214%) does not meet QC criteria due to matrix interference.

**1354117 LCS VXX/29621**

8260B - LCS recovery for bromomethane (142%) is outside of QC criteria. This analyte was not detected above the LOQ in the associated samples.

**1354118 LCSD VXX/2962**

8260B - LCSD recovery for chloromethane (158%) and bromomethane (148%) are outside of QC criteria. These analytes were not detected above the LOQ in the associated samples.

## Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8021B, 8082A, 8260B, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
D	The analyte concentration is the result of a dilution.
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
F	Indicates value that is greater than or equal to the DL
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
JL	The analyte was positively identified, but the quantitation is a low estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
M	A matrix effect was present.
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
Q	QC parameter out of acceptance range.
R	Rejected
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

**Note:** Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

### Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
B-1-2016(9-15-16)	1168600001	09/15/2016	09/20/2016	Water (Surface, Eff., Ground)
B-6-2016(9-16-16)	1168600002	09/16/2016	09/20/2016	Water (Surface, Eff., Ground)
B-2-2016(9-15-16)	1168600003	09/15/2016	09/20/2016	Water (Surface, Eff., Ground)
B-1004	1168600004	09/15/2016	09/20/2016	Water (Surface, Eff., Ground)
KACI(9-15-16)	1168600005	09/15/2016	09/20/2016	Water (Surface, Eff., Ground)
B-1003	1168600006	09/15/2016	09/20/2016	Water (Surface, Eff., Ground)
B-6-2016(36.0')	1168600007	09/16/2016	09/20/2016	Soil/Solid (dry weight)
B-5-2016(27.5')	1168600008	09/15/2016	09/20/2016	Soil/Solid (dry weight)
B-7-2016(37.0')	1168600009	09/16/2016	09/20/2016	Soil/Solid (dry weight)
B-8-2016(37.0')	1168600010	09/16/2016	09/20/2016	Soil/Solid (dry weight)
B-1-2016(47.0')	1168600011	09/14/2016	09/20/2016	Soil/Solid (dry weight)
B-2-2016(6.0')	1168600012	09/14/2016	09/20/2016	Soil/Solid (dry weight)
B-2-2016(36.0')	1168600013	09/14/2016	09/20/2016	Soil/Solid (dry weight)
B-2-2016(47.5')	1168600014	09/14/2016	09/20/2016	Soil/Solid (dry weight)
B-2-2016(49.5')	1168600015	09/14/2016	09/20/2016	Soil/Solid (dry weight)
B-3-2016(33.0')	1168600016	09/15/2016	09/20/2016	Soil/Solid (dry weight)
B-4-2016(11.0')	1168600017	09/15/2016	09/20/2016	Soil/Solid (dry weight)
B-4-2016(35.0')	1168600018	09/15/2016	09/20/2016	Soil/Solid (dry weight)
B-1001	1168600019	09/15/2016	09/20/2016	Soil/Solid (dry weight)
B-1002	1168600020	09/15/2016	09/20/2016	Soil/Solid (dry weight)
Trip Blank	1168600021	09/15/2016	09/20/2016	Water (Surface, Eff., Ground)
Trip Blank	1168600022	09/14/2016	09/20/2016	Soil/Solid (dry weight)

<u>Method</u>	<u>Method Description</u>
8270D SIM LV (PAH)	8270 PAH SIM GC/MS Liq/Liq ext. LV
8270D SIM (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK101	AK101/8021 Combo.
SW8021B	AK101/8021 Combo.
AK101	AK101/8021 Combo. (S)
SW8021B	AK101/8021 Combo. (S)
AK102	Diesel/Residual Range Organics
AK103	Diesel/Residual Range Organics
AK102	DRO/RRO Low Volume Water
AK103	DRO/RRO Low Volume Water
SM21 2540G	Percent Solids SM2540G
SW8260B	Volatile Organic Compounds (W) FULL

### Detectable Results Summary

Client Sample ID: **B-1-2016(9-15-16)**

Lab Sample ID: 1168600001

**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	0.338J	mg/L

Client Sample ID: **B-6-2016(9-16-16)**

Lab Sample ID: 1168600002

**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	0.363J	mg/L

Client Sample ID: **B-2-2016(9-15-16)**

Lab Sample ID: 1168600003

**Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	0.731	ug/L
2-Methylnaphthalene	0.279	ug/L
Benzo(a)Anthracene	0.0166J	ug/L
Benzo[a]pyrene	0.0110J	ug/L
Dibenzo[a,h]anthracene	0.0119J	ug/L
Fluoranthene	0.0172J	ug/L
Fluorene	0.0288J	ug/L
Naphthalene	0.234	ug/L
Phenanthrene	0.0310J	ug/L
Pyrene	0.0202J	ug/L
Diesel Range Organics	1.11	mg/L
Gasoline Range Organics	0.0354J	mg/L

**Semivolatile Organic Fuels**

**Volatile Fuels**

Client Sample ID: **B-1004**

Lab Sample ID: 1168600004

**Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	0.796	ug/L
2-Methylnaphthalene	0.292	ug/L
Benzo(a)Anthracene	0.0166J	ug/L
Benzo[a]pyrene	0.0104J	ug/L
Dibenzo[a,h]anthracene	0.0122J	ug/L
Fluoranthene	0.0156J	ug/L
Naphthalene	0.236	ug/L
Phenanthrene	0.0315J	ug/L
Pyrene	0.0182J	ug/L
Diesel Range Organics	1.04	mg/L
Gasoline Range Organics	0.0315J	mg/L

**Semivolatile Organic Fuels**

**Volatile Fuels**

Client Sample ID: **KACI(9-15-16)**

Lab Sample ID: 1168600005

**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	0.276J	mg/L

Client Sample ID: **B-1003**

Lab Sample ID: 1168600006

**Volatile GC/MS**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1,2-Dichloroethane	0.290J	ug/L



### Detectable Results Summary

Client Sample ID: **B-6-2016(36.0')**

Lab Sample ID: 1168600007

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	26.7	mg/Kg
Residual Range Organics	163	mg/Kg
Gasoline Range Organics	1.19J	mg/Kg
o-Xylene	0.0340	mg/Kg
P & M -Xylene	0.0725	mg/Kg

Client Sample ID: **B-5-2016(27.5')**

Lab Sample ID: 1168600008

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	805	mg/Kg
Residual Range Organics	20.4	mg/Kg
Benzene	0.00684J	mg/Kg
Ethylbenzene	0.0428	mg/Kg
Gasoline Range Organics	18.3	mg/Kg
o-Xylene	0.271	mg/Kg
P & M -Xylene	0.388	mg/Kg
Toluene	0.0185J	mg/Kg

Client Sample ID: **B-7-2016(37.0')**

Lab Sample ID: 1168600009

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Gasoline Range Organics	1.81J	mg/Kg
o-Xylene	0.0170J	mg/Kg
P & M -Xylene	0.0513J	mg/Kg

Client Sample ID: **B-8-2016(37.0')**

Lab Sample ID: 1168600010

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	557	mg/Kg
Residual Range Organics	46.0	mg/Kg
Gasoline Range Organics	1.52J	mg/Kg
o-Xylene	0.0432	mg/Kg
P & M -Xylene	0.0671	mg/Kg

Client Sample ID: **B-1-2016(47.0')**

Lab Sample ID: 1168600011

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Residual Range Organics	16.7J	mg/Kg
Gasoline Range Organics	10.6	mg/Kg
o-Xylene	0.0240J	mg/Kg
P & M -Xylene	0.0727J	mg/Kg
Toluene	0.0709	mg/Kg

Print Date: 10/10/2016 11:35:52AM

SGS North America Inc.

200 West Potter Drive, Anchorage, AK 99518  
t 907.562.2343 f 907.561.5301 www.us.sgs.com

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### Detectable Results Summary

Client Sample ID: **B-2-2016(6.0')**

Lab Sample ID: 1168600012

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	10400	mg/Kg
Residual Range Organics	258	mg/Kg
Ethylbenzene	0.0136J	mg/Kg
Gasoline Range Organics	61.4	mg/Kg
o-Xylene	1.63	mg/Kg
P & M -Xylene	0.485	mg/Kg
Toluene	0.0149J	mg/Kg

Client Sample ID: **B-2-2016(36.0')**

Lab Sample ID: 1168600013

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	18.6J	mg/Kg
Residual Range Organics	14.6J	mg/Kg
Gasoline Range Organics	5.71	mg/Kg
o-Xylene	0.0212J	mg/Kg
P & M -Xylene	0.0462J	mg/Kg

Client Sample ID: **B-2-2016(47.5')**

Lab Sample ID: 1168600014

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	56.5	mg/Kg
Residual Range Organics	23.7J	mg/Kg
Ethylbenzene	1.39	mg/Kg
Gasoline Range Organics	38.3	mg/Kg
o-Xylene	1.83	mg/Kg
P & M -Xylene	4.41	mg/Kg
Toluene	0.224	mg/Kg

Client Sample ID: **B-2-2016(49.5')**

Lab Sample ID: 1168600015

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	11.9J	mg/Kg
Residual Range Organics	18.3J	mg/Kg
Ethylbenzene	0.0732	mg/Kg
Gasoline Range Organics	3.07J	mg/Kg
o-Xylene	0.138	mg/Kg
P & M -Xylene	0.151	mg/Kg

Client Sample ID: **B-3-2016(33.0')**

Lab Sample ID: 1168600016

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	28.6	mg/Kg
Residual Range Organics	23.1	mg/Kg
Benzene	0.00735J	mg/Kg
Gasoline Range Organics	3.19J	mg/Kg
o-Xylene	0.159	mg/Kg
P & M -Xylene	0.253	mg/Kg
Toluene	0.0246J	mg/Kg

Print Date: 10/10/2016 11:35:52AM

### Detectable Results Summary

Client Sample ID: **B-4-2016(11.0')**

Lab Sample ID: 1168600017

**Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	39.2	mg/Kg
2-Methylnaphthalene	47.8	mg/Kg
Anthracene	0.578	mg/Kg
Fluorene	2.40	mg/Kg
Naphthalene	40.4	mg/Kg
Phenanthrene	2.23	mg/Kg
Pyrene	0.109J	mg/Kg

**Semivolatile Organic Fuels**

Diesel Range Organics	9550	mg/Kg
Residual Range Organics	175	mg/Kg

**Volatile Fuels**

Benzene	0.418J	mg/Kg
Ethylbenzene	1.01	mg/Kg
Gasoline Range Organics	3400	mg/Kg
o-Xylene	726	mg/Kg
P & M -Xylene	1080	mg/Kg
Toluene	3.62	mg/Kg

Client Sample ID: **B-4-2016(35.0')**

Lab Sample ID: 1168600018

**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	487	mg/Kg
Residual Range Organics	63.7	mg/Kg
Gasoline Range Organics	2.77J	mg/Kg
o-Xylene	0.154	mg/Kg
P & M -Xylene	0.251	mg/Kg
Toluene	0.0137J	mg/Kg

**Volatile Fuels**

Client Sample ID: **B-1001**

Lab Sample ID: 1168600019

**Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	35.7	mg/Kg
2-Methylnaphthalene	42.9	mg/Kg
Anthracene	0.506	mg/Kg
Fluorene	2.17	mg/Kg
Naphthalene	36.7	mg/Kg
Phenanthrene	2.08	mg/Kg
Pyrene	0.112J	mg/Kg

Client Sample ID: **B-1002**

Lab Sample ID: 1168600020

**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	600	mg/Kg
Residual Range Organics	22.5	mg/Kg

**Volatile Fuels**

Ethylbenzene	0.0419	mg/Kg
Gasoline Range Organics	17.4	mg/Kg
o-Xylene	0.159	mg/Kg
P & M -Xylene	0.0678	mg/Kg



## Detectable Results Summary

Client Sample ID: **Trip Blank**

Lab Sample ID: 1168600022

### Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Gasoline Range Organics	0.802J	mg/Kg
o-Xylene	0.00881J	mg/Kg
P & M -Xylene	0.0215J	mg/Kg



Results of **B-1-2016(9-15-16)**

Client Sample ID: **B-1-2016(9-15-16)**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600001  
Lab Project ID: 1168600

Collection Date: 09/15/16 20:00  
Received Date: 09/20/16 09:57  
Matrix: Water (Surface, Eff., Ground)  
Solids (%):  
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	0.338 J	0.566	0.170	mg/L	1		09/29/16 17:20

**Surrogates**

5a Androstane (surr)	97.5	50-150		%	1		09/29/16 17:20
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**Batch Information**

Analytical Batch: XFC12888  
Analytical Method: AK102  
Analyst: CRA  
Analytical Date/Time: 09/29/16 17:20  
Container ID: 1168600001-D

Prep Batch: XXX36396  
Prep Method: SW3520C  
Prep Date/Time: 09/27/16 09:43  
Prep Initial Wt./Vol.: 265 mL  
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	0.236 U	0.472	0.142	mg/L	1		09/29/16 17:20

**Surrogates**

n-Triacontane-d62 (surr)	92.2	50-150		%	1		09/29/16 17:20
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**Batch Information**

Analytical Batch: XFC12888  
Analytical Method: AK103  
Analyst: CRA  
Analytical Date/Time: 09/29/16 17:20  
Container ID: 1168600001-D

Prep Batch: XXX36396  
Prep Method: SW3520C  
Prep Date/Time: 09/27/16 09:43  
Prep Initial Wt./Vol.: 265 mL  
Prep Extract Vol: 1 mL



Results of **B-1-2016(9-15-16)**

Client Sample ID: **B-1-2016(9-15-16)**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600001  
Lab Project ID: 1168600

Collection Date: 09/15/16 20:00  
Received Date: 09/20/16 09:57  
Matrix: Water (Surface, Eff., Ground)  
Solids (%):  
Location:

Results by **Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.0500 U	0.100	0.0310	mg/L	1		09/27/16 16:52

**Surrogates**

4-Bromofluorobenzene (surr)	86.2	50-150		%	1		09/27/16 16:52
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**Batch Information**

Analytical Batch: VFC13331  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/27/16 16:52  
Container ID: 1168600001-A

Prep Batch: VXX29647  
Prep Method: SW5030B  
Prep Date/Time: 09/27/16 06:00  
Prep Initial Wt./Vol.: 5 mL  
Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.250 U	0.500	0.150	ug/L	1		09/27/16 16:52
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		09/27/16 16:52
o-Xylene	0.500 U	1.00	0.310	ug/L	1		09/27/16 16:52
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		09/27/16 16:52
Toluene	0.500 U	1.00	0.310	ug/L	1		09/27/16 16:52

**Surrogates**

1,4-Difluorobenzene (surr)	95.9	77-115		%	1		09/27/16 16:52
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**Batch Information**

Analytical Batch: VFC13331  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/27/16 16:52  
Container ID: 1168600001-A

Prep Batch: VXX29647  
Prep Method: SW5030B  
Prep Date/Time: 09/27/16 06:00  
Prep Initial Wt./Vol.: 5 mL  
Prep Extract Vol: 5 mL



Results of **B-6-2016(9-16-16)**

Client Sample ID: **B-6-2016(9-16-16)**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600002  
Lab Project ID: 1168600

Collection Date: 09/16/16 12:50  
Received Date: 09/20/16 09:57  
Matrix: Water (Surface, Eff., Ground)  
Solids (%):  
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	0.363 J	0.688	0.206	mg/L	1		09/29/16 17:30

**Surrogates**

5a Androstane (surr)	106	50-150		%	1		09/29/16 17:30
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**Batch Information**

Analytical Batch: XFC12888  
Analytical Method: AK102  
Analyst: CRA  
Analytical Date/Time: 09/29/16 17:30  
Container ID: 1168600002-D

Prep Batch: XXX36396  
Prep Method: SW3520C  
Prep Date/Time: 09/27/16 09:43  
Prep Initial Wt./Vol.: 218 mL  
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	0.286 U	0.573	0.172	mg/L	1		09/29/16 17:30

**Surrogates**

n-Triacontane-d62 (surr)	104	50-150		%	1		09/29/16 17:30
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**Batch Information**

Analytical Batch: XFC12888  
Analytical Method: AK103  
Analyst: CRA  
Analytical Date/Time: 09/29/16 17:30  
Container ID: 1168600002-D

Prep Batch: XXX36396  
Prep Method: SW3520C  
Prep Date/Time: 09/27/16 09:43  
Prep Initial Wt./Vol.: 218 mL  
Prep Extract Vol: 1 mL



Results of B-6-2016(9-16-16)

Client Sample ID: B-6-2016(9-16-16)
Client Project ID: Interior Texaco
Lab Sample ID: 1168600002
Lab Project ID: 1168600

Collection Date: 09/16/16 12:50
Received Date: 09/20/16 09:57
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 0.0500 U, 0.100, 0.0310, mg/L, 1, 09/27/16 17:11

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 86, 50-150, %, 1, 09/27/16 17:11

Batch Information

Analytical Batch: VFC13331
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/27/16 17:11
Container ID: 1168600002-A

Prep Batch: VXX29647
Prep Method: SW5030B
Prep Date/Time: 09/27/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 92.1, 77-115, %, 1, 09/27/16 17:11

Batch Information

Analytical Batch: VFC13331
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/27/16 17:11
Container ID: 1168600002-A

Prep Batch: VXX29647
Prep Method: SW5030B
Prep Date/Time: 09/27/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of B-2-2016(9-15-16)

Client Sample ID: B-2-2016(9-15-16)
Client Project ID: Interior Texaco
Lab Sample ID: 1168600003
Lab Project ID: 1168600

Collection Date: 09/15/16 19:10
Received Date: 09/20/16 09:57
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Polynuclear Aromatics GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various polynuclear aromatic hydrocarbons and their surrogate compounds with associated quality and detection data.

Batch Information

Analytical Batch: XMS9632
Analytical Method: 8270D SIM LV (PAH)
Analyst: S.G
Analytical Date/Time: 09/23/16 08:25
Container ID: 1168600003-F

Prep Batch: XXX36351
Prep Method: SW3520C
Prep Date/Time: 09/21/16 08:46
Prep Initial Wt./Vol.: 232 mL
Prep Extract Vol: 1 mL



Results of **B-2-2016(9-15-16)**

Client Sample ID: **B-2-2016(9-15-16)**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600003  
Lab Project ID: 1168600

Collection Date: 09/15/16 19:10  
Received Date: 09/20/16 09:57  
Matrix: Water (Surface, Eff., Ground)  
Solids (%):  
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	1.11	0.636	0.191	mg/L	1		09/29/16 17:59

**Surrogates**

5a Androstane (surr)	104	50-150		%	1		09/29/16 17:59
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**Batch Information**

Analytical Batch: XFC12888  
Analytical Method: AK102  
Analyst: CRA  
Analytical Date/Time: 09/29/16 17:59  
Container ID: 1168600003-D

Prep Batch: XXX36396  
Prep Method: SW3520C  
Prep Date/Time: 09/27/16 09:43  
Prep Initial Wt./Vol.: 236 mL  
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	0.265 U	0.530	0.159	mg/L	1		09/29/16 17:59

**Surrogates**

n-Triacontane-d62 (surr)	99.9	50-150		%	1		09/29/16 17:59
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**Batch Information**

Analytical Batch: XFC12888  
Analytical Method: AK103  
Analyst: CRA  
Analytical Date/Time: 09/29/16 17:59  
Container ID: 1168600003-D

Prep Batch: XXX36396  
Prep Method: SW3520C  
Prep Date/Time: 09/27/16 09:43  
Prep Initial Wt./Vol.: 236 mL  
Prep Extract Vol: 1 mL



Results of **B-2-2016(9-15-16)**

Client Sample ID: **B-2-2016(9-15-16)**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600003  
Lab Project ID: 1168600

Collection Date: 09/15/16 19:10  
Received Date: 09/20/16 09:57  
Matrix: Water (Surface, Eff., Ground)  
Solids (%):  
Location:

Results by **Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.0354 J	0.100	0.0310	mg/L	1		09/27/16 17:29

**Surrogates**

4-Bromofluorobenzene (surr)	85.5	50-150		%	1		09/27/16 17:29
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**Batch Information**

Analytical Batch: VFC13331  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/27/16 17:29  
Container ID: 1168600003-A

Prep Batch: VXX29647  
Prep Method: SW5030B  
Prep Date/Time: 09/27/16 06:00  
Prep Initial Wt./Vol.: 5 mL  
Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.250 U	0.500	0.150	ug/L	1		09/27/16 17:29
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		09/27/16 17:29
o-Xylene	0.500 U	1.00	0.310	ug/L	1		09/27/16 17:29
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		09/27/16 17:29
Toluene	0.500 U	1.00	0.310	ug/L	1		09/27/16 17:29

**Surrogates**

1,4-Difluorobenzene (surr)	98.1	77-115		%	1		09/27/16 17:29
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**Batch Information**

Analytical Batch: VFC13331  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/27/16 17:29  
Container ID: 1168600003-A

Prep Batch: VXX29647  
Prep Method: SW5030B  
Prep Date/Time: 09/27/16 06:00  
Prep Initial Wt./Vol.: 5 mL  
Prep Extract Vol: 5 mL





Results of B-1004

Client Sample ID: B-1004
Client Project ID: Interior Texaco
Lab Sample ID: 1168600004
Lab Project ID: 1168600

Collection Date: 09/15/16 19:40
Received Date: 09/20/16 09:57
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Polynuclear Aromatics GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various polynuclear aromatic hydrocarbons and their detection results.

Batch Information

Analytical Batch: XMS9632
Analytical Method: 8270D SIM LV (PAH)
Analyst: S.G
Analytical Date/Time: 09/23/16 08:47
Container ID: 1168600004-F

Prep Batch: XXX36351
Prep Method: SW3520C
Prep Date/Time: 09/21/16 08:46
Prep Initial Wt./Vol.: 244 mL
Prep Extract Vol: 1 mL



Results of **B-1004**

Client Sample ID: **B-1004**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600004  
Lab Project ID: 1168600

Collection Date: 09/15/16 19:40  
Received Date: 09/20/16 09:57  
Matrix: Water (Surface, Eff., Ground)  
Solids (%):  
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	1.04	0.636	0.191	mg/L	1		09/29/16 18:09

**Surrogates**

5a Androstane (surr)	105	50-150		%	1		09/29/16 18:09
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**Batch Information**

Analytical Batch: XFC12888  
Analytical Method: AK102  
Analyst: CRA  
Analytical Date/Time: 09/29/16 18:09  
Container ID: 1168600004-D

Prep Batch: XXX36396  
Prep Method: SW3520C  
Prep Date/Time: 09/27/16 09:43  
Prep Initial Wt./Vol.: 236 mL  
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	0.265 U	0.530	0.159	mg/L	1		09/29/16 18:09

**Surrogates**

n-Triacontane-d62 (surr)	103	50-150		%	1		09/29/16 18:09
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**Batch Information**

Analytical Batch: XFC12888  
Analytical Method: AK103  
Analyst: CRA  
Analytical Date/Time: 09/29/16 18:09  
Container ID: 1168600004-D

Prep Batch: XXX36396  
Prep Method: SW3520C  
Prep Date/Time: 09/27/16 09:43  
Prep Initial Wt./Vol.: 236 mL  
Prep Extract Vol: 1 mL



Results of B-1004

Client Sample ID: B-1004
Client Project ID: Interior Texaco
Lab Sample ID: 1168600004
Lab Project ID: 1168600

Collection Date: 09/15/16 19:40
Received Date: 09/20/16 09:57
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 0.0315 J, 0.100, 0.0310, mg/L, 1, 09/27/16 17:48

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 87.4, 50-150, %, 1, 09/27/16 17:48

Batch Information

Analytical Batch: VFC13331
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/27/16 17:48
Container ID: 1168600004-A

Prep Batch: VXX29647
Prep Method: SW5030B
Prep Date/Time: 09/27/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 94.9, 77-115, %, 1, 09/27/16 17:48

Batch Information

Analytical Batch: VFC13331
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/27/16 17:48
Container ID: 1168600004-A

Prep Batch: VXX29647
Prep Method: SW5030B
Prep Date/Time: 09/27/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of **KACI(9-15-16)**

Client Sample ID: **KACI(9-15-16)**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600005  
Lab Project ID: 1168600

Collection Date: 09/15/16 18:15  
Received Date: 09/20/16 09:57  
Matrix: Water (Surface, Eff., Ground)  
Solids (%):  
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	0.276 J	0.641	0.192	mg/L	1		09/29/16 18:18

**Surrogates**

5a Androstane (surr)	92.3	50-150		%	1		09/29/16 18:18
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**Batch Information**

Analytical Batch: XFC12888  
Analytical Method: AK102  
Analyst: CRA  
Analytical Date/Time: 09/29/16 18:18  
Container ID: 1168600005-D

Prep Batch: XXX36396  
Prep Method: SW3520C  
Prep Date/Time: 09/27/16 09:43  
Prep Initial Wt./Vol.: 234 mL  
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	0.267 U	0.534	0.160	mg/L	1		09/29/16 18:18

**Surrogates**

n-Triacontane-d62 (surr)	91.9	50-150		%	1		09/29/16 18:18
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**Batch Information**

Analytical Batch: XFC12888  
Analytical Method: AK103  
Analyst: CRA  
Analytical Date/Time: 09/29/16 18:18  
Container ID: 1168600005-D

Prep Batch: XXX36396  
Prep Method: SW3520C  
Prep Date/Time: 09/27/16 09:43  
Prep Initial Wt./Vol.: 234 mL  
Prep Extract Vol: 1 mL



**Results of KACI(9-15-16)**

Client Sample ID: **KACI(9-15-16)**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600005  
Lab Project ID: 1168600

Collection Date: 09/15/16 18:15  
Received Date: 09/20/16 09:57  
Matrix: Water (Surface, Eff., Ground)  
Solids (%):  
Location:

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.0500 U	0.100	0.0310	mg/L	1		09/27/16 18:07

**Surrogates**

4-Bromofluorobenzene (surr)	90.3	50-150		%	1		09/27/16 18:07
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**Batch Information**

Analytical Batch: VFC13331  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/27/16 18:07  
Container ID: 1168600005-A

Prep Batch: VXX29647  
Prep Method: SW5030B  
Prep Date/Time: 09/27/16 06:00  
Prep Initial Wt./Vol.: 5 mL  
Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.250 U	0.500	0.150	ug/L	1		09/27/16 18:07
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		09/27/16 18:07
o-Xylene	0.500 U	1.00	0.310	ug/L	1		09/27/16 18:07
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		09/27/16 18:07
Toluene	0.500 U	1.00	0.310	ug/L	1		09/27/16 18:07

**Surrogates**

1,4-Difluorobenzene (surr)	93.5	77-115		%	1		09/27/16 18:07
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**Batch Information**

Analytical Batch: VFC13331  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/27/16 18:07  
Container ID: 1168600005-A

Prep Batch: VXX29647  
Prep Method: SW5030B  
Prep Date/Time: 09/27/16 06:00  
Prep Initial Wt./Vol.: 5 mL  
Prep Extract Vol: 5 mL



Results of **KACI(9-15-16)**

Client Sample ID: **KACI(9-15-16)**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600005  
Lab Project ID: 1168600

Collection Date: 09/15/16 18:15  
Received Date: 09/20/16 09:57  
Matrix: Water (Surface, Eff., Ground)  
Solids (%):  
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	0.250 U	0.500	0.150	ug/L	1		09/21/16 17:56
1,1,1-Trichloroethane	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
1,1,2,2-Tetrachloroethane	0.250 U	0.500	0.150	ug/L	1		09/21/16 17:56
1,1,2-Trichloroethane	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
1,1-Dichloroethane	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
1,1-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
1,1-Dichloropropene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
1,2,3-Trichlorobenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
1,2,3-Trichloropropane	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
1,2,4-Trichlorobenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
1,2,4-Trimethylbenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
1,2-Dibromo-3-chloropropane	5.00 U	10.0	3.10	ug/L	1		09/21/16 17:56
1,2-Dibromoethane	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
1,2-Dichlorobenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
1,2-Dichloroethane	0.250 U	0.500	0.150	ug/L	1		09/21/16 17:56
1,2-Dichloropropane	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
1,3,5-Trimethylbenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
1,3-Dichlorobenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
1,3-Dichloropropane	0.250 U	0.500	0.150	ug/L	1		09/21/16 17:56
1,4-Dichlorobenzene	0.250 U	0.500	0.150	ug/L	1		09/21/16 17:56
2,2-Dichloropropane	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
2-Butanone (MEK)	5.00 U	10.0	3.10	ug/L	1		09/21/16 17:56
2-Chlorotoluene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
2-Hexanone	5.00 U	10.0	3.10	ug/L	1		09/21/16 17:56
4-Chlorotoluene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
4-Isopropyltoluene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
4-Methyl-2-pentanone (MIBK)	5.00 U	10.0	3.10	ug/L	1		09/21/16 17:56
Benzene	0.200 U	0.400	0.120	ug/L	1		09/21/16 17:56
Bromobenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
Bromochloromethane	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
Bromodichloromethane	0.250 U	0.500	0.150	ug/L	1		09/21/16 17:56
Bromoform	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
Bromomethane	5.00 U	10.0	3.10	ug/L	1		09/21/16 17:56
Carbon disulfide	5.00 U	10.0	3.10	ug/L	1		09/21/16 17:56
Carbon tetrachloride	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
Chlorobenzene	0.250 U	0.500	0.150	ug/L	1		09/21/16 17:56
Chloroethane	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56



Results of **KACI(9-15-16)**

Client Sample ID: **KACI(9-15-16)**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600005  
Lab Project ID: 1168600

Collection Date: 09/15/16 18:15  
Received Date: 09/20/16 09:57  
Matrix: Water (Surface, Eff., Ground)  
Solids (%):  
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	0.500 U	1.00	0.300	ug/L	1		09/21/16 17:56
Chloromethane	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
cis-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
cis-1,3-Dichloropropene	0.250 U	0.500	0.150	ug/L	1		09/21/16 17:56
Dibromochloromethane	0.250 U	0.500	0.150	ug/L	1		09/21/16 17:56
Dibromomethane	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
Dichlorodifluoromethane	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
Freon-113	5.00 U	10.0	3.10	ug/L	1		09/21/16 17:56
Hexachlorobutadiene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
Isopropylbenzene (Cumene)	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
Methylene chloride	2.50 U	5.00	1.00	ug/L	1		09/21/16 17:56
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		09/21/16 17:56
Naphthalene	5.00 U	10.0	3.10	ug/L	1		09/21/16 17:56
n-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
n-Propylbenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
o-Xylene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		09/21/16 17:56
sec-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
Styrene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
tert-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
Tetrachloroethene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
Toluene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
trans-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
trans-1,3-Dichloropropene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
Trichloroethene	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
Trichlorofluoromethane	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
Vinyl acetate	5.00 U	10.0	3.10	ug/L	1		09/21/16 17:56
Vinyl chloride	0.500 U	1.00	0.310	ug/L	1		09/21/16 17:56
Xylenes (total)	1.50 U	3.00	1.00	ug/L	1		09/21/16 17:56
<b>Surrogates</b>							
1,2-Dichloroethane-D4 (surr)	110	81-118		%	1		09/21/16 17:56
4-Bromofluorobenzene (surr)	90.8	85-114		%	1		09/21/16 17:56
Toluene-d8 (surr)	103	89-112		%	1		09/21/16 17:56

## Results of **KACI(9-15-16)**

Client Sample ID: **KACI(9-15-16)**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600005  
Lab Project ID: 1168600

Collection Date: 09/15/16 18:15  
Received Date: 09/20/16 09:57  
Matrix: Water (Surface, Eff., Ground)  
Solids (%):  
Location:

## Results by **Volatile GC/MS**

### Batch Information

Analytical Batch: VMS16214  
Analytical Method: SW8260B  
Analyst: TJT  
Analytical Date/Time: 09/21/16 17:56  
Container ID: 1168600005-F

Prep Batch: VXX29621  
Prep Method: SW5030B  
Prep Date/Time: 09/21/16 06:00  
Prep Initial Wt./Vol.: 5 mL  
Prep Extract Vol: 5 mL





Results of **B-1003**

Client Sample ID: **B-1003**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600006  
Lab Project ID: 1168600

Collection Date: 09/15/16 18:45  
Received Date: 09/20/16 09:57  
Matrix: Water (Surface, Eff., Ground)  
Solids (%):  
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	0.250 U	0.500	0.150	ug/L	1		09/21/16 18:12
1,1,1-Trichloroethane	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
1,1,2,2-Tetrachloroethane	0.250 U	0.500	0.150	ug/L	1		09/21/16 18:12
1,1,2-Trichloroethane	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
1,1-Dichloroethane	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
1,1-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
1,1-Dichloropropene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
1,2,3-Trichlorobenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
1,2,3-Trichloropropane	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
1,2,4-Trichlorobenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
1,2,4-Trimethylbenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
1,2-Dibromo-3-chloropropane	5.00 U	10.0	3.10	ug/L	1		09/21/16 18:12
1,2-Dibromoethane	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
1,2-Dichlorobenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
1,2-Dichloroethane	0.290 J	0.500	0.150	ug/L	1		09/21/16 18:12
1,2-Dichloropropane	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
1,3,5-Trimethylbenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
1,3-Dichlorobenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
1,3-Dichloropropane	0.250 U	0.500	0.150	ug/L	1		09/21/16 18:12
1,4-Dichlorobenzene	0.250 U	0.500	0.150	ug/L	1		09/21/16 18:12
2,2-Dichloropropane	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
2-Butanone (MEK)	5.00 U	10.0	3.10	ug/L	1		09/21/16 18:12
2-Chlorotoluene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
2-Hexanone	5.00 U	10.0	3.10	ug/L	1		09/21/16 18:12
4-Chlorotoluene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
4-Isopropyltoluene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
4-Methyl-2-pentanone (MIBK)	5.00 U	10.0	3.10	ug/L	1		09/21/16 18:12
Benzene	0.200 U	0.400	0.120	ug/L	1		09/21/16 18:12
Bromobenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
Bromochloromethane	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
Bromodichloromethane	0.250 U	0.500	0.150	ug/L	1		09/21/16 18:12
Bromoform	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
Bromomethane	5.00 U	10.0	3.10	ug/L	1		09/21/16 18:12
Carbon disulfide	5.00 U	10.0	3.10	ug/L	1		09/21/16 18:12
Carbon tetrachloride	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
Chlorobenzene	0.250 U	0.500	0.150	ug/L	1		09/21/16 18:12
Chloroethane	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12

Print Date: 10/10/2016 11:35:53AM

J flagging is activated



Results of **B-1003**

Client Sample ID: **B-1003**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600006  
Lab Project ID: 1168600

Collection Date: 09/15/16 18:45  
Received Date: 09/20/16 09:57  
Matrix: Water (Surface, Eff., Ground)  
Solids (%):  
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	0.500 U	1.00	0.300	ug/L	1		09/21/16 18:12
Chloromethane	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
cis-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
cis-1,3-Dichloropropene	0.250 U	0.500	0.150	ug/L	1		09/21/16 18:12
Dibromochloromethane	0.250 U	0.500	0.150	ug/L	1		09/21/16 18:12
Dibromomethane	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
Dichlorodifluoromethane	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
Freon-113	5.00 U	10.0	3.10	ug/L	1		09/21/16 18:12
Hexachlorobutadiene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
Isopropylbenzene (Cumene)	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
Methylene chloride	2.50 U	5.00	1.00	ug/L	1		09/21/16 18:12
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		09/21/16 18:12
Naphthalene	5.00 U	10.0	3.10	ug/L	1		09/21/16 18:12
n-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
n-Propylbenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
o-Xylene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		09/21/16 18:12
sec-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
Styrene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
tert-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
Tetrachloroethene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
Toluene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
trans-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
trans-1,3-Dichloropropene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
Trichloroethene	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
Trichlorofluoromethane	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
Vinyl acetate	5.00 U	10.0	3.10	ug/L	1		09/21/16 18:12
Vinyl chloride	0.500 U	1.00	0.310	ug/L	1		09/21/16 18:12
Xylenes (total)	1.50 U	3.00	1.00	ug/L	1		09/21/16 18:12
<b>Surrogates</b>							
1,2-Dichloroethane-D4 (surr)	110	81-118		%	1		09/21/16 18:12
4-Bromofluorobenzene (surr)	94.9	85-114		%	1		09/21/16 18:12
Toluene-d8 (surr)	99.5	89-112		%	1		09/21/16 18:12

## Results of B-1003

Client Sample ID: **B-1003**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600006  
Lab Project ID: 1168600

Collection Date: 09/15/16 18:45  
Received Date: 09/20/16 09:57  
Matrix: Water (Surface, Eff., Ground)  
Solids (%):  
Location:

## Results by Volatile GC/MS

### Batch Information

Analytical Batch: VMS16214  
Analytical Method: SW8260B  
Analyst: TJT  
Analytical Date/Time: 09/21/16 18:12  
Container ID: 1168600006-A

Prep Batch: VXX29621  
Prep Method: SW5030B  
Prep Date/Time: 09/21/16 06:00  
Prep Initial Wt./Vol.: 5 mL  
Prep Extract Vol: 5 mL



Results of **B-6-2016(36.0')**

Client Sample ID: **B-6-2016(36.0')**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600007  
Lab Project ID: 1168600

Collection Date: 09/16/16 11:40  
Received Date: 09/20/16 09:57  
Matrix: Soil/Solid (dry weight)  
Solids (%):95.4  
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	26.7	20.7	6.42	mg/Kg	1		09/22/16 05:13

**Surrogates**

5a Androstane (surr)	111	50-150		%	1		09/22/16 05:13
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**Batch Information**

Analytical Batch: XFC12866  
Analytical Method: AK102  
Analyst: NRO  
Analytical Date/Time: 09/22/16 05:13  
Container ID: 1168600007-A

Prep Batch: XXX36358  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 16:10  
Prep Initial Wt./Vol.: 30.366 g  
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	163	20.7	6.42	mg/Kg	1		09/22/16 05:13

**Surrogates**

n-Triacontane-d62 (surr)	101	50-150		%	1		09/22/16 05:13
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**Batch Information**

Analytical Batch: XFC12866  
Analytical Method: AK103  
Analyst: NRO  
Analytical Date/Time: 09/22/16 05:13  
Container ID: 1168600007-A

Prep Batch: XXX36358  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 16:10  
Prep Initial Wt./Vol.: 30.366 g  
Prep Extract Vol: 1 mL



Results of B-6-2016(36.0')

Client Sample ID: B-6-2016(36.0')
Client Project ID: Interior Texaco
Lab Sample ID: 1168600007
Lab Project ID: 1168600

Collection Date: 09/16/16 11:40
Received Date: 09/20/16 09:57
Matrix: Soil/Solid (dry weight)
Solids (%):95.4
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 1.19 J, 2.88, 0.863, mg/Kg, 1, 09/28/16 03:44

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 86.9, 50-150, %, 1, 09/28/16 03:44

Batch Information

Analytical Batch: VFC13330
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/28/16 03:44
Container ID: 1168600007-B

Prep Batch: VXX29648
Prep Method: SW5035A
Prep Date/Time: 09/16/16 11:40
Prep Initial Wt./Vol.: 49.737 g
Prep Extract Vol: 27.3028 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 89.1, 72-119, %, 1, 09/28/16 03:44

Batch Information

Analytical Batch: VFC13330
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/28/16 03:44
Container ID: 1168600007-B

Prep Batch: VXX29648
Prep Method: SW5035A
Prep Date/Time: 09/16/16 11:40
Prep Initial Wt./Vol.: 49.737 g
Prep Extract Vol: 27.3028 mL



Results of **B-5-2016(27.5')**

Client Sample ID: **B-5-2016(27.5')**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600008  
Lab Project ID: 1168600

Collection Date: 09/15/16 16:25  
Received Date: 09/20/16 09:57  
Matrix: Soil/Solid (dry weight)  
Solids (%):96.9  
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	805	102	31.7	mg/Kg	5		09/23/16 23:39

**Surrogates**

5a Androstane (surr)	116	50-150		%	5		09/23/16 23:39
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**Batch Information**

Analytical Batch: XFC12879  
Analytical Method: AK102  
Analyst: NRO  
Analytical Date/Time: 09/23/16 23:39  
Container ID: 1168600008-A

Prep Batch: XXX36358  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 16:10  
Prep Initial Wt./Vol.: 30.267 g  
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	20.4	20.5	6.34	mg/Kg	1		09/22/16 05:23

**Surrogates**

n-Triacontane-d62 (surr)	106	50-150		%	1		09/22/16 05:23
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**Batch Information**

Analytical Batch: XFC12866  
Analytical Method: AK103  
Analyst: NRO  
Analytical Date/Time: 09/22/16 05:23  
Container ID: 1168600008-A

Prep Batch: XXX36358  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 16:10  
Prep Initial Wt./Vol.: 30.267 g  
Prep Extract Vol: 1 mL



Results of B-5-2016(27.5')

Client Sample ID: B-5-2016(27.5')
Client Project ID: Interior Texaco
Lab Sample ID: 1168600008
Lab Project ID: 1168600

Collection Date: 09/15/16 16:25
Received Date: 09/20/16 09:57
Matrix: Soil/Solid (dry weight)
Solids (%):96.9
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 18.3, 3.42, 1.03, mg/Kg, 1, 09/27/16 19:08

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 214, \*, 50-150, %, 1, 09/27/16 19:08

Batch Information

Analytical Batch: VFC13334
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/27/16 19:08
Container ID: 1168600008-B

Prep Batch: VXX29645
Prep Method: SW5035A
Prep Date/Time: 09/15/16 16:25
Prep Initial Wt./Vol.: 39.542 g
Prep Extract Vol: 26.2228 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 88.7, 72-119, %, 1, 09/27/16 19:08

Batch Information

Analytical Batch: VFC13334
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/27/16 19:08
Container ID: 1168600008-B

Prep Batch: VXX29645
Prep Method: SW5035A
Prep Date/Time: 09/15/16 16:25
Prep Initial Wt./Vol.: 39.542 g
Prep Extract Vol: 26.2228 mL



Results of **B-7-2016(37.0')**

Client Sample ID: **B-7-2016(37.0')**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600009  
Lab Project ID: 1168600

Collection Date: 09/16/16 15:20  
Received Date: 09/20/16 09:57  
Matrix: Soil/Solid (dry weight)  
Solids (%):93.5  
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	10.7 U	21.3	6.61	mg/Kg	1		09/22/16 05:33

**Surrogates**

5a Androstane (surr)	97.6	50-150		%	1		09/22/16 05:33
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**Batch Information**

Analytical Batch: XFC12866  
Analytical Method: AK102  
Analyst: NRO  
Analytical Date/Time: 09/22/16 05:33  
Container ID: 1168600009-A

Prep Batch: XXX36358  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 16:10  
Prep Initial Wt./Vol.: 30.088 g  
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	10.7 U	21.3	6.61	mg/Kg	1		09/22/16 05:33

**Surrogates**

n-Triacontane-d62 (surr)	89.8	50-150		%	1		09/22/16 05:33
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**Batch Information**

Analytical Batch: XFC12866  
Analytical Method: AK103  
Analyst: NRO  
Analytical Date/Time: 09/22/16 05:33  
Container ID: 1168600009-A

Prep Batch: XXX36358  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 16:10  
Prep Initial Wt./Vol.: 30.088 g  
Prep Extract Vol: 1 mL





Results of B-7-2016(37.0')

Client Sample ID: B-7-2016(37.0')
Client Project ID: Interior Texaco
Lab Sample ID: 1168600009
Lab Project ID: 1168600

Collection Date: 09/16/16 15:20
Received Date: 09/20/16 09:57
Matrix: Soil/Solid (dry weight)
Solids (%):93.5
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row 1: Gasoline Range Organics, 1.81 J, 3.27, 0.980, mg/Kg, 1, 09/28/16 00:56

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row 1: 4-Bromofluorobenzene (surr), 90.7, 50-150, %, 1, 09/28/16 00:56

Batch Information

Analytical Batch: VFC13330
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/28/16 00:56
Container ID: 1168600009-B

Prep Batch: VXX29648
Prep Method: SW5035A
Prep Date/Time: 09/16/16 15:20
Prep Initial Wt./Vol.: 45.86 g
Prep Extract Vol: 28.0021 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row 1: 1,4-Difluorobenzene (surr), 91.2, 72-119, %, 1, 09/28/16 00:56

Batch Information

Analytical Batch: VFC13330
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/28/16 00:56
Container ID: 1168600009-B

Prep Batch: VXX29648
Prep Method: SW5035A
Prep Date/Time: 09/16/16 15:20
Prep Initial Wt./Vol.: 45.86 g
Prep Extract Vol: 28.0021 mL



Results of **B-8-2016(37.0')**

Client Sample ID: **B-8-2016(37.0')**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600010  
Lab Project ID: 1168600

Collection Date: 09/16/16 17:45  
Received Date: 09/20/16 09:57  
Matrix: Soil/Solid (dry weight)  
Solids (%):96.4  
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	557	20.7	6.41	mg/Kg	1		09/22/16 05:43

**Surrogates**

5a Androstane (surr)	103	50-150		%	1		09/22/16 05:43
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**Batch Information**

Analytical Batch: XFC12866  
Analytical Method: AK102  
Analyst: NRO  
Analytical Date/Time: 09/22/16 05:43  
Container ID: 1168600010-A

Prep Batch: XXX36358  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 16:10  
Prep Initial Wt./Vol.: 30.098 g  
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	46.0	20.7	6.41	mg/Kg	1		09/22/16 05:43

**Surrogates**

n-Triacontane-d62 (surr)	108	50-150		%	1		09/22/16 05:43
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**Batch Information**

Analytical Batch: XFC12866  
Analytical Method: AK103  
Analyst: NRO  
Analytical Date/Time: 09/22/16 05:43  
Container ID: 1168600010-A

Prep Batch: XXX36358  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 16:10  
Prep Initial Wt./Vol.: 30.098 g  
Prep Extract Vol: 1 mL



Results of **B-8-2016(37.0')**

Client Sample ID: **B-8-2016(37.0')**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600010  
Lab Project ID: 1168600

Collection Date: 09/16/16 17:45  
Received Date: 09/20/16 09:57  
Matrix: Soil/Solid (dry weight)  
Solids (%):96.4  
Location:

Results by **Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.52 J	2.57	0.771	mg/Kg	1		09/28/16 01:15

**Surrogates**

4-Bromofluorobenzene (surr)	87.7	50-150		%	1		09/28/16 01:15
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**Batch Information**

Analytical Batch: VFC13330  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/28/16 01:15  
Container ID: 1168600010-B

Prep Batch: VXX29648  
Prep Method: SW5035A  
Prep Date/Time: 09/16/16 17:45  
Prep Initial Wt./Vol.: 54.439 g  
Prep Extract Vol: 26.9745 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.00645 U	0.0129	0.00411	mg/Kg	1		09/28/16 01:15
Ethylbenzene	0.0129 U	0.0257	0.00802	mg/Kg	1		09/28/16 01:15
o-Xylene	0.0432	0.0257	0.00802	mg/Kg	1		09/28/16 01:15
P & M -Xylene	0.0671	0.0514	0.0154	mg/Kg	1		09/28/16 01:15
Toluene	0.0129 U	0.0257	0.00802	mg/Kg	1		09/28/16 01:15

**Surrogates**

1,4-Difluorobenzene (surr)	90.6	72-119		%	1		09/28/16 01:15
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**Batch Information**

Analytical Batch: VFC13330  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/28/16 01:15  
Container ID: 1168600010-B

Prep Batch: VXX29648  
Prep Method: SW5035A  
Prep Date/Time: 09/16/16 17:45  
Prep Initial Wt./Vol.: 54.439 g  
Prep Extract Vol: 26.9745 mL



Results of **B-1-2016(47.0')**

Client Sample ID: **B-1-2016(47.0')**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600011  
Lab Project ID: 1168600

Collection Date: 09/14/16 13:35  
Received Date: 09/20/16 09:57  
Matrix: Soil/Solid (dry weight)  
Solids (%):74.4  
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	13.3 U	26.6	8.26	mg/Kg	1		09/22/16 05:54

**Surrogates**

5a Androstane (surr)	94.1	50-150		%	1		09/22/16 05:54
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**Batch Information**

Analytical Batch: XFC12866  
Analytical Method: AK102  
Analyst: NRO  
Analytical Date/Time: 09/22/16 05:54  
Container ID: 1168600011-A

Prep Batch: XXX36358  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 16:10  
Prep Initial Wt./Vol.: 30.284 g  
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	16.7 J	26.6	8.26	mg/Kg	1		09/22/16 05:54

**Surrogates**

n-Triacontane-d62 (surr)	85	50-150		%	1		09/22/16 05:54
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**Batch Information**

Analytical Batch: XFC12866  
Analytical Method: AK103  
Analyst: NRO  
Analytical Date/Time: 09/22/16 05:54  
Container ID: 1168600011-A

Prep Batch: XXX36358  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 16:10  
Prep Initial Wt./Vol.: 30.284 g  
Prep Extract Vol: 1 mL



Results of **B-1-2016(47.0')**

Client Sample ID: **B-1-2016(47.0')**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600011  
Lab Project ID: 1168600

Collection Date: 09/14/16 13:35  
Received Date: 09/20/16 09:57  
Matrix: Soil/Solid (dry weight)  
Solids (%):74.4  
Location:

Results by **Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	10.6	6.01	1.80	mg/Kg	1		09/26/16 23:38

**Surrogates**

4-Bromofluorobenzene (surr)	92.2	50-150		%	1		09/26/16 23:38
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**Batch Information**

Analytical Batch: VFC13326  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/26/16 23:38  
Container ID: 1168600011-B

Prep Batch: VXX29639  
Prep Method: SW5035A  
Prep Date/Time: 09/14/16 13:35  
Prep Initial Wt./Vol.: 39.241 g  
Prep Extract Vol: 35.0565 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0150 U	0.0300	0.00961	mg/Kg	1		09/26/16 23:38
Ethylbenzene	0.0301 U	0.0601	0.0187	mg/Kg	1		09/26/16 23:38
o-Xylene	0.0240 J	0.0601	0.0187	mg/Kg	1		09/26/16 23:38
P & M -Xylene	0.0727 J	0.120	0.0360	mg/Kg	1		09/26/16 23:38
Toluene	0.0709	0.0601	0.0187	mg/Kg	1		09/26/16 23:38

**Surrogates**

1,4-Difluorobenzene (surr)	93.7	72-119		%	1		09/26/16 23:38
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**Batch Information**

Analytical Batch: VFC13326  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/26/16 23:38  
Container ID: 1168600011-B

Prep Batch: VXX29639  
Prep Method: SW5035A  
Prep Date/Time: 09/14/16 13:35  
Prep Initial Wt./Vol.: 39.241 g  
Prep Extract Vol: 35.0565 mL



Results of **B-2-2016(6.0')**

Client Sample ID: **B-2-2016(6.0')**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600012  
Lab Project ID: 1168600

Collection Date: 09/14/16 15:25  
Received Date: 09/20/16 09:57  
Matrix: Soil/Solid (dry weight)  
Solids (%):79.0  
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	10400	1010	314	mg/Kg	40		09/23/16 23:50
<b>Surrogates</b>							
5a Androstane (surr)	129	50-150		%	40		09/23/16 23:50

**Batch Information**

Analytical Batch: XFC12879  
Analytical Method: AK102  
Analyst: NRO  
Analytical Date/Time: 09/23/16 23:50  
Container ID: 1168600012-A

Prep Batch: XXX36358  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 16:10  
Prep Initial Wt./Vol.: 30.017 g  
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	258	25.3	7.84	mg/Kg	1		09/22/16 06:04
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	93.4	50-150		%	1		09/22/16 06:04

**Batch Information**

Analytical Batch: XFC12866  
Analytical Method: AK103  
Analyst: NRO  
Analytical Date/Time: 09/22/16 06:04  
Container ID: 1168600012-A

Prep Batch: XXX36358  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 16:10  
Prep Initial Wt./Vol.: 30.017 g  
Prep Extract Vol: 1 mL



Results of B-2-2016(6.0')

Client Sample ID: B-2-2016(6.0')
Client Project ID: Interior Texaco
Lab Sample ID: 1168600012
Lab Project ID: 1168600

Collection Date: 09/14/16 15:25
Received Date: 09/20/16 09:57
Matrix: Soil/Solid (dry weight)
Solids (%):79.0
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 61.4, 4.13, 1.24, mg/Kg, 1, 09/26/16 23:56

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 198 \*, 50-150, %, 1, 09/26/16 23:56

Batch Information

Analytical Batch: VFC13326
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/26/16 23:56
Container ID: 1168600012-B

Prep Batch: VXX29639
Prep Method: SW5035A
Prep Date/Time: 09/14/16 15:25
Prep Initial Wt./Vol.: 56.5 g
Prep Extract Vol: 36.8567 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 94.8, 72-119, %, 1, 09/26/16 23:56

Batch Information

Analytical Batch: VFC13326
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/26/16 23:56
Container ID: 1168600012-B

Prep Batch: VXX29639
Prep Method: SW5035A
Prep Date/Time: 09/14/16 15:25
Prep Initial Wt./Vol.: 56.5 g
Prep Extract Vol: 36.8567 mL



Results of **B-2-2016(36.0')**

Client Sample ID: **B-2-2016(36.0')**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600013  
Lab Project ID: 1168600

Collection Date: 09/14/16 16:50  
Received Date: 09/20/16 09:57  
Matrix: Soil/Solid (dry weight)  
Solids (%):92.5  
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	18.6 J	21.5	6.66	mg/Kg	1		09/22/16 06:14
<b>Surrogates</b>							
5a Androstane (surr)	100	50-150		%	1		09/22/16 06:14

**Batch Information**

Analytical Batch: XFC12866  
Analytical Method: AK102  
Analyst: NRO  
Analytical Date/Time: 09/22/16 06:14  
Container ID: 1168600013-A

Prep Batch: XXX36358  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 16:10  
Prep Initial Wt./Vol.: 30.179 g  
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	14.6 J	21.5	6.66	mg/Kg	1		09/22/16 06:14
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	96.5	50-150		%	1		09/22/16 06:14

**Batch Information**

Analytical Batch: XFC12866  
Analytical Method: AK103  
Analyst: NRO  
Analytical Date/Time: 09/22/16 06:14  
Container ID: 1168600013-A

Prep Batch: XXX36358  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 16:10  
Prep Initial Wt./Vol.: 30.179 g  
Prep Extract Vol: 1 mL





Results of **B-2-2016(36.0')**

Client Sample ID: **B-2-2016(36.0')**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600013  
Lab Project ID: 1168600

Collection Date: 09/14/16 16:50  
Received Date: 09/20/16 09:57  
Matrix: Soil/Solid (dry weight)  
Solids (%):92.5  
Location:

Results by **Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	5.71	5.43	1.63	mg/Kg	1		09/27/16 00:15

**Surrogates**

4-Bromofluorobenzene (surr)	78.9	50-150		%	1		09/27/16 00:15
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**Batch Information**

Analytical Batch: VFC13326  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/27/16 00:15  
Container ID: 1168600013-B

Prep Batch: VXX29639  
Prep Method: SW5035A  
Prep Date/Time: 09/14/16 16:50  
Prep Initial Wt./Vol.: 26.89 g  
Prep Extract Vol: 27.0185 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0136 U	0.0272	0.00869	mg/Kg	1		09/27/16 00:15
Ethylbenzene	0.0272 U	0.0543	0.0169	mg/Kg	1		09/27/16 00:15
o-Xylene	0.0212 J	0.0543	0.0169	mg/Kg	1		09/27/16 00:15
P & M -Xylene	0.0462 J	0.109	0.0326	mg/Kg	1		09/27/16 00:15
Toluene	0.0272 U	0.0543	0.0169	mg/Kg	1		09/27/16 00:15

**Surrogates**

1,4-Difluorobenzene (surr)	93.2	72-119		%	1		09/27/16 00:15
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**Batch Information**

Analytical Batch: VFC13326  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/27/16 00:15  
Container ID: 1168600013-B

Prep Batch: VXX29639  
Prep Method: SW5035A  
Prep Date/Time: 09/14/16 16:50  
Prep Initial Wt./Vol.: 26.89 g  
Prep Extract Vol: 27.0185 mL



Results of **B-2-2016(47.5')**

Client Sample ID: **B-2-2016(47.5')**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600014  
Lab Project ID: 1168600

Collection Date: 09/14/16 18:00  
Received Date: 09/20/16 09:57  
Matrix: Soil/Solid (dry weight)  
Solids (%):74.6  
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	56.5	26.6	8.24	mg/Kg	1		09/22/16 06:23
<b>Surrogates</b>							
5a Androstane (surr)	96.6	50-150		%	1		09/22/16 06:23

**Batch Information**

Analytical Batch: XFC12866  
Analytical Method: AK102  
Analyst: NRO  
Analytical Date/Time: 09/22/16 06:23  
Container ID: 1168600014-A

Prep Batch: XXX36358  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 16:10  
Prep Initial Wt./Vol.: 30.267 g  
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	23.7 J	26.6	8.24	mg/Kg	1		09/22/16 06:23
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	89.8	50-150		%	1		09/22/16 06:23

**Batch Information**

Analytical Batch: XFC12866  
Analytical Method: AK103  
Analyst: NRO  
Analytical Date/Time: 09/22/16 06:23  
Container ID: 1168600014-A

Prep Batch: XXX36358  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 16:10  
Prep Initial Wt./Vol.: 30.267 g  
Prep Extract Vol: 1 mL



Results of **B-2-2016(47.5')**

Client Sample ID: **B-2-2016(47.5')**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600014  
Lab Project ID: 1168600

Collection Date: 09/14/16 18:00  
Received Date: 09/20/16 09:57  
Matrix: Soil/Solid (dry weight)  
Solids (%):74.6  
Location:

Results by **Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	38.3	6.41	1.92	mg/Kg	1		09/27/16 00:33

**Surrogates**

4-Bromofluorobenzene (surr)	184 *	50-150		%	1		09/27/16 00:33
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**Batch Information**

Analytical Batch: VFC13326  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/27/16 00:33  
Container ID: 1168600014-B

Prep Batch: VXX29639  
Prep Method: SW5035A  
Prep Date/Time: 09/14/16 18:00  
Prep Initial Wt./Vol.: 35.609 g  
Prep Extract Vol: 34.05 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0160 U	0.0321	0.0103	mg/Kg	1		09/27/16 00:33
Ethylbenzene	1.39	0.0641	0.0200	mg/Kg	1		09/27/16 00:33
o-Xylene	1.83	0.0641	0.0200	mg/Kg	1		09/27/16 00:33
P & M -Xylene	4.41	0.128	0.0385	mg/Kg	1		09/27/16 00:33
Toluene	0.224	0.0641	0.0200	mg/Kg	1		09/27/16 00:33

**Surrogates**

1,4-Difluorobenzene (surr)	91.8	72-119		%	1		09/27/16 00:33
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**Batch Information**

Analytical Batch: VFC13326  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/27/16 00:33  
Container ID: 1168600014-B

Prep Batch: VXX29639  
Prep Method: SW5035A  
Prep Date/Time: 09/14/16 18:00  
Prep Initial Wt./Vol.: 35.609 g  
Prep Extract Vol: 34.05 mL



Results of **B-2-2016(49.5')**

Client Sample ID: **B-2-2016(49.5')**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600015  
Lab Project ID: 1168600

Collection Date: 09/14/16 18:10  
Received Date: 09/20/16 09:57  
Matrix: Soil/Solid (dry weight)  
Solids (%):76.4  
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	11.9 J	26.0	8.05	mg/Kg	1		09/22/16 06:33
<b>Surrogates</b>							
5a Androstane (surr)	97.8	50-150		%	1		09/22/16 06:33

**Batch Information**

Analytical Batch: XFC12866  
Analytical Method: AK102  
Analyst: NRO  
Analytical Date/Time: 09/22/16 06:33  
Container ID: 1168600015-A

Prep Batch: XXX36358  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 16:10  
Prep Initial Wt./Vol.: 30.234 g  
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	18.3 J	26.0	8.05	mg/Kg	1		09/22/16 06:33
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	101	50-150		%	1		09/22/16 06:33

**Batch Information**

Analytical Batch: XFC12866  
Analytical Method: AK103  
Analyst: NRO  
Analytical Date/Time: 09/22/16 06:33  
Container ID: 1168600015-A

Prep Batch: XXX36358  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 16:10  
Prep Initial Wt./Vol.: 30.234 g  
Prep Extract Vol: 1 mL



Results of B-2-2016(49.5')

Client Sample ID: B-2-2016(49.5')
Client Project ID: Interior Texaco
Lab Sample ID: 1168600015
Lab Project ID: 1168600

Collection Date: 09/14/16 18:10
Received Date: 09/20/16 09:57
Matrix: Soil/Solid (dry weight)
Solids (%):76.4
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 3.07 J, 4.13, 1.24, mg/Kg, 1, 09/27/16 00:52

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 78.4, 50-150, %, 1, 09/27/16 00:52

Batch Information

Analytical Batch: VFC13326
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/27/16 00:52
Container ID: 1168600015-B

Prep Batch: VXX29639
Prep Method: SW5035A
Prep Date/Time: 09/14/16 18:10
Prep Initial Wt./Vol.: 63.095 g
Prep Extract Vol: 39.8764 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 90.8, 72-119, %, 1, 09/27/16 00:52

Batch Information

Analytical Batch: VFC13326
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/27/16 00:52
Container ID: 1168600015-B

Prep Batch: VXX29639
Prep Method: SW5035A
Prep Date/Time: 09/14/16 18:10
Prep Initial Wt./Vol.: 63.095 g
Prep Extract Vol: 39.8764 mL



Results of **B-3-2016(33.0')**

Client Sample ID: **B-3-2016(33.0')**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600016  
Lab Project ID: 1168600

Collection Date: 09/15/16 12:40  
Received Date: 09/20/16 09:57  
Matrix: Soil/Solid (dry weight)  
Solids (%):93.0  
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	28.6	21.2	6.59	mg/Kg	1		09/22/16 06:43
<b>Surrogates</b>							
5a Androstane (surr)	95.8	50-150		%	1		09/22/16 06:43

**Batch Information**

Analytical Batch: XFC12866  
Analytical Method: AK102  
Analyst: NRO  
Analytical Date/Time: 09/22/16 06:43  
Container ID: 1168600016-A

Prep Batch: XXX36358  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 16:10  
Prep Initial Wt./Vol.: 30.366 g  
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	23.1	21.2	6.59	mg/Kg	1		09/22/16 06:43
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	92.4	50-150		%	1		09/22/16 06:43

**Batch Information**

Analytical Batch: XFC12866  
Analytical Method: AK103  
Analyst: NRO  
Analytical Date/Time: 09/22/16 06:43  
Container ID: 1168600016-A

Prep Batch: XXX36358  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 16:10  
Prep Initial Wt./Vol.: 30.366 g  
Prep Extract Vol: 1 mL



Results of **B-3-2016(33.0')**

Client Sample ID: **B-3-2016(33.0')**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600016  
Lab Project ID: 1168600

Collection Date: 09/15/16 12:40  
Received Date: 09/20/16 09:57  
Matrix: Soil/Solid (dry weight)  
Solids (%):93.0  
Location:

Results by **Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	3.19 J	3.68	1.10	mg/Kg	1		09/27/16 19:27

**Surrogates**

4-Bromofluorobenzene (surr)	109	50-150		%	1		09/27/16 19:27
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**Batch Information**

Analytical Batch: VFC13334  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/27/16 19:27  
Container ID: 1168600016-B

Prep Batch: VXX29645  
Prep Method: SW5035A  
Prep Date/Time: 09/15/16 12:40  
Prep Initial Wt./Vol.: 40.736 g  
Prep Extract Vol: 27.856 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.00735 J	0.0184	0.00588	mg/Kg	1		09/27/16 19:27
Ethylbenzene	0.0184 U	0.0368	0.0115	mg/Kg	1		09/27/16 19:27
o-Xylene	0.159	0.0368	0.0115	mg/Kg	1		09/27/16 19:27
P & M -Xylene	0.253	0.0735	0.0221	mg/Kg	1		09/27/16 19:27
Toluene	0.0246 J	0.0368	0.0115	mg/Kg	1		09/27/16 19:27

**Surrogates**

1,4-Difluorobenzene (surr)	90.5	72-119		%	1		09/27/16 19:27
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**Batch Information**

Analytical Batch: VFC13334  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/27/16 19:27  
Container ID: 1168600016-B

Prep Batch: VXX29645  
Prep Method: SW5035A  
Prep Date/Time: 09/15/16 12:40  
Prep Initial Wt./Vol.: 40.736 g  
Prep Extract Vol: 27.856 mL



Results of B-4-2016(11.0')

Client Sample ID: B-4-2016(11.0')
Client Project ID: Interior Texaco
Lab Sample ID: 1168600017
Lab Project ID: 1168600

Collection Date: 09/15/16 13:20
Received Date: 09/20/16 09:57
Matrix: Soil/Solid (dry weight)
Solids (%):79.7
Location:

Results by Polynuclear Aromatics GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various PAHs and Surrogates with their respective values and detection limits.

Batch Information

Analytical Batch: XMS9669
Analytical Method: 8270D SIM (PAH)
Analyst: S.G
Analytical Date/Time: 10/06/16 01:41
Container ID: 1168600017-A

Prep Batch: XXX36371
Prep Method: SW3550C
Prep Date/Time: 09/22/16 21:05
Prep Initial Wt./Vol.: 22.717 g
Prep Extract Vol: 1 mL

Analytical Batch: XMS9677
Analytical Method: 8270D SIM (PAH)
Analyst: S.G
Analytical Date/Time: 10/08/16 17:27
Container ID: 1168600017-A

Prep Batch: XXX36371
Prep Method: SW3550C
Prep Date/Time: 09/22/16 21:05
Prep Initial Wt./Vol.: 22.717 g
Prep Extract Vol: 1 mL





Results of **B-4-2016(11.0')**

Client Sample ID: **B-4-2016(11.0')**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600017  
Lab Project ID: 1168600

Collection Date: 09/15/16 13:20  
Received Date: 09/20/16 09:57  
Matrix: Soil/Solid (dry weight)  
Solids (%):79.7  
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	9550	997	309	mg/Kg	40		09/26/16 03:09
<b>Surrogates</b>							
5a Androstane (surr)	271 *	50-150		%	40		09/26/16 03:09

**Batch Information**

Analytical Batch: XFC12885  
Analytical Method: AK102  
Analyst: NRO  
Analytical Date/Time: 09/26/16 03:09  
Container ID: 1168600017-A

Prep Batch: XXX36360  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 20:15  
Prep Initial Wt./Vol.: 30.216 g  
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	175	99.7	30.9	mg/Kg	4		09/22/16 14:35
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	120	50-150		%	4		09/22/16 14:35

**Batch Information**

Analytical Batch: XFC12874  
Analytical Method: AK103  
Analyst: CRA  
Analytical Date/Time: 09/22/16 14:35  
Container ID: 1168600017-A

Prep Batch: XXX36360  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 20:15  
Prep Initial Wt./Vol.: 30.216 g  
Prep Extract Vol: 1 mL



Results of B-4-2016(11.0')

Client Sample ID: B-4-2016(11.0')
Client Project ID: Interior Texaco
Lab Sample ID: 1168600017
Lab Project ID: 1168600

Collection Date: 09/15/16 13:20
Received Date: 09/20/16 09:57
Matrix: Soil/Solid (dry weight)
Solids (%):79.7
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 3400, 89.0, 26.7, mg/Kg, 20, 09/27/16 17:52

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 997, \*, 50-150, %, 20, 09/27/16 17:52

Batch Information

Analytical Batch: VFC13334
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/27/16 17:52
Container ID: 1168600017-C

Prep Batch: VXX29645
Prep Method: SW5035A
Prep Date/Time: 09/15/16 13:20
Prep Initial Wt./Vol.: 49.407 g
Prep Extract Vol: 35.0434 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 94.6, 72-119, %, 20, 09/27/16 17:52

Batch Information

Analytical Batch: VFC13334
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/27/16 17:52
Container ID: 1168600017-C

Prep Batch: VXX29645
Prep Method: SW5035A
Prep Date/Time: 09/15/16 13:20
Prep Initial Wt./Vol.: 49.407 g
Prep Extract Vol: 35.0434 mL

Analytical Batch: VFC13335
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/28/16 19:15
Container ID: 1168600017-C

Prep Batch: VXX29657
Prep Method: SW5035A
Prep Date/Time: 09/15/16 13:20
Prep Initial Wt./Vol.: 49.407 g
Prep Extract Vol: 35.0434 mL



Results of **B-4-2016(35.0')**

Client Sample ID: **B-4-2016(35.0')**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600018  
Lab Project ID: 1168600

Collection Date: 09/15/16 14:40  
Received Date: 09/20/16 09:57  
Matrix: Soil/Solid (dry weight)  
Solids (%):95.8  
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	487	20.6	6.39	mg/Kg	1		09/22/16 14:45
<b>Surrogates</b>							
5a Androstane (surr)	108	50-150		%	1		09/22/16 14:45

**Batch Information**

Analytical Batch: XFC12874  
Analytical Method: AK102  
Analyst: CRA  
Analytical Date/Time: 09/22/16 14:45  
Container ID: 1168600018-A

Prep Batch: XXX36360  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 20:15  
Prep Initial Wt./Vol.: 30.41 g  
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	63.7	20.6	6.39	mg/Kg	1		09/22/16 14:45
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	117	50-150		%	1		09/22/16 14:45

**Batch Information**

Analytical Batch: XFC12874  
Analytical Method: AK103  
Analyst: CRA  
Analytical Date/Time: 09/22/16 14:45  
Container ID: 1168600018-A

Prep Batch: XXX36360  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 20:15  
Prep Initial Wt./Vol.: 30.41 g  
Prep Extract Vol: 1 mL



Results of B-4-2016(35.0')

Client Sample ID: B-4-2016(35.0')
Client Project ID: Interior Texaco
Lab Sample ID: 1168600018
Lab Project ID: 1168600

Collection Date: 09/15/16 14:40
Received Date: 09/20/16 09:57
Matrix: Soil/Solid (dry weight)
Solids (%):95.8
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 2.77 J, 3.35, 1.01, mg/Kg, 1, 09/27/16 19:46

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 98.7, 50-150, %, 1, 09/27/16 19:46

Batch Information

Analytical Batch: VFC13334
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/27/16 19:46
Container ID: 1168600018-B

Prep Batch: VXX29645
Prep Method: SW5035A
Prep Date/Time: 09/15/16 14:40
Prep Initial Wt./Vol.: 41.691 g
Prep Extract Vol: 26.7597 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 88.9, 72-119, %, 1, 09/27/16 19:46

Batch Information

Analytical Batch: VFC13334
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/27/16 19:46
Container ID: 1168600018-B

Prep Batch: VXX29645
Prep Method: SW5035A
Prep Date/Time: 09/15/16 14:40
Prep Initial Wt./Vol.: 41.691 g
Prep Extract Vol: 26.7597 mL



Results of B-1001

Client Sample ID: B-1001
Client Project ID: Interior Texaco
Lab Sample ID: 1168600019
Lab Project ID: 1168600

Collection Date: 09/15/16 13:50
Received Date: 09/20/16 09:57
Matrix: Soil/Solid (dry weight)
Solids (%):79.7
Location:

Results by Polynuclear Aromatics GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various PAHs and Surrogates with their respective values and detection limits.

Batch Information

Analytical Batch: XMS9669
Analytical Method: 8270D SIM (PAH)
Analyst: S.G
Analytical Date/Time: 10/06/16 02:02
Container ID: 1168600019-A

Prep Batch: XXX36371
Prep Method: SW3550C
Prep Date/Time: 09/22/16 21:05
Prep Initial Wt./Vol.: 22.742 g
Prep Extract Vol: 1 mL

Analytical Batch: XMS9677
Analytical Method: 8270D SIM (PAH)
Analyst: S.G
Analytical Date/Time: 10/08/16 17:49
Container ID: 1168600019-A

Prep Batch: XXX36371
Prep Method: SW3550C
Prep Date/Time: 09/22/16 21:05
Prep Initial Wt./Vol.: 22.742 g
Prep Extract Vol: 1 mL



Results of **B-1002**

Client Sample ID: **B-1002**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600020  
Lab Project ID: 1168600

Collection Date: 09/15/16 16:50  
Received Date: 09/20/16 09:57  
Matrix: Soil/Solid (dry weight)  
Solids (%):97.2  
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	600	20.3	6.30	mg/Kg	1		09/22/16 14:55

**Surrogates**

5a Androstane (surr)	108	50-150		%	1		09/22/16 14:55
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**Batch Information**

Analytical Batch: XFC12874  
Analytical Method: AK102  
Analyst: CRA  
Analytical Date/Time: 09/22/16 14:55  
Container ID: 1168600020-A

Prep Batch: XXX36360  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 20:15  
Prep Initial Wt./Vol.: 30.35 g  
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	22.5	20.3	6.30	mg/Kg	1		09/22/16 14:55

**Surrogates**

n-Triacontane-d62 (surr)	104	50-150		%	1		09/22/16 14:55
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**Batch Information**

Analytical Batch: XFC12874  
Analytical Method: AK103  
Analyst: CRA  
Analytical Date/Time: 09/22/16 14:55  
Container ID: 1168600020-A

Prep Batch: XXX36360  
Prep Method: SW3550C  
Prep Date/Time: 09/21/16 20:15  
Prep Initial Wt./Vol.: 30.35 g  
Prep Extract Vol: 1 mL



Results of **B-1002**

Client Sample ID: **B-1002**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600020  
Lab Project ID: 1168600

Collection Date: 09/15/16 16:50  
Received Date: 09/20/16 09:57  
Matrix: Soil/Solid (dry weight)  
Solids (%):97.2  
Location:

Results by **Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	17.4	3.32	0.997	mg/Kg	1		09/27/16 20:05

**Surrogates**

4-Bromofluorobenzene (surr)	214 *	50-150		%	1		09/27/16 20:05
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**Batch Information**

Analytical Batch: VFC13334  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/27/16 20:05  
Container ID: 1168600020-B

Prep Batch: VXX29645  
Prep Method: SW5035A  
Prep Date/Time: 09/15/16 16:50  
Prep Initial Wt./Vol.: 40.426 g  
Prep Extract Vol: 26.1288 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.00830 U	0.0166	0.00532	mg/Kg	1		09/27/16 20:05
Ethylbenzene	0.0419	0.0332	0.0104	mg/Kg	1		09/27/16 20:05
o-Xylene	0.159	0.0332	0.0104	mg/Kg	1		09/27/16 20:05
P & M -Xylene	0.0678	0.0665	0.0199	mg/Kg	1		09/27/16 20:05
Toluene	0.0166 U	0.0332	0.0104	mg/Kg	1		09/27/16 20:05

**Surrogates**

1,4-Difluorobenzene (surr)	88.8	72-119		%	1		09/27/16 20:05
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**Batch Information**

Analytical Batch: VFC13334  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/27/16 20:05  
Container ID: 1168600020-B

Prep Batch: VXX29645  
Prep Method: SW5035A  
Prep Date/Time: 09/15/16 16:50  
Prep Initial Wt./Vol.: 40.426 g  
Prep Extract Vol: 26.1288 mL



### Results of Trip Blank

Client Sample ID: **Trip Blank**  
 Client Project ID: **Interior Texaco**  
 Lab Sample ID: 1168600021  
 Lab Project ID: 1168600

Collection Date: 09/15/16 18:15  
 Received Date: 09/20/16 09:57  
 Matrix: Water (Surface, Eff., Ground)  
 Solids (%):  
 Location:

### Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.0500 U	0.100	0.0310	mg/L	1		09/27/16 13:10

#### Surrogates

4-Bromofluorobenzene (surr)	83.7	50-150		%	1		09/27/16 13:10
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### Batch Information

Analytical Batch: VFC13331  
 Analytical Method: AK101  
 Analyst: ST  
 Analytical Date/Time: 09/27/16 13:10  
 Container ID: 1168600021-A

Prep Batch: VXX29647  
 Prep Method: SW5030B  
 Prep Date/Time: 09/27/16 06:00  
 Prep Initial Wt./Vol.: 5 mL  
 Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.250 U	0.500	0.150	ug/L	1		09/27/16 13:10
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		09/27/16 13:10
o-Xylene	0.500 U	1.00	0.310	ug/L	1		09/27/16 13:10
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		09/27/16 13:10
Toluene	0.500 U	1.00	0.310	ug/L	1		09/27/16 13:10

#### Surrogates

1,4-Difluorobenzene (surr)	92.3	77-115		%	1		09/27/16 13:10
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### Batch Information

Analytical Batch: VFC13331  
 Analytical Method: SW8021B  
 Analyst: ST  
 Analytical Date/Time: 09/27/16 13:10  
 Container ID: 1168600021-A

Prep Batch: VXX29647  
 Prep Method: SW5030B  
 Prep Date/Time: 09/27/16 06:00  
 Prep Initial Wt./Vol.: 5 mL  
 Prep Extract Vol: 5 mL





### Results of Trip Blank

Client Sample ID: **Trip Blank**  
 Client Project ID: **Interior Texaco**  
 Lab Sample ID: 1168600021  
 Lab Project ID: 1168600

Collection Date: 09/15/16 18:15  
 Received Date: 09/20/16 09:57  
 Matrix: Water (Surface, Eff., Ground)  
 Solids (%):  
 Location:

### Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	0.250 U	0.500	0.150	ug/L	1		09/27/16 01:27
1,1,1-Trichloroethane	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
1,1,2,2-Tetrachloroethane	0.250 U	0.500	0.150	ug/L	1		09/27/16 01:27
1,1,2-Trichloroethane	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
1,1-Dichloroethane	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
1,1-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
1,1-Dichloropropene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
1,2,3-Trichlorobenzene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
1,2,3-Trichloropropane	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
1,2,4-Trichlorobenzene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
1,2,4-Trimethylbenzene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
1,2-Dibromo-3-chloropropane	5.00 U	10.0	3.10	ug/L	1		09/27/16 01:27
1,2-Dibromoethane	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
1,2-Dichlorobenzene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
1,2-Dichloroethane	0.250 U	0.500	0.150	ug/L	1		09/27/16 01:27
1,2-Dichloropropane	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
1,3,5-Trimethylbenzene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
1,3-Dichlorobenzene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
1,3-Dichloropropane	0.250 U	0.500	0.150	ug/L	1		09/27/16 01:27
1,4-Dichlorobenzene	0.250 U	0.500	0.150	ug/L	1		09/27/16 01:27
2,2-Dichloropropane	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
2-Butanone (MEK)	5.00 U	10.0	3.10	ug/L	1		09/27/16 01:27
2-Chlorotoluene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
2-Hexanone	5.00 U	10.0	3.10	ug/L	1		09/27/16 01:27
4-Chlorotoluene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
4-Isopropyltoluene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
4-Methyl-2-pentanone (MIBK)	5.00 U	10.0	3.10	ug/L	1		09/27/16 01:27
Benzene	0.200 U	0.400	0.120	ug/L	1		09/27/16 01:27
Bromobenzene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
Bromochloromethane	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
Bromodichloromethane	0.250 U	0.500	0.150	ug/L	1		09/27/16 01:27
Bromoform	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
Bromomethane	5.00 U	10.0	3.10	ug/L	1		09/27/16 01:27
Carbon disulfide	5.00 U	10.0	3.10	ug/L	1		09/27/16 01:27
Carbon tetrachloride	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
Chlorobenzene	0.250 U	0.500	0.150	ug/L	1		09/27/16 01:27
Chloroethane	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27



### Results of Trip Blank

Client Sample ID: **Trip Blank**  
 Client Project ID: **Interior Texaco**  
 Lab Sample ID: 1168600021  
 Lab Project ID: 1168600

Collection Date: 09/15/16 18:15  
 Received Date: 09/20/16 09:57  
 Matrix: Water (Surface, Eff., Ground)  
 Solids (%):  
 Location:

### Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	0.500 U	1.00	0.300	ug/L	1		09/27/16 01:27
Chloromethane	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
cis-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
cis-1,3-Dichloropropene	0.250 U	0.500	0.150	ug/L	1		09/27/16 01:27
Dibromochloromethane	0.250 U	0.500	0.150	ug/L	1		09/27/16 01:27
Dibromomethane	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
Dichlorodifluoromethane	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
Freon-113	5.00 U	10.0	3.10	ug/L	1		09/27/16 01:27
Hexachlorobutadiene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
Isopropylbenzene (Cumene)	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
Methylene chloride	2.50 U	5.00	1.00	ug/L	1		09/27/16 01:27
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		09/27/16 01:27
Naphthalene	5.00 U	10.0	3.10	ug/L	1		09/27/16 01:27
n-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
n-Propylbenzene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
o-Xylene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		09/27/16 01:27
sec-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
Styrene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
tert-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
Tetrachloroethene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
Toluene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
trans-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
trans-1,3-Dichloropropene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
Trichloroethene	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
Trichlorofluoromethane	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
Vinyl acetate	5.00 U	10.0	3.10	ug/L	1		09/27/16 01:27
Vinyl chloride	0.500 U	1.00	0.310	ug/L	1		09/27/16 01:27
Xylenes (total)	1.50 U	3.00	1.00	ug/L	1		09/27/16 01:27
<b>Surrogates</b>							
1,2-Dichloroethane-D4 (surr)	102	81-118		%	1		09/27/16 01:27
4-Bromofluorobenzene (surr)	94.8	85-114		%	1		09/27/16 01:27
Toluene-d8 (surr)	96.1	89-112		%	1		09/27/16 01:27

## Results of Trip Blank

Client Sample ID: **Trip Blank**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600021  
Lab Project ID: 1168600

Collection Date: 09/15/16 18:15  
Received Date: 09/20/16 09:57  
Matrix: Water (Surface, Eff., Ground)  
Solids (%):  
Location:

## Results by Volatile GC/MS

### Batch Information

Analytical Batch: VMS16224  
Analytical Method: SW8260B  
Analyst: TJT  
Analytical Date/Time: 09/27/16 01:27  
Container ID: 1168600021-C

Prep Batch: VXX29649  
Prep Method: SW5030B  
Prep Date/Time: 09/26/16 06:00  
Prep Initial Wt./Vol.: 5 mL  
Prep Extract Vol: 5 mL



**Results of Trip Blank**

Client Sample ID: **Trip Blank**  
Client Project ID: **Interior Texaco**  
Lab Sample ID: 1168600022  
Lab Project ID: 1168600

Collection Date: 09/14/16 13:35  
Received Date: 09/20/16 09:57  
Matrix: Soil/Solid (dry weight)  
Solids (%):  
Location:

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.802 J	2.59	0.777	mg/Kg	1		09/26/16 17:44

**Surrogates**

4-Bromofluorobenzene (surr)	91.8	50-150		%	1		09/26/16 17:44
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**Batch Information**

Analytical Batch: VFC13326  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/26/16 17:44  
Container ID: 1168600022-A

Prep Batch: VXX29639  
Prep Method: SW5035A  
Prep Date/Time: 09/14/16 13:35  
Prep Initial Wt./Vol.: 48.254 g  
Prep Extract Vol: 25 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.00650 U	0.0130	0.00414	mg/Kg	1		09/26/16 17:44
Ethylbenzene	0.0130 U	0.0259	0.00808	mg/Kg	1		09/26/16 17:44
o-Xylene	0.00881 J	0.0259	0.00808	mg/Kg	1		09/26/16 17:44
P & M -Xylene	0.0215 J	0.0518	0.0155	mg/Kg	1		09/26/16 17:44
Toluene	0.0130 U	0.0259	0.00808	mg/Kg	1		09/26/16 17:44

**Surrogates**

1,4-Difluorobenzene (surr)	91.8	72-119		%	1		09/26/16 17:44
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**Batch Information**

Analytical Batch: VFC13326  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/26/16 17:44  
Container ID: 1168600022-A

Prep Batch: VXX29639  
Prep Method: SW5035A  
Prep Date/Time: 09/14/16 13:35  
Prep Initial Wt./Vol.: 48.254 g  
Prep Extract Vol: 25 mL

## Method Blank

Blank ID: MB for HBN 1743451 [SPT/10003]

Matrix: Soil/Solid (dry weight)

Blank Lab ID: 1353418

QC for Samples:

1168600007, 1168600008, 1168600009, 1168600010, 1168600011, 1168600012, 1168600013, 1168600014, 1168600015, 1168600016, 1168600017, 1168600018, 1168600019, 1168600020

## Results by SM21 2540G

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Solids	100			%

## Batch Information

Analytical Batch: SPT10003

Analytical Method: SM21 2540G

Instrument:

Analyst: IAS

Analytical Date/Time: 9/20/2016 5:55:00PM

Print Date: 10/10/2016 11:35:59AM

## Duplicate Sample Summary

Original Sample ID: 1165553003

Duplicate Sample ID: 1353419

QC for Samples:

1168600007

Analysis Date: 09/20/2016 17:55

Matrix: Soil/Solid (dry weight)

## Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	85.8	85.9	%	0.08	(< 15 )

## Batch Information

Analytical Batch: SPT10003

Analytical Method: SM21 2540G

Instrument:

Analyst: IAS

Print Date: 10/10/2016 11:36:00AM

## Duplicate Sample Summary

Original Sample ID: 1168600007

Duplicate Sample ID: 1353420

QC for Samples:

1168600007, 1168600008, 1168600009, 1168600010, 1168600011

Analysis Date: 09/20/2016 17:55

Matrix: Soil/Solid (dry weight)

## Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	95.4	95.4	%	0.08	(< 15 )

## Batch Information

Analytical Batch: SPT10003

Analytical Method: SM21 2540G

Instrument:

Analyst: IAS

## Duplicate Sample Summary

Original Sample ID: 1168600011

Analysis Date: 09/20/2016 17:55

Duplicate Sample ID: 1353421

Matrix: Soil/Solid (dry weight)

QC for Samples:

1168600008, 1168600009, 1168600010, 1168600011, 1168600012, 1168600013, 1168600014

## Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	74.4	74.2	%	0.26	(< 15 )

## Batch Information

Analytical Batch: SPT10003

Analytical Method: SM21 2540G

Instrument:

Analyst: IAS

Print Date: 10/10/2016 11:36:00AM



## Duplicate Sample Summary

Original Sample ID: 1168600014

Analysis Date: 09/20/2016 17:55

Duplicate Sample ID: 1353422

Matrix: Soil/Solid (dry weight)

QC for Samples:

1168600012, 1168600013, 1168600014, 1168600015, 1168600016, 1168600017, 1168600018

## Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	74.6	75.4	%	1.10	(< 15 )

## Batch Information

Analytical Batch: SPT10003

Analytical Method: SM21 2540G

Instrument:

Analyst: IAS

Print Date: 10/10/2016 11:36:00AM

## Duplicate Sample Summary

Original Sample ID: 1168600018

Duplicate Sample ID: 1353423

QC for Samples:

1168600015, 1168600016, 1168600017, 1168600018, 1168600019, 1168600020

Analysis Date: 09/20/2016 17:55

Matrix: Soil/Solid (dry weight)

## Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	95.8	95.7	%	0.13	(< 15 )

## Batch Information

Analytical Batch: SPT10003

Analytical Method: SM21 2540G

Instrument:

Analyst: IAS

Print Date: 10/10/2016 11:36:00AM



### Method Blank

Blank ID: MB for HBN 1743777 [VXX/29621]

Blank Lab ID: 1354116

QC for Samples:

1168600005, 1168600006

Matrix: Water (Surface, Eff., Ground)

### Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.400J	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.500U	1.00	0.310	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.150	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	ug/L
2-Hexanone	5.00U	10.0	3.10	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Bromobenzene	0.500U	1.00	0.310	ug/L
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	5.00U	10.0	3.10	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.300	ug/L

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## Method Blank

Blank ID: MB for HBN 1743777 [VXX/29621]

Blank Lab ID: 1354116

QC for Samples:

1168600005, 1168600006

Matrix: Water (Surface, Eff., Ground)

## Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Chloromethane	0.390J	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	2.50U	5.00	1.00	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	5.00U	10.0	3.10	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl acetate	5.00U	10.0	3.10	ug/L
Vinyl chloride	0.500U	1.00	0.310	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
<b>Surrogates</b>				
1,2-Dichloroethane-D4 (surr)	103	81-118		%
4-Bromofluorobenzene (surr)	97.9	85-114		%
Toluene-d8 (surr)	102	89-112		%



**Method Blank**

Blank ID: MB for HBN 1743777 [VXX/29621]  
Blank Lab ID: 1354116

Matrix: Water (Surface, Eff., Ground)

QC for Samples:  
1168600005, 1168600006

**Results by SW8260B**

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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**Batch Information**

Analytical Batch: VMS16214  
Analytical Method: SW8260B  
Instrument: VPA 780/5975 GC/MS  
Analyst: TJT  
Analytical Date/Time: 9/21/2016 9:39:00AM

Prep Batch: VXX29621  
Prep Method: SW5030B  
Prep Date/Time: 9/21/2016 6:00:00AM  
Prep Initial Wt./Vol.: 5 mL  
Prep Extract Vol: 5 mL

Print Date: 10/10/2016 11:36:02AM



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [VXX29621]  
 Blank Spike Lab ID: 1354117  
 Date Analyzed: 09/21/2016 09:55

Spike Duplicate ID: LCSD for HBN 1168600 [VXX29621]  
 Spike Duplicate Lab ID: 1354118  
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1168600005, 1168600006

### Results by SW8260B

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,1,1,2-Tetrachloroethane	30	32.4	108	30	33.3	111	( 78-124 )	2.90	(< 20 )
1,1,1-Trichloroethane	30	32.9	110	30	32.6	109	( 74-131 )	0.86	(< 20 )
1,1,2,2-Tetrachloroethane	30	26.3	88	30	28.3	94	( 71-121 )	7.40	(< 20 )
1,1,2-Trichloroethane	30	28.8	96	30	29.7	99	( 80-119 )	2.80	(< 20 )
1,1-Dichloroethane	30	30.7	102	30	31.0	103	( 77-125 )	0.91	(< 20 )
1,1-Dichloroethene	30	30.1	100	30	31.0	103	( 71-131 )	2.80	(< 20 )
1,1-Dichloropropene	30	31.3	104	30	31.8	106	( 79-125 )	1.60	(< 20 )
1,2,3-Trichlorobenzene	30	30.2	101	30	35.3	118	( 69-129 )	15.30	(< 20 )
1,2,3-Trichloropropane	30	29.3	98	30	30.2	101	( 73-122 )	3.00	(< 20 )
1,2,4-Trichlorobenzene	30	31.2	104	30	33.2	111	( 69-130 )	6.20	(< 20 )
1,2,4-Trimethylbenzene	30	28.5	95	30	30.4	101	( 79-124 )	6.70	(< 20 )
1,2-Dibromo-3-chloropropane	30	28.2	94	30	31.7	106	( 62-128 )	11.80	(< 20 )
1,2-Dibromoethane	30	30.8	103	30	32.0	107	( 77-121 )	3.90	(< 20 )
1,2-Dichlorobenzene	30	30.0	100	30	31.3	104	( 80-119 )	4.10	(< 20 )
1,2-Dichloroethane	30	31.5	105	30	30.9	103	( 73-128 )	1.70	(< 20 )
1,2-Dichloropropane	30	32.5	108	30	32.6	109	( 78-122 )	0.34	(< 20 )
1,3,5-Trimethylbenzene	30	30.1	100	30	30.8	103	( 75-124 )	2.30	(< 20 )
1,3-Dichlorobenzene	30	31.1	104	30	31.7	106	( 80-119 )	2.00	(< 20 )
1,3-Dichloropropane	30	29.3	98	30	30.5	102	( 80-119 )	3.80	(< 20 )
1,4-Dichlorobenzene	30	31.8	106	30	32.5	108	( 79-118 )	2.00	(< 20 )
2,2-Dichloropropane	30	31.7	106	30	31.6	105	( 60-139 )	0.54	(< 20 )
2-Butanone (MEK)	90	93.6	104	90	96.2	107	( 56-143 )	2.70	(< 20 )
2-Chlorotoluene	30	31.0	103	30	31.0	103	( 79-122 )	0.16	(< 20 )
2-Hexanone	90	80.7	90	90	92.2	102	( 57-139 )	13.20	(< 20 )
4-Chlorotoluene	30	30.4	101	30	30.0	100	( 78-122 )	1.50	(< 20 )
4-Isopropyltoluene	30	29.7	99	30	31.1	104	( 77-127 )	4.50	(< 20 )
4-Methyl-2-pentanone (MIBK)	90	93.0	103	90	97.6	108	( 67-130 )	4.80	(< 20 )
Benzene	30	30.4	101	30	30.5	102	( 79-120 )	0.23	(< 20 )
Bromobenzene	30	32.2	107	30	31.3	104	( 80-120 )	3.00	(< 20 )
Bromochloromethane	30	32.6	109	30	32.1	107	( 78-123 )	1.60	(< 20 )
Bromodichloromethane	30	34.1	114	30	33.8	113	( 79-125 )	0.94	(< 20 )
Bromoform	30	33.8	113	30	34.3	114	( 66-130 )	1.40	(< 20 )
Bromomethane	30	42.6	142	* 30	44.5	148	* ( 53-141 )	4.30	(< 20 )
Carbon disulfide	45	41.4	92	45	43.1	96	( 64-133 )	3.90	(< 20 )

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### Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [VXX29621]  
 Blank Spike Lab ID: 1354117  
 Date Analyzed: 09/21/2016 09:55

Spike Duplicate ID: LCSD for HBN 1168600 [VXX29621]  
 Spike Duplicate Lab ID: 1354118  
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1168600005, 1168600006

### Results by SW8260B

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Carbon tetrachloride	30	33.2	111	30	33.2	111	( 72-136 )	0.06	(< 20 )
Chlorobenzene	30	30.7	102	30	31.8	106	( 82-118 )	3.40	(< 20 )
Chloroethane	30	31.2	104	30	31.9	106	( 60-138 )	2.20	(< 20 )
Chloroform	30	31.7	106	30	31.3	104	( 79-124 )	1.10	(< 20 )
Chloromethane	30	40.7	136	30	47.5	158	* ( 50-139 )	15.40	(< 20 )
cis-1,2-Dichloroethene	30	29.0	97	30	29.1	97	( 78-123 )	0.48	(< 20 )
cis-1,3-Dichloropropene	30	30.9	103	30	31.8	106	( 75-124 )	2.60	(< 20 )
Dibromochloromethane	30	33.5	112	30	33.7	112	( 74-126 )	0.62	(< 20 )
Dibromomethane	30	30.4	101	30	30.3	101	( 79-123 )	0.03	(< 20 )
Dichlorodifluoromethane	30	28.7	96	30	29.6	99	( 32-152 )	3.40	(< 20 )
Ethylbenzene	30	29.9	100	30	31.4	105	( 79-121 )	5.00	(< 20 )
Freon-113	45	49.0	109	45	50.3	112	( 70-136 )	2.60	(< 20 )
Hexachlorobutadiene	30	34.1	114	30	34.0	113	( 66-134 )	0.29	(< 20 )
Isopropylbenzene (Cumene)	30	31.2	104	30	31.4	105	( 72-131 )	0.58	(< 20 )
Methylene chloride	30	29.7	99	30	30.5	102	( 74-124 )	2.70	(< 20 )
Methyl-t-butyl ether	45	51.9	115	45	53.8	119	( 71-124 )	3.60	(< 20 )
Naphthalene	30	28.8	96	30	34.5	115	( 61-128 )	18.10	(< 20 )
n-Butylbenzene	30	26.8	89	30	30.4	101	( 75-128 )	12.40	(< 20 )
n-Propylbenzene	30	30.5	102	30	29.9	100	( 76-126 )	1.70	(< 20 )
o-Xylene	30	30.8	103	30	31.7	106	( 78-122 )	3.20	(< 20 )
P & M -Xylene	60	62.1	104	60	62.7	104	( 80-121 )	0.91	(< 20 )
sec-Butylbenzene	30	28.0	93	30	30.4	101	( 77-126 )	8.10	(< 20 )
Styrene	30	31.3	104	30	31.2	104	( 78-123 )	0.19	(< 20 )
tert-Butylbenzene	30	30.0	100	30	30.9	103	( 78-124 )	3.00	(< 20 )
Tetrachloroethene	30	32.4	108	30	33.0	110	( 74-129 )	1.70	(< 20 )
Toluene	30	27.9	93	30	28.2	94	( 80-121 )	1.20	(< 20 )
trans-1,2-Dichloroethene	30	30.7	102	30	31.2	104	( 75-124 )	1.40	(< 20 )
trans-1,3-Dichloropropene	30	29.8	99	30	30.3	101	( 73-127 )	1.90	(< 20 )
Trichloroethene	30	32.2	107	30	32.3	108	( 79-123 )	0.34	(< 20 )
Trichlorofluoromethane	30	34.2	114	30	34.8	116	( 65-141 )	1.70	(< 20 )
Vinyl acetate	30	31.3	104	30	31.8	106	( 54-146 )	1.90	(< 20 )
Vinyl chloride	30	31.9	106	30	34.2	114	( 58-137 )	7.00	(< 20 )
Xylenes (total)	90	92.9	103	90	94.4	105	( 79-121 )	1.70	(< 20 )

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### Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [VXX29621]  
 Blank Spike Lab ID: 1354117  
 Date Analyzed: 09/21/2016 09:55

Spike Duplicate ID: LCSD for HBN 1168600 [VXX29621]  
 Spike Duplicate Lab ID: 1354118  
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1168600005, 1168600006

### Results by SW8260B

Parameter	Blank Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
<b>Surrogates</b>									
1,2-Dichloroethane-D4 (surr)	30	106	106	30	104	104	( 81-118 )	2.00	
4-Bromofluorobenzene (surr)	30	99.9	100	30	92.2	92	( 85-114 )	8.00	
Toluene-d8 (surr)	30	94.4	94	30	95.8	96	( 89-112 )	1.40	

### Batch Information

Analytical Batch: **VMS16214**  
 Analytical Method: **SW8260B**  
 Instrument: **VPA 780/5975 GC/MS**  
 Analyst: **TJT**

Prep Batch: **VXX29621**  
 Prep Method: **SW5030B**  
 Prep Date/Time: **09/21/2016 06:00**  
 Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL  
 Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Print Date: 10/10/2016 11:36:04AM



## Method Blank

Blank ID: MB for HBN 1744120 [VXX/29639]  
Blank Lab ID: 1354751

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1168600011, 1168600012, 1168600013, 1168600014, 1168600015, 1168600022

## Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	0.753J	2.50	0.750	mg/Kg
<b>Surrogates</b>				
4-Bromofluorobenzene (surr)	85.4	50-150		%

## Batch Information

Analytical Batch: VFC13326  
Analytical Method: AK101  
Instrument: Agilent 7890A PID/FID  
Analyst: ST  
Analytical Date/Time: 9/26/2016 5:07:00PM

Prep Batch: VXX29639  
Prep Method: SW5035A  
Prep Date/Time: 9/25/2016 12:30:00AM  
Prep Initial Wt./Vol.: 50 g  
Prep Extract Vol: 25 mL

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [VXX29639]  
 Blank Spike Lab ID: 1354754  
 Date Analyzed: 09/26/2016 16:11

Spike Duplicate ID: LCSD for HBN 1168600 [VXX29639]  
 Spike Duplicate Lab ID: 1354755  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1168600011, 1168600012, 1168600013, 1168600014, 1168600015, 1168600022

## Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	12.5	10.8	87	12.5	10.5	84	( 60-120 )	3.10	(< 20 )

### Surrogates

4-Bromofluorobenzene (surr)	1.25	89.5	90	1.25	91.6	92	( 50-150 )	2.40	
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## Batch Information

Analytical Batch: **VFC13326**  
 Analytical Method: **AK101**  
 Instrument: **Agilent 7890A PID/FID**  
 Analyst: **ST**

Prep Batch: **VXX29639**  
 Prep Method: **SW5035A**  
 Prep Date/Time: **09/25/2016 00:30**  
 Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL  
 Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL



### Method Blank

Blank ID: MB for HBN 1744120 [VXX/29639]  
Blank Lab ID: 1354751

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1168600011, 1168600012, 1168600013, 1168600014, 1168600015, 1168600022

### Results by SW8021B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	0.00625U	0.0125	0.00400	mg/Kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/Kg
o-Xylene	0.0125U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/Kg
Toluene	0.0125U	0.0250	0.00780	mg/Kg
<b>Surrogates</b>				
1,4-Difluorobenzene (surr)	90.3	72-119		%

### Batch Information

Analytical Batch: VFC13326  
Analytical Method: SW8021B  
Instrument: Agilent 7890A PID/FID  
Analyst: ST  
Analytical Date/Time: 9/26/2016 5:07:00PM

Prep Batch: VXX29639  
Prep Method: SW5035A  
Prep Date/Time: 9/25/2016 12:30:00AM  
Prep Initial Wt./Vol.: 50 g  
Prep Extract Vol: 25 mL

Print Date: 10/10/2016 11:36:09AM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [VXX29639]  
 Blank Spike Lab ID: 1354752  
 Date Analyzed: 09/26/2016 15:34

Spike Duplicate ID: LCSD for HBN 1168600 [VXX29639]  
 Spike Duplicate Lab ID: 1354753  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1168600011, 1168600012, 1168600013, 1168600014, 1168600015, 1168600022

## Results by SW8021B

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	1.25	1.41	112	1.25	1.40	112	( 75-125 )	0.34	(< 20 )
Ethylbenzene	1.25	1.26	101	1.25	1.25	100	( 75-125 )	0.54	(< 20 )
o-Xylene	1.25	1.20	96	1.25	1.20	96	( 75-125 )	0.21	(< 20 )
P & M -Xylene	2.50	2.51	100	2.50	2.52	101	( 80-125 )	0.39	(< 20 )
Toluene	1.25	1.26	101	1.25	1.25	100	( 70-125 )	1.10	(< 20 )
<b>Surrogates</b>									
1,4-Difluorobenzene (surr)	1.25	94	94	1.25	97.6	98	( 72-119 )	3.80	

## Batch Information

Analytical Batch: VFC13326  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ST

Prep Batch: VXX29639  
 Prep Method: SW5035A  
 Prep Date/Time: 09/25/2016 00:30  
 Spike Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL  
 Dupe Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL



### Matrix Spike Summary

Original Sample ID: 1165533001  
MS Sample ID: 1354756 MS  
MSD Sample ID: 1354757 MSD

Analysis Date: 09/26/2016 18:59  
Analysis Date: 09/26/2016 19:17  
Analysis Date: 09/26/2016 19:36  
Matrix: Soil/Solid (dry weight)

QC for Samples: 1168600011, 1168600012, 1168600013, 1168600014, 1168600015, 1168600022

### Results by SW8021B

Parameter	Sample	Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	7.50	7.51	12.1	62 *	7.51	12.3	64 *	75-125	1.80	(< 20 )
Ethylbenzene	20.1	7.51	19.0	-14 *	7.51	19.6	-7 *	75-125	2.80	(< 20 )
o-Xylene	29.4	7.51	24.7	-62 *	7.51	26.0	-44 *	75-125	5.10	(< 20 )
P & M -Xylene	59.6	15.1	50.5	-60 *	15.1	53.0	-44 *	80-125	4.70	(< 20 )
Toluene	1.87	7.51	8.39	87	7.51	8.39	87	70-125	0.07	(< 20 )
<b>Surrogates</b>										
1,4-Difluorobenzene (surr)		7.51	7.02	93	7.51	7.32	97	72-119	4.10	

### Batch Information

Analytical Batch: VFC13326  
Analytical Method: SW8021B  
Instrument: Agilent 7890A PID/FID  
Analyst: ST  
Analytical Date/Time: 9/26/2016 7:17:00PM

Prep Batch: VXX29639  
Prep Method: AK101 Extraction (S)  
Prep Date/Time: 9/25/2016 12:30:00AM  
Prep Initial Wt./Vol.: 22.69g  
Prep Extract Vol: 25.00mL

Print Date: 10/10/2016 11:36:12AM

## Method Blank

Blank ID: MB for HBN 1744163 [VXX/29645]  
Blank Lab ID: 1354970

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1168600008, 1168600016, 1168600017, 1168600018, 1168600020

## Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
<b>Surrogates</b>				
4-Bromofluorobenzene (surr)	85.4	50-150		%

## Batch Information

Analytical Batch: VFC13334  
Analytical Method: AK101  
Instrument: Agilent 7890 PID/FID  
Analyst: ST  
Analytical Date/Time: 9/27/2016 12:29:00PM

Prep Batch: VXX29645  
Prep Method: SW5035A  
Prep Date/Time: 9/27/2016 12:30:00AM  
Prep Initial Wt./Vol.: 50 g  
Prep Extract Vol: 25 mL



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [VXX29645]  
 Blank Spike Lab ID: 1354973  
 Date Analyzed: 09/27/2016 11:32

Spike Duplicate ID: LCSD for HBN 1168600 [VXX29645]  
 Spike Duplicate Lab ID: 1354974  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1168600008, 1168600016, 1168600017, 1168600018, 1168600020

### Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	12.5	12.4	99	12.5	12.9	103	( 60-120 )	4.10	(< 20 )

### Surrogates

4-Bromofluorobenzene (surr)	1.25	84.3	84	1.25	90.3	90	( 50-150 )	6.80	
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### Batch Information

Analytical Batch: VFC13334  
 Analytical Method: AK101  
 Instrument: Agilent 7890 PID/FID  
 Analyst: ST

Prep Batch: VXX29645  
 Prep Method: SW5035A  
 Prep Date/Time: 09/27/2016 00:30  
 Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL  
 Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

Print Date: 10/10/2016 11:36:14AM



### Method Blank

Blank ID: MB for HBN 1744163 [VXX/29645]  
Blank Lab ID: 1354970

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1168600008, 1168600016, 1168600017, 1168600018, 1168600020

### Results by SW8021B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	0.00625U	0.0125	0.00400	mg/Kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/Kg
o-Xylene	0.0125U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/Kg
Toluene	0.0125U	0.0250	0.00780	mg/Kg
<b>Surrogates</b>				
1,4-Difluorobenzene (surr)	90.1	72-119		%

### Batch Information

Analytical Batch: VFC13334  
Analytical Method: SW8021B  
Instrument: Agilent 7890 PID/FID  
Analyst: ST  
Analytical Date/Time: 9/27/2016 12:29:00PM

Prep Batch: VXX29645  
Prep Method: SW5035A  
Prep Date/Time: 9/27/2016 12:30:00AM  
Prep Initial Wt./Vol.: 50 g  
Prep Extract Vol: 25 mL

Print Date: 10/10/2016 11:36:16AM



## Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [VXX29645]  
 Blank Spike Lab ID: 1354971  
 Date Analyzed: 09/27/2016 10:54

Spike Duplicate ID: LCSD for HBN 1168600  
 [VXX29645]  
 Spike Duplicate Lab ID: 1354972  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1168600008, 1168600016, 1168600017, 1168600018, 1168600020

## Results by SW8021B

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	1.25	1.43	115	1.25	1.48	118	( 75-125 )	3.20	(< 20 )
Ethylbenzene	1.25	1.43	115	1.25	1.49	119	( 75-125 )	3.70	(< 20 )
o-Xylene	1.25	1.41	112	1.25	1.44	115	( 75-125 )	2.20	(< 20 )
P & M -Xylene	2.50	2.87	115	2.50	2.97	119	( 80-125 )	3.40	(< 20 )
Toluene	1.25	1.46	117	1.25	1.52	121	( 70-125 )	3.70	(< 20 )
<b>Surrogates</b>									
1,4-Difluorobenzene (surr)	1.25	99.2	99	1.25	95.8	96	( 72-119 )	3.40	

## Batch Information

Analytical Batch: VFC13334  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890 PID/FID  
 Analyst: ST

Prep Batch: VXX29645  
 Prep Method: SW5035A  
 Prep Date/Time: 09/27/2016 00:30  
 Spike Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL  
 Dupe Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL

## Matrix Spike Summary

Original Sample ID: 1168588001  
 MS Sample ID: 1354975 MS  
 MSD Sample ID: 1354976 MSD

Analysis Date: 09/27/2016 13:45  
 Analysis Date: 09/27/2016 14:04  
 Analysis Date: 09/27/2016 14:23  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1168600008, 1168600016, 1168600017, 1168600018, 1168600020

## Results by SW8021B

Parameter	Sample	Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	0.0129U	1.73	1.95	113	1.73	2.02	117	75-125	3.40	(< 20 )
Ethylbenzene	0.0257U	1.73	1.95	113	1.73	2.01	116	75-125	2.60	(< 20 )
o-Xylene	0.0257U	1.73	1.87	109	1.73	1.97	114	75-125	4.50	(< 20 )
P & M -Xylene	0.0515U	3.44	3.87	112	3.44	4.03	117	80-125	4.00	(< 20 )
Toluene	0.0257U	1.73	1.95	113	1.73	1.98	115	70-125	1.80	(< 20 )
<b>Surrogates</b>										
1,4-Difluorobenzene (surr)		1.73	1.67	97	1.73	1.65	96	72-119	0.97	

## Batch Information

Analytical Batch: VFC13334  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890 PID/FID  
 Analyst: ST  
 Analytical Date/Time: 9/27/2016 2:04:00PM

Prep Batch: VXX29645  
 Prep Method: AK101 Extraction (S)  
 Prep Date/Time: 9/27/2016 12:30:00AM  
 Prep Initial Wt./Vol.: 48.61g  
 Prep Extract Vol: 25.00mL

## Method Blank

Blank ID: MB for HBN 1744165 [VXX/29647]  
 Blank Lab ID: 1354982

Matrix: Water (Surface, Eff., Ground)

QC for Samples:  
 1168600001, 1168600002, 1168600003, 1168600004, 1168600005, 1168600021

## Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L
<b>Surrogates</b>				
4-Bromofluorobenzene (surr)	85.6	50-150		%

## Batch Information

Analytical Batch: VFC13331  
 Analytical Method: AK101  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ST  
 Analytical Date/Time: 9/27/2016 11:37:00AM

Prep Batch: VXX29647  
 Prep Method: SW5030B  
 Prep Date/Time: 9/27/2016 6:00:00AM  
 Prep Initial Wt./Vol.: 5 mL  
 Prep Extract Vol: 5 mL



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [VXX29647]  
 Blank Spike Lab ID: 1354985  
 Date Analyzed: 09/27/2016 12:32

Spike Duplicate ID: LCSD for HBN 1168600 [VXX29647]  
 Spike Duplicate Lab ID: 1354986  
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1168600001, 1168600002, 1168600003, 1168600004, 1168600005, 1168600021

### Results by AK101

Parameter	Blank Spike (mg/L)			Spike Duplicate (mg/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	1.00	0.868	87	1.00	0.770	77	( 60-120 )	12.00	(< 20 )

### Surrogates

4-Bromofluorobenzene (surr)	0.0500	88.2	88	0.0500	90.6	91	( 50-150 )	2.80	
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### Batch Information

Analytical Batch: VFC13331  
 Analytical Method: AK101  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ST

Prep Batch: VXX29647  
 Prep Method: SW5030B  
 Prep Date/Time: 09/27/2016 06:00  
 Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL  
 Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

Print Date: 10/10/2016 11:36:22AM



**Method Blank**

Blank ID: MB for HBN 1744165 [VXX/29647]  
Blank Lab ID: 1354982

Matrix: Water (Surface, Eff., Ground)

QC for Samples:  
1168600001, 1168600002, 1168600003, 1168600004, 1168600005, 1168600021

**Results by SW8021B**

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	0.250U	0.500	0.150	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
Toluene	0.500U	1.00	0.310	ug/L

**Surrogates**

1,4-Difluorobenzene (surr)	95.1	77-115	%
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**Batch Information**

Analytical Batch: VFC13331  
Analytical Method: SW8021B  
Instrument: Agilent 7890A PID/FID  
Analyst: ST  
Analytical Date/Time: 9/27/2016 11:37:00AM

Prep Batch: VXX29647  
Prep Method: SW5030B  
Prep Date/Time: 9/27/2016 6:00:00AM  
Prep Initial Wt./Vol.: 5 mL  
Prep Extract Vol: 5 mL

Print Date: 10/10/2016 11:36:24AM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [VXX29647]  
 Blank Spike Lab ID: 1354983  
 Date Analyzed: 09/27/2016 12:14

Spike Duplicate ID: LCSD for HBN 1168600 [VXX29647]  
 Spike Duplicate Lab ID: 1354984  
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1168600001, 1168600002, 1168600003, 1168600004, 1168600005, 1168600021

## Results by SW8021B

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	100	110	110	100	110	110	( 80-120 )	0.15	(< 20 )
Ethylbenzene	100	99.6	100	100	99.2	99	( 75-125 )	0.45	(< 20 )
o-Xylene	100	96.0	96	100	95.6	96	( 80-120 )	0.42	(< 20 )
P & M -Xylene	200	199	100	200	198	99	( 75-130 )	0.83	(< 20 )
Toluene	100	101	101	100	101	101	( 75-120 )	0.02	(< 20 )
<b>Surrogates</b>									
1,4-Difluorobenzene (surr)	50	98.8	99	50	98.6	99	( 77-115 )	0.20	

## Batch Information

Analytical Batch: VFC13331  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ST

Prep Batch: VXX29647  
 Prep Method: SW5030B  
 Prep Date/Time: 09/27/2016 06:00  
 Spike Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL  
 Dupe Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL

## Method Blank

Blank ID: MB for HBN 1744166 [VXX/29648]

Blank Lab ID: 1354987

QC for Samples:

1168600007, 1168600009, 1168600010

Matrix: Soil/Solid (dry weight)

## Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
<b>Surrogates</b>				
4-Bromofluorobenzene (surr)	84.6	50-150		%

## Batch Information

Analytical Batch: VFC13330  
Analytical Method: AK101  
Instrument: Agilent 7890A PID/FID  
Analyst: ST  
Analytical Date/Time: 9/27/2016 10:27:00PM

Prep Batch: VXX29648  
Prep Method: SW5035A  
Prep Date/Time: 9/27/2016 12:30:00AM  
Prep Initial Wt./Vol.: 50 g  
Prep Extract Vol: 25 mL

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [VXX29648]  
 Blank Spike Lab ID: 1354990  
 Date Analyzed: 09/27/2016 21:32

Spike Duplicate ID: LCSD for HBN 1168600 [VXX29648]  
 Spike Duplicate Lab ID: 1354991  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1168600007, 1168600009, 1168600010

## Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	12.5	10.4	84	12.5	10.8	86	( 60-120 )	3.00	(< 20 )

### Surrogates

4-Bromofluorobenzene (surr)	1.25	86.8	87	1.25	90.5	91	( 50-150 )	4.20	
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## Batch Information

Analytical Batch: **VFC13330**  
 Analytical Method: **AK101**  
 Instrument: **Agilent 7890A PID/FID**  
 Analyst: **ST**

Prep Batch: **VXX29648**  
 Prep Method: **SW5035A**  
 Prep Date/Time: **09/27/2016 00:30**  
 Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL  
 Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL





**Method Blank**

Blank ID: MB for HBN 1744166 [VXX/29648]  
Blank Lab ID: 1354987

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1168600007, 1168600009, 1168600010

**Results by SW8021B**

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	0.00625U	0.0125	0.00400	mg/Kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/Kg
o-Xylene	0.0125U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/Kg
Toluene	0.0125U	0.0250	0.00780	mg/Kg

**Surrogates**

1,4-Difluorobenzene (surr)	94.1	72-119		%
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**Batch Information**

Analytical Batch: VFC13330  
Analytical Method: SW8021B  
Instrument: Agilent 7890A PID/FID  
Analyst: ST  
Analytical Date/Time: 9/27/2016 10:27:00PM

Prep Batch: VXX29648  
Prep Method: SW5035A  
Prep Date/Time: 9/27/2016 12:30:00AM  
Prep Initial Wt./Vol.: 50 g  
Prep Extract Vol: 25 mL

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [VXX29648]  
 Blank Spike Lab ID: 1354988  
 Date Analyzed: 09/27/2016 20:55

Spike Duplicate ID: LCSD for HBN 1168600 [VXX29648]  
 Spike Duplicate Lab ID: 1354989  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1168600007, 1168600009, 1168600010

## Results by SW8021B

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	1.25	1.35	108	1.25	1.29	104	( 75-125 )	4.40	(< 20 )
Ethylbenzene	1.25	1.20	96	1.25	1.16	92	( 75-125 )	4.20	(< 20 )
o-Xylene	1.25	1.12	90	1.25	1.07	86	( 75-125 )	4.80	(< 20 )
P & M -Xylene	2.50	2.39	96	2.50	2.24	90	( 80-125 )	6.70	(< 20 )
Toluene	1.25	1.26	101	1.25	1.22	97	( 70-125 )	3.30	(< 20 )
<b>Surrogates</b>									
1,4-Difluorobenzene (surr)	1.25	92.7	93	1.25	92.7	93	( 72-119 )	0.09	

## Batch Information

Analytical Batch: VFC13330  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ST

Prep Batch: VXX29648  
 Prep Method: SW5035A  
 Prep Date/Time: 09/27/2016 00:30  
 Spike Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL  
 Dupe Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL



### Matrix Spike Summary

Original Sample ID: 1168600007  
MS Sample ID: 1354992 MS  
MSD Sample ID: 1354993 MSD

Analysis Date: 09/28/2016 3:44  
Analysis Date: 09/28/2016 4:02  
Analysis Date: 09/28/2016 4:21  
Matrix: Soil/Solid (dry weight)

QC for Samples: 1168600007, 1168600009, 1168600010

### Results by SW8021B

Parameter	Sample	Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	0.00720U	1.32	1.35	103	1.32	1.39	106	75-125	2.90	(< 20 )
Ethylbenzene	0.0144U	1.32	1.19	91	1.32	1.24	94	75-125	3.30	(< 20 )
o-Xylene	0.0340	1.32	1.15	85	1.32	1.19	88	75-125	3.60	(< 20 )
P & M -Xylene	0.0725	2.63	2.38	88	2.63	2.51	92	80-125	5.00	(< 20 )
Toluene	0.0144U	1.32	1.22	93	1.32	1.25	94	70-125	1.90	(< 20 )
<b>Surrogates</b>										
1,4-Difluorobenzene (surr)		1.32	1.17	89	1.32	1.21	91	72-119	2.60	

### Batch Information

Analytical Batch: VFC13330  
Analytical Method: SW8021B  
Instrument: Agilent 7890A PID/FID  
Analyst: ST  
Analytical Date/Time: 9/28/2016 4:02:00AM

Prep Batch: VXX29648  
Prep Method: AK101 Extraction (S)  
Prep Date/Time: 9/27/2016 12:30:00AM  
Prep Initial Wt./Vol.: 49.74g  
Prep Extract Vol: 25.00mL

Print Date: 10/10/2016 11:36:34AM

## Method Blank

Blank ID: MB for HBN 1744171 [VXX/29649]

Blank Lab ID: 1355008

QC for Samples:

1168600021

Matrix: Water (Surface, Eff., Ground)

## Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.500U	1.00	0.310	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.150	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	ug/L
2-Hexanone	5.00U	10.0	3.10	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Bromobenzene	0.500U	1.00	0.310	ug/L
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	5.00U	10.0	3.10	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.300	ug/L

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### Method Blank

Blank ID: MB for HBN 1744171 [VXX/29649]

Blank Lab ID: 1355008

QC for Samples:  
1168600021

Matrix: Water (Surface, Eff., Ground)

### Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	2.50U	5.00	1.00	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	5.00U	10.0	3.10	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl acetate	5.00U	10.0	3.10	ug/L
Vinyl chloride	0.500U	1.00	0.310	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
<b>Surrogates</b>				
1,2-Dichloroethane-D4 (surr)	100	81-118		%
4-Bromofluorobenzene (surr)	97	85-114		%
Toluene-d8 (surr)	102	89-112		%

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## Method Blank

Blank ID: MB for HBN 1744171 [VXX/29649]

Blank Lab ID: 1355008

QC for Samples:

1168600021

Matrix: Water (Surface, Eff., Ground)

## Results by SW8260B

Parameter

Results

LOQ/CL

DL

Units

### Batch Information

Analytical Batch: VMS16224

Analytical Method: SW8260B

Instrument: VSA Agilent GC/MS 7890B/5977A

Analyst: TJT

Analytical Date/Time: 9/26/2016 7:33:00PM

Prep Batch: VXX29649

Prep Method: SW5030B

Prep Date/Time: 9/26/2016 6:00:00AM

Prep Initial Wt./Vol.: 5 mL

Prep Extract Vol: 5 mL

Print Date: 10/10/2016 11:36:35AM



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [VXX29649]  
 Blank Spike Lab ID: 1355009  
 Date Analyzed: 09/26/2016 20:16

Spike Duplicate ID: LCSD for HBN 1168600 [VXX29649]  
 Spike Duplicate Lab ID: 1355010  
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1168600021

### Results by SW8260B

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,1,1,2-Tetrachloroethane	30	31.4	105	30	30.7	102	( 78-124 )	2.20	(< 20 )
1,1,1-Trichloroethane	30	33.9	113	30	33.7	112	( 74-131 )	0.65	(< 20 )
1,1,2,2-Tetrachloroethane	30	33.1	110	30	32.9	110	( 71-121 )	0.82	(< 20 )
1,1,2-Trichloroethane	30	33.1	110	30	32.4	108	( 80-119 )	2.10	(< 20 )
1,1-Dichloroethane	30	31.2	104	30	31.2	104	( 77-125 )	0.03	(< 20 )
1,1-Dichloroethene	30	30.5	102	30	31.0	103	( 71-131 )	1.80	(< 20 )
1,1-Dichloropropene	30	33.3	111	30	32.9	110	( 79-125 )	1.10	(< 20 )
1,2,3-Trichlorobenzene	30	33.5	112	30	33.0	110	( 69-129 )	1.50	(< 20 )
1,2,3-Trichloropropane	30	32.6	109	30	32.7	109	( 73-122 )	0.18	(< 20 )
1,2,4-Trichlorobenzene	30	33.5	112	30	32.9	110	( 69-130 )	1.60	(< 20 )
1,2,4-Trimethylbenzene	30	30.9	103	30	29.9	100	( 79-124 )	3.30	(< 20 )
1,2-Dibromo-3-chloropropane	30	35.3	118	30	36.3	121	( 62-128 )	2.80	(< 20 )
1,2-Dibromoethane	30	33.5	112	30	33.2	111	( 77-121 )	0.87	(< 20 )
1,2-Dichlorobenzene	30	31.7	106	30	31.1	104	( 80-119 )	1.90	(< 20 )
1,2-Dichloroethane	30	29.4	98	30	28.8	96	( 73-128 )	1.90	(< 20 )
1,2-Dichloropropane	30	31.8	106	30	31.0	103	( 78-122 )	2.40	(< 20 )
1,3,5-Trimethylbenzene	30	30.3	101	30	29.5	98	( 75-124 )	2.60	(< 20 )
1,3-Dichlorobenzene	30	31.5	105	30	30.7	102	( 80-119 )	2.50	(< 20 )
1,3-Dichloropropane	30	32.5	108	30	32.0	107	( 80-119 )	1.80	(< 20 )
1,4-Dichlorobenzene	30	32.5	108	30	31.8	106	( 79-118 )	2.30	(< 20 )
2,2-Dichloropropane	30	32.3	108	30	31.7	106	( 60-139 )	1.70	(< 20 )
2-Butanone (MEK)	90	84.8	94	90	89.1	99	( 56-143 )	4.90	(< 20 )
2-Chlorotoluene	30	32.1	107	30	31.2	104	( 79-122 )	3.10	(< 20 )
2-Hexanone	90	88.7	99	90	91.1	101	( 57-139 )	2.70	(< 20 )
4-Chlorotoluene	30	32.5	108	30	31.7	106	( 78-122 )	2.50	(< 20 )
4-Isopropyltoluene	30	31.6	105	30	31.3	104	( 77-127 )	0.76	(< 20 )
4-Methyl-2-pentanone (MIBK)	90	89.6	100	90	93.3	104	( 67-130 )	4.10	(< 20 )
Benzene	30	31.8	106	30	31.6	105	( 79-120 )	0.50	(< 20 )
Bromobenzene	30	31.6	105	30	30.8	103	( 80-120 )	2.30	(< 20 )
Bromochloromethane	30	31.2	104	30	31.2	104	( 78-123 )	0.13	(< 20 )
Bromodichloromethane	30	33.5	112	30	32.9	110	( 79-125 )	1.80	(< 20 )
Bromoform	30	33.6	112	30	33.7	112	( 66-130 )	0.33	(< 20 )
Bromomethane	30	25.8	86	30	27.9	93	( 53-141 )	7.60	(< 20 )
Carbon disulfide	45	48.4	107	45	49.0	109	( 64-133 )	1.30	(< 20 )

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### Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [VXX29649]  
 Blank Spike Lab ID: 1355009  
 Date Analyzed: 09/26/2016 20:16

Spike Duplicate ID: LCSD for HBN 1168600 [VXX29649]  
 Spike Duplicate Lab ID: 1355010  
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1168600021

### Results by SW8260B

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Carbon tetrachloride	30	34.2	114	30	34.5	115	( 72-136 )	1.00	(< 20 )
Chlorobenzene	30	32.6	109	30	31.7	106	( 82-118 )	2.70	(< 20 )
Chloroethane	30	31.1	104	30	30.9	103	( 60-138 )	0.68	(< 20 )
Chloroform	30	30.4	101	30	29.8	99	( 79-124 )	2.10	(< 20 )
Chloromethane	30	24.9	83	30	26.1	87	( 50-139 )	4.80	(< 20 )
cis-1,2-Dichloroethene	30	31.8	106	30	31.4	105	( 78-123 )	1.20	(< 20 )
cis-1,3-Dichloropropene	30	33.5	112	30	33.0	110	( 75-124 )	1.40	(< 20 )
Dibromochloromethane	30	31.4	105	30	31.1	104	( 74-126 )	1.00	(< 20 )
Dibromomethane	30	32.0	107	30	31.6	105	( 79-123 )	1.10	(< 20 )
Dichlorodifluoromethane	30	27.7	92	30	28.3	94	( 32-152 )	2.10	(< 20 )
Ethylbenzene	30	33.6	112	30	33.0	110	( 79-121 )	1.80	(< 20 )
Freon-113	45	52.4	116	45	52.0	116	( 70-136 )	0.71	(< 20 )
Hexachlorobutadiene	30	32.4	108	30	33.7	112	( 66-134 )	3.90	(< 20 )
Isopropylbenzene (Cumene)	30	31.3	104	30	30.8	103	( 72-131 )	1.50	(< 20 )
Methylene chloride	30	29.9	100	30	32.2	107	( 74-124 )	7.40	(< 20 )
Methyl-t-butyl ether	45	51.1	114	45	51.2	114	( 71-124 )	0.23	(< 20 )
Naphthalene	30	33.5	112	30	34.1	114	( 61-128 )	1.70	(< 20 )
n-Butylbenzene	30	34.6	115	30	34.3	114	( 75-128 )	0.73	(< 20 )
n-Propylbenzene	30	31.2	104	30	30.3	101	( 76-126 )	2.70	(< 20 )
o-Xylene	30	34.3	114	30	33.1	110	( 78-122 )	3.60	(< 20 )
P & M -Xylene	60	67.0	112	60	65.5	109	( 80-121 )	2.20	(< 20 )
sec-Butylbenzene	30	31.8	106	30	31.2	104	( 77-126 )	1.90	(< 20 )
Styrene	30	30.8	103	30	29.8	100	( 78-123 )	3.10	(< 20 )
tert-Butylbenzene	30	31.8	106	30	31.2	104	( 78-124 )	2.10	(< 20 )
Tetrachloroethene	30	33.1	110	30	32.7	109	( 74-129 )	1.20	(< 20 )
Toluene	30	32.5	108	30	31.7	106	( 80-121 )	2.70	(< 20 )
trans-1,2-Dichloroethene	30	32.2	107	30	32.6	109	( 75-124 )	1.40	(< 20 )
trans-1,3-Dichloropropene	30	35.0	117	30	34.6	115	( 73-127 )	1.20	(< 20 )
Trichloroethene	30	32.7	109	30	32.3	108	( 79-123 )	1.20	(< 20 )
Trichlorofluoromethane	30	34.0	113	30	34.5	115	( 65-141 )	1.50	(< 20 )
Vinyl acetate	30	31.7	106	30	33.3	111	( 54-146 )	5.00	(< 20 )
Vinyl chloride	30	28.4	95	30	30.2	101	( 58-137 )	6.20	(< 20 )
Xylenes (total)	90	101	113	90	98.6	110	( 79-121 )	2.70	(< 20 )

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### Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [VXX29649]  
 Blank Spike Lab ID: 1355009  
 Date Analyzed: 09/26/2016 20:16

Spike Duplicate ID: LCSD for HBN 1168600 [VXX29649]  
 Spike Duplicate Lab ID: 1355010  
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1168600021

### Results by SW8260B

Parameter	Blank Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
<b>Surrogates</b>									
1,2-Dichloroethane-D4 (surr)	30	98.6	99	30	99.6	100	( 81-118 )	1.00	
4-Bromofluorobenzene (surr)	30	96.1	96	30	97	97	( 85-114 )	0.97	
Toluene-d8 (surr)	30	99.5	100	30	102	102	( 89-112 )	2.30	

### Batch Information

Analytical Batch: **VMS16224**  
 Analytical Method: **SW8260B**  
 Instrument: **VSA Agilent GC/MS 7890B/5977A**  
 Analyst: **TJT**

Prep Batch: **VXX29649**  
 Prep Method: **SW5030B**  
 Prep Date/Time: **09/26/2016 06:00**  
 Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL  
 Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Print Date: 10/10/2016 11:36:36AM

## Method Blank

Blank ID: MB for HBN 1744226 [VXX/29657]  
 Blank Lab ID: 1355231

Matrix: Soil/Solid (dry weight)

QC for Samples:  
 1168600017

## Results by SW8021B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
o-Xylene	0.0125U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/Kg
<b>Surrogates</b>				
1,4-Difluorobenzene (surr)	79.6	72-119		%

## Batch Information

Analytical Batch: VFC13335  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890 PID/FID  
 Analyst: ST  
 Analytical Date/Time: 9/28/2016 6:18:00PM

Prep Batch: VXX29657  
 Prep Method: SW5035A  
 Prep Date/Time: 9/28/2016 12:30:00AM  
 Prep Initial Wt./Vol.: 50 g  
 Prep Extract Vol: 25 mL

Print Date: 10/10/2016 11:36:38AM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [VXX29657]  
 Blank Spike Lab ID: 1355232  
 Date Analyzed: 09/28/2016 16:43

Spike Duplicate ID: LCSD for HBN 1168600 [VXX29657]  
 Spike Duplicate Lab ID: 1355233  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1168600017

## Results by SW8021B

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
o-Xylene	1.25	1.34	107	1.25	1.35	108	( 75-125 )	0.97	(< 20 )
P & M -Xylene	2.50	2.71	108	2.50	2.74	110	( 80-125 )	1.20	(< 20 )

## Surrogates

1,4-Difluorobenzene (surr)	1.25	88.1	88	1.25	87.3	87	( 72-119 )	0.84	
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## Batch Information

Analytical Batch: VFC13335  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890 PID/FID  
 Analyst: ST

Prep Batch: VXX29657  
 Prep Method: SW5035A  
 Prep Date/Time: 09/28/2016 00:30  
 Spike Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL  
 Dupe Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL



### Matrix Spike Summary

Original Sample ID: 1355559  
MS Sample ID: 1355236 MS  
MSD Sample ID: 1355237 MSD

Analysis Date: 09/28/2016 23:41  
Analysis Date: 09/29/2016 0:00  
Analysis Date: 09/29/2016 0:19  
Matrix: Soil/Solid (dry weight)

QC for Samples: 1168600017

### Results by SW8021B

Parameter	Sample	Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
o-Xylene	0.0100J	0.851	0.923	107	0.851	0.932	108	75-125	0.95	(< 20 )
P & M -Xylene	0.0182J	1.70	1.92	112	1.70	1.94	113	80-125	1.10	(< 20 )
<b>Surrogates</b>										
1,4-Difluorobenzene (surr)		0.851	0.769	90	0.851	0.750	88	72-119	2.40	

### Batch Information

Analytical Batch: VFC13335  
Analytical Method: SW8021B  
Instrument: Agilent 7890 PID/FID  
Analyst: ST  
Analytical Date/Time: 9/29/2016 12:00:01AM

Prep Batch: VXX29657  
Prep Method: AK101 Extraction (S)  
Prep Date/Time: 9/28/2016 12:30:00AM  
Prep Initial Wt./Vol.: 73.43g  
Prep Extract Vol: 25.00mL

Print Date: 10/10/2016 11:36:41AM



**Method Blank**

Blank ID: MB for HBN 1743440 [XXX/36351]  
Blank Lab ID: 1353365

Matrix: Water (Surface, Eff., Ground)

QC for Samples:  
1168600003, 1168600004

**Results by 8270D SIM LV (PAH)**

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
2-Methylnaphthalene	0.0152J	0.0500	0.0150	ug/L
Acenaphthene	0.0250U	0.0500	0.0150	ug/L
Acenaphthylene	0.0250U	0.0500	0.0150	ug/L
Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo(a)Anthracene	0.0155J	0.0500	0.0150	ug/L
Benzo[a]pyrene	0.0100U	0.0200	0.00620	ug/L
Benzo[b]Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Benzo[g,h,i]perylene	0.0250U	0.0500	0.0150	ug/L
Benzo[k]fluoranthene	0.0250U	0.0500	0.0150	ug/L
Chrysene	0.0250U	0.0500	0.0150	ug/L
Dibenzo[a,h]anthracene	0.0100U	0.0200	0.00620	ug/L
Fluoranthene	0.0166J	0.0500	0.0150	ug/L
Fluorene	0.0250U	0.0500	0.0150	ug/L
Indeno[1,2,3-c,d] pyrene	0.0250U	0.0500	0.0150	ug/L
Naphthalene	0.0500U	0.100	0.0310	ug/L
Phenanthrene	0.0172J	0.0500	0.0150	ug/L
Pyrene	0.0167J	0.0500	0.0150	ug/L
<b>Surrogates</b>				
2-Fluorobiphenyl (surr)	82.8	53-106		%
Terphenyl-d14 (surr)	90.2	58-132		%

**Batch Information**

Analytical Batch: XMS9632  
Analytical Method: 8270D SIM LV (PAH)  
Instrument: Agilent GC 7890B/5977A SWA  
Analyst: S.G  
Analytical Date/Time: 9/23/2016 5:48:00AM

Prep Batch: XXX36351  
Prep Method: SW3520C  
Prep Date/Time: 9/21/2016 8:46:09AM  
Prep Initial Wt./Vol.: 250 mL  
Prep Extract Vol: 1 mL

Print Date: 10/10/2016 11:36:42AM



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [XXX36351]  
 Blank Spike Lab ID: 1353366  
 Date Analyzed: 09/23/2016 06:10

Spike Duplicate ID: LCSD for HBN 1168600 [XXX36351]  
 Spike Duplicate Lab ID: 1353367  
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1168600003, 1168600004

### Results by 8270D SIM LV (PAH)

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1-Methylnaphthalene	2	1.76	88	2	1.62	81	( 41-115 )	8.20	(< 20 )
2-Methylnaphthalene	2	1.69	84	2	1.54	77	( 39-114 )	9.30	(< 20 )
Acenaphthene	2	2.05	103	2	1.90	95	( 48-114 )	7.80	(< 20 )
Acenaphthylene	2	1.76	88	2	1.61	81	( 35-121 )	8.80	(< 20 )
Anthracene	2	1.78	89	2	1.64	82	( 53-119 )	8.50	(< 20 )
Benzo(a)Anthracene	2	1.72	86	2	1.56	78	( 59-120 )	9.80	(< 20 )
Benzo[a]pyrene	2	1.76	88	2	1.56	78	( 53-120 )	12.00	(< 20 )
Benzo[b]Fluoranthene	2	1.65	83	2	1.49	75	( 53-126 )	10.00	(< 20 )
Benzo[g,h,i]perylene	2	1.63	81	2	1.40	70	( 44-128 )	15.00	(< 20 )
Benzo[k]fluoranthene	2	1.71	85	2	1.55	77	( 54-125 )	9.90	(< 20 )
Chrysene	2	1.86	93	2	1.71	86	( 57-120 )	8.40	(< 20 )
Dibenzo[a,h]anthracene	2	1.56	78	2	1.29	64	( 44-131 )	19.50	(< 20 )
Fluoranthene	2	1.81	91	2	1.63	82	( 58-120 )	10.20	(< 20 )
Fluorene	2	1.77	89	2	1.61	81	( 50-118 )	9.30	(< 20 )
Indeno[1,2,3-c,d] pyrene	2	1.61	80	2	1.40	70	( 48-130 )	13.50	(< 20 )
Naphthalene	2	1.71	86	2	1.58	79	( 43-114 )	7.90	(< 20 )
Phenanthrene	2	1.75	88	2	1.60	80	( 53-115 )	9.10	(< 20 )
Pyrene	2	1.90	95	2	1.72	86	( 53-121 )	9.50	(< 20 )
<b>Surrogates</b>									
2-Fluorobiphenyl (surr)	2	91.3	91	2	84	84	( 53-106 )	8.40	
Terphenyl-d14 (surr)	2	94.3	94	2	87.2	87	( 58-132 )	7.80	

### Batch Information

Analytical Batch: XMS9632  
 Analytical Method: 8270D SIM LV (PAH)  
 Instrument: Agilent GC 7890B/5977A SWA  
 Analyst: S.G

Prep Batch: XXX36351  
 Prep Method: SW3520C  
 Prep Date/Time: 09/21/2016 08:46  
 Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL  
 Dupe Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL

Print Date: 10/10/2016 11:36:44AM

## Method Blank

Blank ID: MB for HBN 1743485 [XXX/36358]  
 Blank Lab ID: 1353556

Matrix: Soil/Solid (dry weight)

### QC for Samples:

1168600007, 1168600008, 1168600009, 1168600010, 1168600011, 1168600012, 1168600013, 1168600014, 1168600015, 1168600016

## Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
<b>Surrogates</b>				
5a Androstane (surr)	93.6	60-120		%

## Batch Information

Analytical Batch: XFC12866  
 Analytical Method: AK102  
 Instrument: Agilent 7890B R  
 Analyst: NRO  
 Analytical Date/Time: 9/22/2016 2:38:00AM

Prep Batch: XXX36358  
 Prep Method: SW3550C  
 Prep Date/Time: 9/21/2016 4:10:19PM  
 Prep Initial Wt./Vol.: 30 g  
 Prep Extract Vol: 1 mL



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [XXX36358]  
 Blank Spike Lab ID: 1353557  
 Date Analyzed: 09/22/2016 02:49

Spike Duplicate ID: LCSD for HBN 1168600  
 [XXX36358]  
 Spike Duplicate Lab ID: 1353558  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1168600007, 1168600008, 1168600009, 1168600010, 1168600011, 1168600012, 1168600013,  
 1168600014, 1168600015, 1168600016

### Results by AK102

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Diesel Range Organics	167	151	91	167	149	90	( 75-125 )	1.20	(< 20 )
<b>Surrogates</b>									
5a Androstane (surr)	3.33	96.7	97	3.33	93.4	93	( 60-120 )	3.40	

### Batch Information

Analytical Batch: **XFC12866**  
 Analytical Method: **AK102**  
 Instrument: **Agilent 7890B R**  
 Analyst: **NRO**

Prep Batch: **XXX36358**  
 Prep Method: **SW3550C**  
 Prep Date/Time: **09/21/2016 16:10**  
 Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL  
 Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Print Date: 10/10/2016 11:36:47AM



## Method Blank

Blank ID: MB for HBN 1743485 [XXX/36358]

Matrix: Soil/Solid (dry weight)

Blank Lab ID: 1353556

QC for Samples:

1168600007, 1168600008, 1168600009, 1168600010, 1168600011, 1168600012, 1168600013, 1168600014, 1168600015, 1168600016

## Results by AK103

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Residual Range Organics	10.0U	20.0	6.20	mg/Kg
<b>Surrogates</b>				
n-Triacontane-d62 (surr)	92.4	60-120		%

## Batch Information

Analytical Batch: XFC12866  
Analytical Method: AK103  
Instrument: Agilent 7890B R  
Analyst: NRO  
Analytical Date/Time: 9/22/2016 2:38:00AM

Prep Batch: XXX36358  
Prep Method: SW3550C  
Prep Date/Time: 9/21/2016 4:10:19PM  
Prep Initial Wt./Vol.: 30 g  
Prep Extract Vol: 1 mL

Print Date: 10/10/2016 11:36:48AM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [XXX36358]  
 Blank Spike Lab ID: 1353557  
 Date Analyzed: 09/22/2016 02:49

Spike Duplicate ID: LCSD for HBN 1168600  
 [XXX36358]  
 Spike Duplicate Lab ID: 1353558  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1168600007, 1168600008, 1168600009, 1168600010, 1168600011, 1168600012, 1168600013,  
 1168600014, 1168600015, 1168600016

## Results by AK103

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL	
	Spike	Result	Rec (%)	Spike	Result	Rec (%)				
Residual Range Organics	167	160	96	167	155	93	( 60-120 )	3.10	(< 20 )	
<b>Surrogates</b>										
n-Triacontane-d62 (surr)	3.33	98.1	98	3.33	94.5	95	( 60-120 )	3.80		

## Batch Information

Analytical Batch: **XFC12866**  
 Analytical Method: **AK103**  
 Instrument: **Agilent 7890B R**  
 Analyst: **NRO**

Prep Batch: **XXX36358**  
 Prep Method: **SW3550C**  
 Prep Date/Time: **09/21/2016 16:10**  
 Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL  
 Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL



### Method Blank

Blank ID: MB for HBN 1743536 [XXX/36360]  
Blank Lab ID: 1353644

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1168600017, 1168600018, 1168600020

### Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
<b>Surrogates</b>				
5a Androstane (surr)	99.5	60-120		%

### Batch Information

Analytical Batch: XFC12874  
Analytical Method: AK102  
Instrument: Agilent 7890B F  
Analyst: CRA  
Analytical Date/Time: 9/22/2016 2:04:00PM

Prep Batch: XXX36360  
Prep Method: SW3550C  
Prep Date/Time: 9/21/2016 8:15:13PM  
Prep Initial Wt./Vol.: 30 g  
Prep Extract Vol: 1 mL

Print Date: 10/10/2016 11:36:52AM



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [XXX36360]  
Blank Spike Lab ID: 1353645  
Date Analyzed: 09/22/2016 14:14

Spike Duplicate ID: LCSD for HBN 1168600 [XXX36360]  
Spike Duplicate Lab ID: 1353646  
Matrix: Soil/Solid (dry weight)

QC for Samples: 1168600017, 1168600018, 1168600020

### Results by AK102

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Diesel Range Organics	167	151	91	167	144	86	( 75-125 )	4.90	(< 20 )

### Surrogates

5a Androstane (surr)	3.33	103	103	3.33	93.8	94	( 60-120 )	9.50	
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### Batch Information

Analytical Batch: **XFC12874**  
Analytical Method: **AK102**  
Instrument: **Agilent 7890B F**  
Analyst: **CRA**

Prep Batch: **XXX36360**  
Prep Method: **SW3550C**  
Prep Date/Time: **09/21/2016 20:15**  
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL  
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Print Date: 10/10/2016 11:36:53AM

## Method Blank

Blank ID: MB for HBN 1743536 [XXX/36360]

Blank Lab ID: 1353644

QC for Samples:

1168600017, 1168600018, 1168600020

Matrix: Soil/Solid (dry weight)

## Results by AK103

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Residual Range Organics	6.77J	20.0	6.20	mg/Kg
<b>Surrogates</b>				
n-Triacontane-d62 (surr)	95.8	60-120		%

## Batch Information

Analytical Batch: XFC12874

Analytical Method: AK103

Instrument: Agilent 7890B F

Analyst: CRA

Analytical Date/Time: 9/22/2016 2:04:00PM

Prep Batch: XXX36360

Prep Method: SW3550C

Prep Date/Time: 9/21/2016 8:15:13PM

Prep Initial Wt./Vol.: 30 g

Prep Extract Vol: 1 mL



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [XXX36360]  
 Blank Spike Lab ID: 1353645  
 Date Analyzed: 09/22/2016 14:14

Spike Duplicate ID: LCSD for HBN 1168600  
 [XXX36360]  
 Spike Duplicate Lab ID: 1353646  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1168600017, 1168600018, 1168600020

### Results by AK103

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL	
	Spike	Result	Rec (%)	Spike	Result	Rec (%)				
Residual Range Organics	167	141	85	167	135	81	( 60-120 )	4.90	(< 20 )	
<b>Surrogates</b>										
n-Triacontane-d62 (surr)	3.33	95.6	96	3.33	93.2	93	( 60-120 )	2.50		

### Batch Information

Analytical Batch: **XFC12874**  
 Analytical Method: **AK103**  
 Instrument: **Agilent 7890B F**  
 Analyst: **CRA**

Prep Batch: **XXX36360**  
 Prep Method: **SW3550C**  
 Prep Date/Time: **09/21/2016 20:15**  
 Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL  
 Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Print Date: 10/10/2016 11:36:55AM



**Method Blank**

Blank ID: MB for HBN 1743687 [XXX/36371]  
Blank Lab ID: 1353921

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1168600017, 1168600019

**Results by 8270D SIM (PAH)**

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1-Methylnaphthalene	0.00250U	0.00500	0.00150	mg/Kg
2-Methylnaphthalene	0.00250U	0.00500	0.00150	mg/Kg
Acenaphthene	0.00250U	0.00500	0.00150	mg/Kg
Acenaphthylene	0.00250U	0.00500	0.00150	mg/Kg
Anthracene	0.00250U	0.00500	0.00150	mg/Kg
Benzo(a)Anthracene	0.00250U	0.00500	0.00150	mg/Kg
Benzo[a]pyrene	0.00250U	0.00500	0.00150	mg/Kg
Benzo[b]Fluoranthene	0.00250U	0.00500	0.00150	mg/Kg
Benzo[g,h,i]perylene	0.00250U	0.00500	0.00150	mg/Kg
Benzo[k]fluoranthene	0.00250U	0.00500	0.00150	mg/Kg
Chrysene	0.00250U	0.00500	0.00150	mg/Kg
Dibenzo[a,h]anthracene	0.00250U	0.00500	0.00150	mg/Kg
Fluoranthene	0.00250U	0.00500	0.00150	mg/Kg
Fluorene	0.00250U	0.00500	0.00150	mg/Kg
Indeno[1,2,3-c,d] pyrene	0.00250U	0.00500	0.00150	mg/Kg
Naphthalene	0.00250U	0.00500	0.00150	mg/Kg
Phenanthrene	0.00250U	0.00500	0.00150	mg/Kg
Pyrene	0.00250U	0.00500	0.00150	mg/Kg
<b>Surrogates</b>				
2-Fluorobiphenyl (surr)	107	46-115		%
Terphenyl-d14 (surr)	101	58-133		%

**Batch Information**

Analytical Batch: XMS9669  
Analytical Method: 8270D SIM (PAH)  
Instrument: SVA Agilent 780/5975 GC/MS  
Analyst: S.G  
Analytical Date/Time: 10/6/2016 1:00:00AM

Prep Batch: XXX36371  
Prep Method: SW3550C  
Prep Date/Time: 9/22/2016 9:05:40PM  
Prep Initial Wt./Vol.: 22.5 g  
Prep Extract Vol: 1 mL

Print Date: 10/10/2016 11:36:57AM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [XXX36371]  
 Blank Spike Lab ID: 1353922  
 Date Analyzed: 10/06/2016 01:20

Matrix: Soil/Solid (dry weight)

QC for Samples: 1168600017, 1168600019

## Results by 8270D SIM (PAH)

Parameter	Blank Spike (mg/Kg)			CL
	Spike	Result	Rec (%)	
1-Methylnaphthalene	0.0222	0.0197	89	( 43-111 )
2-Methylnaphthalene	0.0222	0.0191	86	( 39-114 )
Acenaphthene	0.0222	0.0206	93	( 44-111 )
Acenaphthylene	0.0222	0.0191	86	( 39-116 )
Anthracene	0.0222	0.0202	91	( 50-114 )
Benzo(a)Anthracene	0.0222	0.0199	90	( 54-122 )
Benzo[a]pyrene	0.0222	0.0198	89	( 50-125 )
Benzo[b]Fluoranthene	0.0222	0.0204	92	( 53-128 )
Benzo[g,h,i]perylene	0.0222	0.0215	97	( 49-127 )
Benzo[k]fluoranthene	0.0222	0.0206	93	( 56-123 )
Chrysene	0.0222	0.0219	99	( 57-118 )
Dibenzo[a,h]anthracene	0.0222	0.0215	97	( 50-129 )
Fluoranthene	0.0222	0.0199	90	( 55-119 )
Fluorene	0.0222	0.0204	92	( 47-114 )
Indeno[1,2,3-c,d] pyrene	0.0222	0.0211	95	( 49-130 )
Naphthalene	0.0222	0.0178	80	( 38-111 )
Phenanthrene	0.0222	0.0204	92	( 49-113 )
Pyrene	0.0222	0.0218	98	( 55-117 )
<b>Surrogates</b>				
2-Fluorobiphenyl (surr)	0.0222	106	106	( 46-115 )
Terphenyl-d14 (surr)	0.0222	100	100	( 58-133 )

## Batch Information

Analytical Batch: XMS9669  
 Analytical Method: 8270D SIM (PAH)  
 Instrument: SVA Agilent 780/5975 GC/MS  
 Analyst: S.G

Prep Batch: XXX36371  
 Prep Method: SW3550C  
 Prep Date/Time: 09/22/2016 21:05  
 Spike Init Wt./Vol.: 0.0222 mg/Kg Extract Vol: 1 mL  
 Dupe Init Wt./Vol.: Extract Vol:



## Matrix Spike Summary

Original Sample ID: 1165468002  
 MS Sample ID: 1353923 MS  
 MSD Sample ID: 1353924 MSD

Analysis Date: 10/06/2016 5:08  
 Analysis Date: 10/06/2016 5:28  
 Analysis Date: 10/06/2016 5:49  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1168600017, 1168600019

## Results by 8270D SIM (PAH)

Parameter	Sample	Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1-Methylnaphthalene	0.00256U	0.0231	0.0204	88	0.0228	0.0207	91	43-111	1.40	(< 20)
2-Methylnaphthalene	0.00256U	0.0231	0.0201	87	0.0228	0.0199	87	39-114	1.40	(< 20)
Acenaphthene	0.00256U	0.0231	0.0217	94	0.0228	0.0214	94	44-111	1.50	(< 20)
Acenaphthylene	0.00256U	0.0231	0.0199	86	0.0228	0.0204	89	39-116	2.20	(< 20)
Anthracene	0.00256U	0.0231	0.0208	90	0.0228	0.0207	91	50-114	0.57	(< 20)
Benzo(a)Anthracene	0.00256U	0.0231	0.0205	89	0.0228	0.0201	88	54-122	2.30	(< 20)
Benzo(a)pyrene	0.00256U	0.0231	0.0185	80	0.0228	0.0183	81	50-125	1.10	(< 20)
Benzo(b)Fluoranthene	0.00256U	0.0231	0.0193	83	0.0228	0.0195	85	53-128	0.78	(< 20)
Benzo(g,h,i)perylene	0.00256U	0.0231	0.0129	56	0.0228	0.0139	61	49-127	6.90	(< 20)
Benzo(k)fluoranthene	0.00256U	0.0231	0.0199	86	0.0228	0.0197	86	56-123	1.20	(< 20)
Chrysene	0.00256U	0.0231	0.0223	96	0.0228	0.0220	96	57-118	1.60	(< 20)
Dibenzo(a,h)anthracene	0.00256U	0.0231	0.0153	66	0.0228	0.0159	70	50-129	3.80	(< 20)
Fluoranthene	0.00256U	0.0231	0.0209	91	0.0228	0.0210	92	55-119	0.34	(< 20)
Fluorene	0.00256U	0.0231	0.0217	93	0.0228	0.0215	94	47-114	0.93	(< 20)
Indeno[1,2,3-c,d] pyrene	0.00256U	0.0231	0.0142	61	0.0228	0.0150	66	49-130	5.10	(< 20)
Naphthalene	0.00256U	0.0231	0.0181	78	0.0228	0.0190	83	38-111	4.90	(< 20)
Phenanthrene	0.00256U	0.0231	0.0210	91	0.0228	0.0215	94	49-113	1.90	(< 20)
Pyrene	0.00256U	0.0231	0.0226	98	0.0228	0.0225	99	55-117	0.07	(< 20)
<b>Surrogates</b>										
2-Fluorobiphenyl (surr)		0.0231	0.0250	108	0.0228	0.0260	114	46-115	4.00	
Terphenyl-d14 (surr)		0.0231	0.0244	105	0.0228	0.0248	109	58-133	1.60	

## Batch Information

Analytical Batch: XMS9669  
 Analytical Method: 8270D SIM (PAH)  
 Instrument: SVA Agilent 780/5975 GC/MS  
 Analyst: S.G  
 Analytical Date/Time: 10/6/2016 5:28:00AM

Prep Batch: XXX36371  
 Prep Method: Sonication Extraction Soil 8270 PAH SIM  
 Prep Date/Time: 9/22/2016 9:05:40PM  
 Prep Initial Wt./Vol.: 22.50g  
 Prep Extract Vol: 1.00mL



### Method Blank

Blank ID: MB for HBN 1744113 [XXX/36396]  
Blank Lab ID: 1354713

Matrix: Water (Surface, Eff., Ground)

QC for Samples:  
1168600001, 1168600002, 1168600003, 1168600004, 1168600005

### Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	0.299J	0.600	0.180	mg/L
<b>Surrogates</b>				
5a Androstane (surr)	94.8	60-120		%

### Batch Information

Analytical Batch: XFC12888  
Analytical Method: AK102  
Instrument: Agilent 7890B R  
Analyst: CRA  
Analytical Date/Time: 9/29/2016 2:35:00PM

Prep Batch: XXX36396  
Prep Method: SW3520C  
Prep Date/Time: 9/27/2016 9:43:04AM  
Prep Initial Wt./Vol.: 250 mL  
Prep Extract Vol: 1 mL

Print Date: 10/10/2016 11:37:00AM



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [XXX36396]  
 Blank Spike Lab ID: 1354714  
 Date Analyzed: 09/29/2016 14:45

Spike Duplicate ID: LCSD for HBN 1168600  
 [XXX36396]  
 Spike Duplicate Lab ID: 1354715  
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1168600001, 1168600002, 1168600003, 1168600004, 1168600005

### Results by AK102

Parameter	Blank Spike (mg/L)			Spike Duplicate (mg/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Diesel Range Organics	20	19.5	98	20	20.4	102	( 75-125 )	4.30	(< 20 )

### Surrogates

5a Androstane (surr)	0.4	113	113	0.4	118	118	( 60-120 )	4.80	
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### Batch Information

Analytical Batch: **XFC12888**  
 Analytical Method: **AK102**  
 Instrument: **Agilent 7890B R**  
 Analyst: **CRA**

Prep Batch: **XXX36396**  
 Prep Method: **SW3520C**  
 Prep Date/Time: **09/27/2016 09:43**  
 Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL  
 Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

Print Date: 10/10/2016 11:37:01AM

## Method Blank

Blank ID: MB for HBN 1744113 [XXX/36396]  
Blank Lab ID: 1354713

Matrix: Water (Surface, Eff., Ground)

QC for Samples:  
1168600001, 1168600002, 1168600003, 1168600004, 1168600005

## Results by AK103

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Residual Range Organics	0.250U	0.500	0.150	mg/L
<b>Surrogates</b>				
n-Triacontane-d62 (surr)	92.9	60-120		%

## Batch Information

Analytical Batch: XFC12888  
Analytical Method: AK103  
Instrument: Agilent 7890B R  
Analyst: CRA  
Analytical Date/Time: 9/29/2016 2:35:00PM

Prep Batch: XXX36396  
Prep Method: SW3520C  
Prep Date/Time: 9/27/2016 9:43:04AM  
Prep Initial Wt./Vol.: 250 mL  
Prep Extract Vol: 1 mL

Print Date: 10/10/2016 11:37:03AM



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1168600 [XXX36396]  
 Blank Spike Lab ID: 1354714  
 Date Analyzed: 09/29/2016 14:45

Spike Duplicate ID: LCSD for HBN 1168600  
 [XXX36396]  
 Spike Duplicate Lab ID: 1354715  
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1168600001, 1168600002, 1168600003, 1168600004, 1168600005

### Results by AK103

Parameter	Blank Spike (mg/L)			Spike Duplicate (mg/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Residual Range Organics	20	19.5	98	20	20.2	101	( 60-120 )	3.30	(< 20 )
<b>Surrogates</b>									
n-Triacontane-d62 (surr)	0.4	95	95	0.4	106	106	( 60-120 )	10.90	

### Batch Information

Analytical Batch: **XFC12888**  
 Analytical Method: **AK103**  
 Instrument: **Agilent 7890B R**  
 Analyst: **CRA**

Prep Batch: **XXX36396**  
 Prep Method: **SW3520C**  
 Prep Date/Time: **09/27/2016 09:43**  
 Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL  
 Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

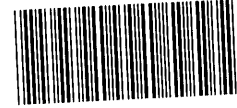
Print Date: 10/10/2016 11:37:05AM







1168600



FAIRBANKS SAMPLE RECEIPT FORM

Note: This form is to be completed by Fairbanks Receiving Staff for all samples

MW 9/19/14

Review Criteria:	Condition:	Comments/Actions Taken
Were custody seals intact? Note # & location, if applicable. COC accompanied samples?	<input checked="" type="radio"/> Yes No <input checked="" type="radio"/> N/A <input checked="" type="radio"/> Yes No N/A	<input checked="" type="checkbox"/> Exemption permitted if sampler hand carries/delivers.
Temperature blank compliant* (i.e., 0-6°C) If >6°C, were samples collected <8 hours ago? If <0°C, were all sample containers ice free? Cooler ID: <u>1</u> @ <u>5.4</u> w/Therm. ID: <u>71</u> Cooler ID: _____ @ _____ w/Therm. ID: _____ Cooler ID: _____ @ _____ w/Therm. ID: _____ Cooler ID: _____ @ _____ w/Therm. ID: _____ Cooler ID: _____ @ _____ w/Therm. ID: _____ If samples are received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank and "COOLER TEMP" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note ambient ( ) or chilled ( ). Please check one.	<input checked="" type="radio"/> Yes No <input checked="" type="radio"/> N/A Yes No <input checked="" type="radio"/> N/A Yes No <input checked="" type="radio"/> N/A	<input type="checkbox"/> Exemption permitted if chilled & collected <8hrs ago  <i>Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.</i>
Delivery Method: <input checked="" type="radio"/> Client (hand carried) Other: _____	Tracking/AB# : Or see attached <input checked="" type="radio"/> Or N/A	
→For samples received with payment, note amount (\$) and whether cash / check / CC (circle one) was received.		
Were samples in good condition (no leaks/cracks/breakage)? Packing material used (specify all that apply): <u>Bubble Wrap</u> Separate plastic bags Vermiculite Other: _____	<input checked="" type="radio"/> Yes No N/A	<i>Note: some samples are sent to Anchorage without inspection by SGS Fairbanks personnel.</i>
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	<input checked="" type="radio"/> Yes No N/A	
For RUSH/SHORT Hold Time, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	<input checked="" type="radio"/> Yes No N/A <input checked="" type="radio"/> Yes No N/A	
Additional notes (if applicable): <u>PAH's due 9/22/16.</u>		
Profile #: <u>338 928</u>		

Note to Client: any "no" circled above indicates non-compliance with standard procedures and may impact data quality.





e-SAMPLE RECEIPT FORM

1168600



Review Criteria	Y/N (yes/no)	Exceptions Noted below
Were Custody Seals intact? Note # & location	<input checked="" type="checkbox"/>	<input type="checkbox"/> exemption permitted if sampler hand carries/delivers.
COC accompanied samples?	<input checked="" type="checkbox"/>	1-F, 1-B
<input type="checkbox"/> **exemption permitted if chilled & collected <8hrs ago or chilling not required (i.e., waste, oil)	<input checked="" type="checkbox"/>	
Temperature blank compliant* (i.e., 0-6 °C after CF)?	<input checked="" type="checkbox"/>	Cooler ID: 1 @ 0.4 °C Therm ID: 242
	<input type="checkbox"/>	Cooler ID: @ °C Therm ID:
	<input type="checkbox"/>	Cooler ID: @ °C Therm ID:
	<input type="checkbox"/>	Cooler ID: @ °C Therm ID:
	<input type="checkbox"/>	Cooler ID: @ °C Therm ID:
*If >6°C, were samples collected <8 hours ago?	<input type="checkbox"/>	
If <0°C, were sample containers ice free?	<input type="checkbox"/>	
If samples received <u>without</u> a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank & "COOLER TEMP" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note "ambient" or "chilled".		
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
Note: Refer to form F-083 "Sample Guide" for hold times.		
Were samples received within hold time?	<input checked="" type="checkbox"/>	
Do samples <b>match COC**</b> (i.e., sample IDs, dates/times collected)?	<input checked="" type="checkbox"/>	
**Note: If times differ <1hr, record details & login per COC.		
Were analyses requested unambiguous?	<input checked="" type="checkbox"/>	
Were proper containers (type/mass/volume/preservative***)used?	<input checked="" type="checkbox"/>	<input type="checkbox"/> ***Exemption permitted for metals (e.g,200.8/6020A).
<b>IF APPLICABLE</b>		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	<input checked="" type="checkbox"/>	
Were all VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	<input checked="" type="checkbox"/>	
Were all soil VOAs field extracted with MeOH+BFB?	<input checked="" type="checkbox"/>	
<b>Note to Client:</b> Any "no" answer above indicates non-compliance with standard procedures and may impact data quality.		
Additional notes (if applicable):		
Water Trip Blanks (Sample 21) and PAHs (Samples 3F & 4F) were received with limited volume.		



### Sample Containers and Preservatives

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1168600001-A	HCL to pH < 2	OK	1168600011-B	Methanol field pres. 4 C	OK
1168600001-B	HCL to pH < 2	OK	1168600012-A	No Preservative Required	OK
1168600001-C	HCL to pH < 2	OK	1168600012-B	Methanol field pres. 4 C	OK
1168600001-D	HCL to pH < 2	OK	1168600013-A	No Preservative Required	OK
1168600001-E	HCL to pH < 2	OK	1168600013-B	Methanol field pres. 4 C	OK
1168600002-A	HCL to pH < 2	OK	1168600014-A	No Preservative Required	OK
1168600002-B	HCL to pH < 2	OK	1168600014-B	Methanol field pres. 4 C	OK
1168600002-C	HCL to pH < 2	OK	1168600015-A	No Preservative Required	OK
1168600002-D	HCL to pH < 2	OK	1168600015-B	Methanol field pres. 4 C	OK
1168600002-E	HCL to pH < 2	OK	1168600016-A	No Preservative Required	OK
1168600003-A	HCL to pH < 2	OK	1168600016-B	Methanol field pres. 4 C	OK
1168600003-B	HCL to pH < 2	OK	1168600017-A	No Preservative Required	OK
1168600003-C	HCL to pH < 2	OK	1168600017-B	No Preservative Required	OK
1168600003-D	HCL to pH < 2	OK	1168600017-C	Methanol field pres. 4 C	OK
1168600003-E	HCL to pH < 2	OK	1168600018-A	No Preservative Required	OK
1168600003-F	No Preservative Required	OK	1168600018-B	Methanol field pres. 4 C	OK
1168600004-A	HCL to pH < 2	OK	1168600019-A	No Preservative Required	OK
1168600004-B	HCL to pH < 2	OK	1168600020-A	No Preservative Required	OK
1168600004-C	HCL to pH < 2	OK	1168600020-B	Methanol field pres. 4 C	OK
1168600004-D	HCL to pH < 2	OK	1168600021-A	HCL to pH < 2	OK
1168600004-E	HCL to pH < 2	OK	1168600021-B	HCL to pH < 2	OK
1168600004-F	No Preservative Required	OK	1168600021-C	HCL to pH < 2	OK
1168600005-A	HCL to pH < 2	OK	1168600021-D	HCL to pH < 2	OK
1168600005-B	HCL to pH < 2	OK	1168600022-A	Methanol field pres. 4 C	OK
1168600005-C	HCL to pH < 2	OK			
1168600005-D	HCL to pH < 2	OK			
1168600005-E	HCL to pH < 2	OK			
1168600005-F	HCL to pH < 2	OK			
1168600005-G	HCL to pH < 2	OK			
1168600005-H	HCL to pH < 2	OK			
1168600006-A	HCL to pH < 2	OK			
1168600006-B	HCL to pH < 2	OK			
1168600006-C	HCL to pH < 2	OK			
1168600007-A	No Preservative Required	OK			
1168600007-B	Methanol field pres. 4 C	OK			
1168600008-A	No Preservative Required	OK			
1168600008-B	Methanol field pres. 4 C	OK			
1168600009-A	No Preservative Required	OK			
1168600009-B	Methanol field pres. 4 C	OK			
1168600010-A	No Preservative Required	OK			
1168600010-B	Methanol field pres. 4 C	OK			
1168600011-A	No Preservative Required	OK			

Container Id

Preservative

Container  
Condition

Container Id

Preservative

Container  
Condition

#### Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.

BU - The container was received with headspace greater than 6mm.

DM- The container was received damaged.

FR- The container was received frozen and not usable for Bacteria or BOD analyses.

PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

## Laboratory Data Review Checklist

Completed by:

Title:  Date:

CS Report Name:  Report Date:

Consultant Firm:

Laboratory Name:  Laboratory Report Number:

ADEC File Number:  ADEC RecKey Number:

1. Laboratory

- a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?  
 Yes  No  NA (Please explain.)                      Comments:

- b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?  
 Yes  No  NA (Please explain.)                      Comments:

2. Chain of Custody (COC)

- a. COC information completed, signed, and dated (including released/received by)?  
 Yes  No  NA (Please explain.)                      Comments:

- b. Correct analyses requested?  
 Yes  No  NA (Please explain.)                      Comments:

3. Laboratory Sample Receipt Documentation

- a. Sample/cooler temperature documented and within range at receipt ( $4^{\circ} \pm 2^{\circ} \text{C}$ )?  
 Yes  No  NA (Please explain.)                      Comments:

- b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?  
 Yes  No  NA (Please explain.)                      Comments:

Methanol and HCl were used as field preservatives where required by method criteria.

- c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?  
 Yes  No  NA (Please explain.)                      Comments:

Samples were documented as received in good condition.

- d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?  
 Yes  No  NA (Please explain.)                      Comments:

The laboratory noted that the water trip blank (sample 21) and PAHs for samples 3F and 4F were received with limited volume. Sufficient volume was available to perform the requested analyses. The analytical results are not considered affected by these sample handling anomalies

- e. Data quality or usability affected? (Please explain.)                      Comments:

The data quality and usability were not affected.

4. Case Narrative

- a. Present and understandable?  
 Yes  No  NA (Please explain.)                      Comments:

- b. Discrepancies, errors or QC failures identified by the lab?  
 Yes  No  NA (Please explain.)                      Comments:

The case narrative notes that project samples B-5-2016(27.5'), B-2-2016(6.0'), B-2-2016(47.5'), B-4-2016(11.0'), and B-1002 have surrogate recoveries for 4-bromofluorobenzene (biased high) that do not meet QC criteria due to matrix interference for GRO analysis.

The case narrative notes that project samples B-4-2016(11.0') and B-1001 have surrogate recoveries for 2-fluorobiphenyl (biased high) that do not meet QC criteria due to sample dilution for PAH analysis.

The case narrative notes that project sample B-4-2016(11.0') has a surrogate recovery for 5a-androstane (biased high) that does not meet QC criteria due to sample dilution for DRO analysis.

The case narrative notes that the laboratory control sample (LCS) recovery for bromomethane did not meet QC criteria (biased high) and the LCS duplicate (LCSD) recoveries for chloromethane and bromomethane did not meet QC criteria (biased high) for VOC analysis. The laboratory states that these analytes were not detected above the LOQ in the associated samples.

c. Were all corrective actions documented?  
 Yes  No  NA (Please explain.)

Comments:

No corrective actions were documented by the laboratory.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

The laboratory does not specify any effect on the data quality or usability due to the QC failures; refer to Section 6 for further assessment.

## 5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes  No  NA (Please explain.)

Comments:

b. All applicable holding times met?

Yes  No  NA (Please explain.)

Comments:

c. All soils reported on a dry weight basis?

Yes  No  NA (Please explain.)

Comments:

d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?

Yes  No  NA (Please explain.)

Comments:

Reporting values were below ADEC-established water or soil cleanup levels, where applicable, for results less than the limit of detection (LOD), with the following exceptions. The analytes 1,2-dibromoethane and 1,2,3-trichloropropane had LODs above the groundwater cleanup levels. The results cannot confirm that the analyte is present at a concentration above the cleanup level, but below the LOD.

e. Data quality or usability affected?

Comments:

Yes; see above.

## 6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes  No  NA (Please explain.)

Comments:

ii. All method blank results less than PQL?

Yes  No  NA (Please explain.)

Comments:

However, the following analytes had detections in the MB at estimated concentrations [less than the limit of quantitation (LOQ) but greater than the detection limit (DL)]:

1,2,3-Trichlorobenzene and chloromethane were detected at estimated concentrations in MB 1354116 associated with QC batch VXX/29621.

GRO was detected at an estimated concentration in MB 1354751 associated with QC batch VXX/29639.

2-Methylnaphthalene, benzo(a)anthracene, fluoranthene, phenanthrene, and pyrene were detected at estimated concentrations in MB 1353365 associated with QC batch XXX/36351.

RRO was detected at an estimated concentration in MB 1353644 associated with QC batch XXX/36360.

DRO was detected at an estimated concentration in MB 1354713 associated with QC batch XXX/36396.

iii. If above PQL, what samples are affected?

Comments:

1,2,3-Trichlorobenzene and chloromethane were not detected above the DL in the project samples associated with QC batch VXX/29621. The results are not affected by the detections in MB 1354116.

GRO was detected in all project samples associated with QC batch VXX/29639. The project samples with GRO concentrations greater than ten times the MB detection are not affected by the QC failure. The GRO detections in samples B-2-2016(36.0'), B-2-2016(49.5'), and the soil trip blank were within ten times the MB detection and are affected by the QC failure.

2-Methylnaphthalene, benzo(a)anthracene, fluoranthene, phenanthrene, and pyrene were detected in the samples associated with QC batch XXX/36351. The analytes benzo(a)anthracene, fluoranthene, phenanthrene, and pyrene were detected in project samples B-2-2016(9-15-16) and B-1004 at concentrations less than ten times the MB detections. The results for these analytes in project samples B-2-2016(9-15-16) and B-1004 are affected by the QC failure.

RRO was detected in all of the samples associated with QC batch XXX/36360. The RRO results in samples B-4-2016(35.0') and B-1002 are within ten times the concentration detected in the MB. The RRO results for these samples are affected by the QC failure.

DRO was detected in all samples associated with QC batch XXX/36396. The DRO results for samples B-1-2016(9-15-16), B-6-2016(9-16-16), B-2-2016(9-15-16), B-1004, and KACI(9-15-16) are within ten times the MB detection. The DRO results for these samples are affected by the QC failure.

iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?

Yes  No  NA (Please explain.)

Comments:

The GRO result in sample B-2-2016(36.0') is between five and ten times the concentration detected in the method blank and is considered estimated, biased high, and flagged 'JH' in the analytical table.

The GRO results in the sample B-2-2016(49.5') and the soil trip blank are within five times the MB detection and are therefore considered to be the result of laboratory contamination. These results are considered not detected, no direction of bias, and flagged 'UB' at the LOQ in the analytical table.

The benzo(a)anthracene, fluoranthene, phenanthrene, and pyrene results in samples B-2-2016(9-15-16) and B-1004 are within five times the MB detection and are therefore considered to be the result of laboratory contamination. These results are considered not detected, no direction of bias, and flagged 'UB' at the LOQ in the analytical table.

The RRO result in the sample B-4-2016(35.0') is within five to ten times the concentration detected in the MB. The result is considered estimated, biased high, and flagged 'JH' in the analytical table. The RRO result in sample B-1002 is less than five times the concentration in the MB but greater than the LOQ. The result is considered not detected, no direction of bias, and flagged 'UB' at the detected result in the analytical table.

The DRO results in samples B-1-2016(9-15-16), B-6-2016(9-16-16), B-2-2016(9-15-16), B-1004, and KACI(9-15-16) are less than five times the MB concentration. The results are considered not detected at the sample concentration or the LOQ, whichever value is greater.

v. Data quality or usability affected? (Please explain.)

Comments:

Yes; see above

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes  No  NA (Please explain.)

Comments:

LCS/LCSD samples were reported for BTEX, VOC, GRO, DRO, RRO, and PAH analyses for water samples.

LCS/LCSD samples were reported for GRO, DRO, and RRO analyses for soil samples.

LCS and MS/MSD samples were reported for PAH analyses.

LCS/LCSD and MS/MSD samples were reported for BTEX analysis.

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes  No  NA (Please explain.)

Comments:

Metals/inorganic analyses were not requested with this work order.



- iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)
- Yes  No  NA (Please explain.)                      Comments:

The percent recovery for bromomethane did not meet QC criteria in LCS (1354117) or LCSD (1354118) for VOC analysis.

The percent recovery for chloromethane did not meet QC criteria in LCSD (1354118) for VOC analysis.

The percent recoveries for benzene, ethylbenzene, o-xylene, and p&m-xylene were outside of the laboratory limits in MS (1354756) and MSD (135757).

- iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)
- Yes  No  NA (Please explain.)                      Comments:

- v. If %R or RPD is outside of acceptable limits, what samples are affected?
- Comments:

LCS 1354117 and LCSD 1354118 is listed as batch QC for the samples KACI(9-15-16) and B-1003. However, neither bromomethane nor chloromethane were detected above the detection limit in either of these samples. The results are therefore not affected by the QC failures.

The parent sample concentrations in MS (1354756) and MSD (135757) were greater than or equal to the spiking concentrations. This may cause a significant uncertainty to the recovery calculations and the QC failures may not be representative of actual method performance. Additionally, the parent sample upon which the spike was performed was not part of the sample set submitted with this work order. The results are not affected by the MS and MSD recovery failures.

- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
- Yes  No  NA (Please explain.)                      Comments:

The project samples are not considered affected by the QC failures; see above.

- vii. Data quality or usability affected? (Use comment box to explain.)
- Comments:

The data quality and usability were not affected; see above.

c. Surrogates – Organics Only

- i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?  
 Yes  No  NA (Please explain.)                      Comments:

- ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)  
 Yes  No  NA (Please explain.)                      Comments:

Project samples B-5-2016(27.5'), B-2-2016(6.0'), B-2-2016(47.5'), B-4-2016(11.0'), and B-1002 have surrogate recoveries for 4-bromofluorobenzene (biased high) that do not meet QC criteria due to matrix interference for GRO analysis.

Project samples B-4-2016(11.0') and B-1001 have surrogate recoveries for 2-fluorobiphenyl (biased high) that do not meet QC criteria due to sample dilution for PAH analysis.

Project sample B-4-2016(11.0') has a surrogate recovery for 5a-androstane (biased high) that does not meet QC criteria due to sample dilution for DRO analysis.

- iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?  
 Yes  No  NA (Please explain.)                      Comments:

The GRO results in project samples with 4-bromofluorobenzene surrogate recoveries due to matrix interference are considered biased high and flagged with a 'JH' in the analytical table.

Surrogate recovery failures due to sample dilutions are not considered to affect the analytical results.

- iv. Data quality or usability affected? (Use the comment box to explain.)  
Comments:

Yes; see above.

d. Trip blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

- i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)  
 Yes  No  NA (Please explain.)                      Comments:

Trip blanks were analyzed for GRO, BTEX, and VOCs.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC?  
(If not, a comment explaining why must be entered below)

Yes  No  NA (Please explain.)                      Comments:

However, all samples were transported in a single cooler. Both soil and water trip blanks accompanied the volatile samples at all times.

iii. All results less than PQL?

Yes  No  NA (Please explain.)                      Comments:

All results were below the LOQ (the laboratory PQL). However, the project analytes GRO, o-xylene, and p&m -xylene were detected at estimated concentrations in the soil trip blank.

iv. If above PQL, what samples are affected?

Comments:

The GRO detection in the soil trip blank was roughly equivalent to the concentration detected in MB 1354751. We therefore believe that the GRO detection in the soil trip blank is the result of contamination during the analytical process rather than cross-contamination of the samples. However, the project samples B-1-2016(47.0'), B-2-2016(36.0'), B-2-2016(49.5'), B-6-2016(36.0'), B-7-2016(37.0'), B-8-2016(37.0'), and B-1002 are affected by the trip blank detections for o-xylene and p&m-xylene.

v. Data quality or usability affected? (Please explain.)

Comments:

The o-xylene results in the samples B-1-2016(47.0'), B-2-2016(36.0'), B-6-2016(36.0'), B-7-2016(37.0'), and B-8-2016(37.0') were less than five times the concentration detected in the soil trip blank and are considered not detected. The results are flagged 'UB' at the sample concentration or the LOQ (whichever is greater) in the analytical table.

The p&m -xylene results in the samples B-1-2016(47.0'), B-2-2016(36.0'), B-6-2016(36.0'), B-7-2016(37.0'), B-8-2016(37.0'), and B-1002 were less than five times the concentration detected in the soil trip blank and are considered not detected. The results are flagged 'UB' at the sample concentration or the LOQ (whichever is greater) in the analytical table.

The p&m -xylene concentration detected in the sample B-2-2016(49.5') was between five and ten times the concentration detected in the soil trip blank. The result is considered estimated, biased high, and flagged 'JH' in the analytical table.

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes  No  NA (Please explain.)                      Comments:

ii. Submitted blind to lab?

Yes  No  NA (Please explain.)

Comments:

The field duplicate pairs "B-4-2016(11.0') / B-1001," "B-5-2016(27.5') / B-1002," "KACI(9-15-16) / B-1003," and "B-2-2016(9-15-16) / B-1004" were submitted with this work order.

iii. Precision – All relative percent differences (RPD) less than specified DQOs?  
(Recommended: 30% water, 50% soil)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2) / 2)} \times 100$$

Where  $R_1$  = Sample Concentration

$R_2$  = Field Duplicate Concentration

Yes  No  NA (Please explain.)

Comments:

The RPDs for the field duplicate pair B-4-2016(11.0') / B-1001 were within acceptance criteria, (50% for soils) where calculable, for all analytes.

The RPDs for the field duplicate pair B-5-2016(27.5') / B-1002 were within acceptance criteria (50% for soils) for all analytes, with the exception of o-xylene and p&m -xylenes. The results for these analytes in the field duplicate samples are considered estimated (no bias) and are flagged 'J' (where not already qualified) to identify the imprecision.

The RPDs for the field duplicate pair KACI(9-15-16) / B-1003 were within acceptance criteria (30% for water) where calculable, for all analytes.

The RPDs for the field duplicate pair B-2-2016(9-15-16) / B-1004 were within acceptance criteria (30% for water) where calculable, for all analytes.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Yes; see above.

f. Decontamination or Equipment Blank (If not used explain why).

Yes  No  NA (Please explain.)

Comments:

Equipment blanks were not submitted with this work order because samples were not collected with reusable sampling equipment.

i. All results less than PQL?

Yes  No  NA (Please explain.)

Comments:

Equipment blanks were not required for the project.

ii. If above PQL, what samples are affected?

Comments:

N/A; equipment blanks were not required for the project.

iii. Data quality or usability affected? (Please explain.)

Comments:

The data quality and usability were not affected; see above.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes  No  NA (Please explain.)

Comments:

There were no other data flags/qualifiers.

**APPENDIX F**

**IMPORTANT INFORMATION ABOUT YOUR REPORT**

Date: July 31, 2017

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**To:** CEM Leasing  
Attn: Phil Tannehill

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**Re:** Interior Texaco Limited Site Characterization  
Report

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## **IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL/ENVIRONMENTAL REPORT**

### **CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.**

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

### **THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.**

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include: the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used: (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors which were considered in the development of the report have changed.

### **SUBSURFACE CONDITIONS CAN CHANGE.**

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

### **MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.**

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

#### **A REPORT'S CONCLUSIONS ARE PRELIMINARY.**

The conclusions contained in your consultant's report are preliminary because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

#### **THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.**

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

#### **BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.**

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

#### **READ RESPONSIBILITY CLAUSES CLOSELY.**

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports, and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the  
ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland