BGES, INC.

ENVIRONMENTAL CONSULTANTS

MATANUSKA-SUSITNA BOUROUGH
TRACT A, TALKEETNA LIBRARY SUBDIVISION
TALKEETNA, ALASKA

ADEC FILE NO. 2258.38.016

2013 SITE CHARACTERIZATION REPORT

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Submitted to:

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ACRONYMS

AAC	-	Alaska Administrative Code
ADEC	-	Alaska Department of Environmental Conservation
AK	-	Alaska Method
ARRC	-	Alaska Railroad Corporation
BFB	-	4-bromofluorobenzene
bg	-	below grade
BGES	-	Braunstein Geological and Environmental Services
BTEX	-	benzene, toluene, ethylbenzene, and total xylenes
C	-	Celsius
CCV	-	Continuing Calibration Verification
CSM	-	Conceptual Site Model
DRO	-	Diesel Range Organics
EDB	-	ethylene dibromide or 1,2-dibromoethane
EPA	-	Environmental Protection Agency
GeoTek	-	GeoTek Alaska, Inc.
GRO	-	Gasoline Range Organics
J	-	estimated value
LCS	-	Laboratory Control Sample
LOQ	-	Limit of Quantitation
mg/Kg	-	milligrams per kilogram
mg/L	-	milligrams per liter
ml/min	-	milliliters per minute
MS	-	Matrix Spike
MSB	-	Matanuska-Susitna Borough
MSD	-	Matrix Spike Duplicate
ORP	-	Oxidation Reduction Potential
PAH	-	Polynuclear Aromatic Hydrocarbons
PID	-	Photoionization Detector
ppm	-	parts per million
PVC	-	polyvinyl chloride
QC	-	Quality Control
QP	-	Qualified Person
RPD	-	Relative Percent Difference
RRO	-	Residual Range Organics
SGS	-	SGS North America, Inc.
UST	-	underground storage tank
VOCs	-	Volatile Organic Compounds

1.0 INTRODUCTION

BGES, Inc. (BGES) was retained by the Matanuska-Susitna Borough (MSB), to characterize the extent of soil and groundwater contamination at the Tract A Talkeetna Library Subdivision in Talkeetna, Alaska, hereafter referred to as the subject property (Figure 1). The subject property is located at Latitude 62º18'49.24"North and Longitude 150º06'17.94"West. These assessment activities were performed in March and June of 2013 to characterize the nature and extent of soil and groundwater contamination and to identify the potential source(s) of contamination encountered on the subject property, if present.

2.0 BACKGROUND

Eight soil borings were previously advanced by a geotechnical consultant as part of the design phase of the proposed new Talkeetna library building. During advancement of the geotechnical borings, petroleum hydrocarbon odors were noted in two of the soil borings by the geotechnical consultants. BGES was retained by the MSB to evaluate the contamination identified by the geotechnical consultant at the subject property. The potential source(s) of the contamination is not known; however, there was a former gas station located on the property adjacent to, and north of the subject property and there has reportedly been at least one train derailment that occurred adjacent to, and east of the subject property. The chassis of at least six railroad cars were observed on the subject property during the March and June site characterization activities.

The former Hales Gas Station is located on the property adjacent to, and north of the subject property and is listed as an "active" contaminated site in the Alaska Department of Environmental Conservation (ADEC) Contaminated Sites Database (File Number: 2258.26.002; Hazard Identification Number: 23167). The Hales Gas Station was a former gas station for many years and two registered underground storage tanks (USTs) were reportedly removed from service in 1998. During 2000, two registered USTs and their associated piping were removed from the west side of the gas station. The 500-gallon tank previously contained gasoline (possibly leaded) and the 1,000-gallon tank previously contained diesel fuel. Soil and groundwater contamination was observed within the former tank basin during investigation activities conducted in 2000. The maximum concentrations identified in groundwater during the UST removal activities were 17.7 milligrams per liter (mg/L) of benzene, 2.8 mg/L of ethylbenzene, 70.8 mg/L of toluene, and 45.7 mg/L of total xylenes. The maximum gasoline range organics (GRO) concentration in soil samples was 3,910 milligrams per kilogram (mg/Kg). Excavation

on the west side of the former gas station building was conducted in 2007 and 2008. The excavated soils (approximately 500 cubic yards of soils) were placed in a biocell, which was constructed on the southeastern portion of the former gas station property. In addition, three monitoring wells were installed in the vicinity of the excavation to determine groundwater contaminant concentrations and approximate flow direction. The confirmation soil sample collected from the western sidewall of the excavation next to the city's water main, exhibited concentrations that exceeded ADEC cleanup criteria. This confirmation sample exhibited the following concentrations: GRO at 394 mg/Kg; ethylbenzene at 18.5 mg/Kg; total xylenes at 105 mg/Kg; and diesel range organics (DRO) at 1,860 mg/Kg. The water samples collected from the monitoring wells in 2008 exhibited concentrations of lead at 0.0224 mg/L and DRO at 3.15 mg/L, which exceed ADEC cleanup criteria. Groundwater was encountered at an approximate depth between 7 and 9 feet below grade (bg) and the groundwater flow direction is generally towards the west.

According to Charlene Doherty, Personal Representative for the Estate of Mr. Bert Hales, Jr., a former railroad engineer John Carlson, was stationed in Talkeetna during the Korean conflict (1950 to 1953) and during a train derailment on the former Hales Tesoro property, which is located adjacent to, and north of the subject property. Mr. Carlson reportedly indicated that the train was carrying fuel for the military and after the train derailment, the spilled fuel extended to the slough, into Twister Creek, and eventually the Susitna River. It is not known how much fuel was released during this train derailment. According to Mr. Carlson the railroad chassis' currently on the Former Hales Tesoro property were remnants of this historic train derailment. Ms. Doherty was also contacted in May of 2013 and she indicated that additional research by her daughter discovered information about a different train derailment that occurred in the 1960s. Ms. Doherty stated that fuel tanker cars derailed in the vicinity of the subject property and the former Hales Tesoro property. She also indicated that Alaska Railroad Corporation (ARRC) personnel removed all of the tankers and left the railroad car chassis; however, no additional information is known about this train derailment. BGES requested permission from Ms. Doherty to access the three groundwater monitoring wells located on the former Hales Tesoro property to obtain water level measurements for evaluating groundwater flow direction. Ms. Doherty denied BGES' request to access the monitoring wells.

Based on the results of the geotechnical assessment by another consultant for MSB, as described above, it was recommended that soil and groundwater samples be collected and submitted for analysis to evaluate subsurface conditions at the subject property. The results of our findings area are described below.

3.0 FIELD ACTIVITIES

The site characterization activities were performed during two separate rounds of assessment activities to evaluate of the nature and extent of soil and groundwater contamination at the subject property. The first round of characterization activities were performed in March of 2013 and included the advancement of nine soil borings and the installation of one temporary monitoring well. The second round of characterization activities consisted of the advancement of 13 soil borings and the installation of 3 permanent monitoring wells during June of 2013. During the March and June 2013 characterization activities, BGES personnel identified the presence of at least six railroad car chassis on the subject property. All field activities were performed by a Qualified Person as defined by the ADEC and in general accordance with ADEC Field Sampling Guidance (May 2010).

3.1 Site Characterization Activities (March of 2013)

Prior to advancement of the soil borings, BGES personnel verified that all subsurface utilities in the project area had been located and marked. A brief site reconnaissance of the subject property revealed various metal items along the northern and eastern property boundaries. At the time, it was assumed that these items were related to the partially-buried, old railroad cars, because the majority of these items were covered with snow (Photograph 1 and 2 in Appendix A). A park/playground area occupied the south central portion of the subject property. A thorough site reconnaissance was not performed because a majority of the property grounds and surrounding properties were covered with a layer of snow and ice during these site characterization activities.

BGES observed and documented the advancement of nine soil borings (SB1 through SB9) and the completion of one soil boring as a temporary monitoring well (TW2) on March 19 and 20, 2013 (Figure 2). These soil borings were advanced by Wininger Drilling of Wasilla, Alaska utilizing a truck-mounted, drilling rig (CME75) equipped with hollow stem augers (Photograph 3 in Appendix A). Soil Borings SB4 through SB6, SB8, and SB9 were advanced to a total depth of 8 feet bg. Soil Borings SB1 through SB3, and SB7 were advanced to a depth of 10 feet bg. Groundwater was encountered between 6 feet bg and 9 feet bg for all soil borings.

During drilling, soil samples were collected utilizing a 2-foot split-spoon samplers, continuously from the ground surface to the base of each boring. Soil samples were collected from each split-spoon sampler using a clean, stainless steel spoon. Field screening samples were collected and placed in a sealable plastic bag, labeled with a unique sample number and the time of collection. Soils in each

plastic bag were screened with a photoionization detector (PID) that was calibrated prior to use with 100 parts per million (ppm) isobutylene calibration gas. The field screening sample was allowed to warm in a heated vehicle for at least 10 minutes to a temperature of at least 45 degrees Fahrenheit, then the plastic bags were agitated for approximately 15 seconds within 1 hour of collection, at which point the probe of the PID was inserted into the bag and the greatest PID reading was recorded.

A second portion of each sample was immediately placed in laboratory-supplied containers for laboratory analysis, utilizing a clean stainless steel spoon. Sample portions scheduled to be analyzed for volatile compounds were collected first and preserved with methanol immediately after collection. The methanol provided by the laboratory was added to the sample in a manner that completely covered the sample. The sample containers were labeled, placed in ice-filled coolers, and delivered by BGES personnel under chain of custody protocol to SGS North America, Inc. (SGS) of Anchorage, Alaska, an ADEC-approved laboratory, for analysis. A trip blank accompanied the soil samples scheduled for volatiles analyses during the entire sampling and handling process and one duplicate soil sample was collected and submitted “blindly” to the laboratory for analysis for quality control measures.

During the advancement of these nine soil borings, a petroleum odor was noted in every boring at the soil/groundwater interface, except for SB1. The PID readings ranged from 0 ppm to greater than 1,000 ppm (Figure 3). The soils encountered from the ground surface to approximately 2 or 2.5 feet bg consisted of a silt interval, underlain by sand from approximately 2.5 feet to 9 or 10 feet bg, and a gravel interval was encountered beneath the sand to at least 15 feet bg (maximum depth of borehole advancement). Petroleum odors were noted in Soil Borings SB2, SB3, and SB5 through SB9 at the soil/groundwater interface. The soil descriptions and PID readings for all samples for each soil boring were recorded in soil boring logs (Appendix B).

Soil samples (SB1 through SB9) were collected from the within the smear zone in every soil boring (approximately 6 feet to 10 feet bg) for submittal to the laboratory for analysis. One duplicate soil sample was collected from Soil Boring SB2 and submitted "blindly" to the laboratory for analysis for quality control measures. After completion of each soil boring, the boreholes were backfilled with bentonite chips and completed with topsoil.

In order to collect a “grab” water sample, a second borehole was advanced adjacent to Soil Boring SB2 to approximately 10 feet bg and a temporary well (TW2) was installed (Figure 4). The temporary monitoring well was constructed with approximately 10 feet of 2-inch diameter, 10-slot polyvinyl

chloride (PVC) well screen, which was positioned at a total depth of approximately 10 feet bg. The grab water sample was collected from an approximate depth of 9 feet bg utilizing a peristaltic pump with new tubing and a low-flow sampling technique. Because the "grab" water sample is considered to be a field screening sample, the temporary well was not developed or purged prior to collection of the groundwater sample. To minimize the loss of volatiles during the collection of the "grab" water sample, the sample flow rate was maintained between 0.1 and 0.5 liter per minute. Water samples were collected directly in laboratory-supplied containers and the samples for volatile analyses were collected first. The water was carefully collected in the laboratory-supplied vials in such a way so that no headspace was created within the sample containers and so that none of the preservative was spilled from the containers scheduled for volatiles analyses. As a quality control measure, a trip blank sample accompanied all samples scheduled for volatile analyses. The samples were labeled, stored in a chilled cooler, and delivered under chain of custody protocol to SGS in Anchorage. After collection of the water sample, the temporary well was removed from the ground and the borehole was backfilled with bentonite chips and completed with topsoil.

The handling of the investigation-derived wastes generated during these field activities are described below, in Section 3.5.

Based on the field screening results from the March of 2013 characterization activities, BGES, on behalf of the MSB, notified John Brown of ADEC's Prevention and Emergency Response Program, of the discovery of contamination at the subject property. Initially BGES notified Mr. Brown via phone on March 20, 2013 and followed up this conversation with email correspondence on March 22, 2013.

3.2 Work Plan Approval and Meeting with ADEC (April to May of 2013)

The Limited Phase II Environmental Site Assessment Work Plan (dated March 28, 2013) was submitted to the ADEC for review and approval. Based on the results from March 2013 field activities, BGES met with Rich Sundet and John Brown (ADEC Project Managers); Eric Phillips, MSB representative; and Russell Grandel and Matt Kelzenberg, ARRC representatives on April 29, 2013 to discuss the results of the March of 2013 activities, information about historical train derailments in the area of the subject property, and a proposed plan of action for the subject property. In the meeting, the ARRC representatives mentioned that a train derailment had occurred sometime in the 1940s and the records indicated that only flat cars were derailed. The ARRC indicated that the federal government owned the railroad during the 1940s. Mr. Sundet had no objections to implementation of the work plan; however,

additional activities were requested in the work plan approval letter. These additional activities included the following:

- At least one soil sample and one groundwater samples be submitted for analysis of volatile organic compounds (VOCs) by Method 8260. These samples should be collected from the locations with the greatest PID readings or where field observations suggest that groundwater may be most highly contaminated. A duplicate soil sample and a duplicate groundwater sample should also be analyzed for VOCs.

- The report for these investigation activities should include the following information: background and results of the work performed and reported to the ADEC by BGES in March of 2013; background information; results of the proposed investigation activities; any work plan modifications including implementation of any ADEC recommendations; analytical data; laboratory data review checklists; a discussion of the data quality control and quality assurance; survey data; a conceptual site model (CSM); conclusions; and recommendations.

Mr. Rich Sundet, ADEC Project Manager, provided approval of the work plan in correspondence to Mr. Eric Phillips, MSB, dated May 8, 2013. The subject property has been added to the ADEC Contaminated Sites Database and is listed as an "Active" contaminated site (ADEC File Number 2258.38.016 and Hazard Identification Number 26055).

3.3 Modification to the Work Plan

All field activities completed in June of 2013 were performed in accordance to the approved work plan (March 28, 2013) with the following exceptions.

- Four soil samples (including a duplicate sample) and two groundwater samples (including a duplicate sample) were collected and analyzed for VOCs. These samples were selected from the soil boring and monitoring well locations which exhibited the greatest PID readings during the June investigation activities, which are described below in Section 3.4. These work plan modifications were requested by Rich Sundet, ADEC Project Manager, in the correspondence documenting approval of the work plan (May 8, 2013).

3.4 Site Characterization Activities (June of 2013)

Prior to advancement of additional soil borings, BGES personnel conducted a thorough site

reconnaissance to evaluate the subject property for potential sources of contamination stemming from the abandoned rail cars on the subject property. A metal detector was utilized to identify potential rail cars and associated parts on the subject property (Figure 2). Six partially-buried rail car chassis were identified on the subject property, along with various metal scraps that appeared to be parts from the rail cars (Photograph 4 and 5 in Appendix A).

The objective of the advancement of these additional soil borings was to further define the extent of contamination on the subject property. Therefore, thirteen soil borings were advanced because of the iterative sampling process. The field screening sample results were utilized to assist in determining the location of each sequential soil boring.

BGES observed and documented the advancement of 13 soil borings (SB10 through SB22) and the installation of three permanent monitoring wells (MW8, MW10, and MW22), on June 10 and 11, 2013 (Figures 2 and 4). The borings were advanced using a GeoProbe 6620DT direct push drilling rig provided by GeoTek Alaska, Inc. (GeoTek) of Anchorage, Alaska (Photograph 6 in Appendix A). Static and percussion forces were utilized to advance a 5-foot long Macro-Core sampler into subsurface soils. The Macro-Core sampler contained a fitted plastic sleeve used to collect the soils continuously from the surface to the maximum depth of each boring. All soil borings were advanced to 15 feet bg.

One field screening sample was collected for every 2.5-foot interval of the soil boring, except when there was poor core sample recovery. Soil samples were collected from the Macro-Core sampler using clean, stainless steel spoons. Field screening samples were placed into a sealable plastic bag using a clean, stainless steel spoon, and labeled with a unique sample number and the time of collection. Additional portions of each sample were placed in one or more laboratory-supplied containers utilizing a clean stainless steel spoon for laboratory analysis. The soils were field screened, collected, logged, handled, and submitted for laboratory analysis utilizing the same procedures described above in Section 3.1.

During the advancement of Soil Borings SB10 through SB22, a petroleum odor was noted in Soil Borings SB14, SB19, and SB22 in soils located within the smear zone. The PID readings ranged from 0 ppm to greater than 1,000 ppm for Soil Borings SB10 through SB22 (Figure 3). All soil samples to be submitted for laboratory analysis were collected from the smear zone which ranged from approximately 8 feet to 12 feet bg. One duplicate soil sample was collected from Soil Boring SB22 and submitted "blindly" to the laboratory for analysis for quality control measures. After completion of each soil boring, the boreholes were backfilled with bentonite chips.

The soils encountered during these investigative activities were similar to those described above in Section 3.2. The Soil Boring Logs are included in Appendix B.

3.5 Monitoring Well Installation and Survey

On June 11, 2013, BGES observed the installation of two monitoring wells in Soil Borings SB10 and SB22 (Monitoring Wells MW10 and MW22, respectively). A third monitoring well was installed approximately 15 feet north of SB8, named MW8 (Figure 4). These monitoring wells were installed to evaluate groundwater quality at the subject property. Each of the monitoring wells that were installed, were named in accordance with the soil boring advanced in the location of the monitoring well. Monitoring Wells MW1 through MW7, MW9, and MW11 through MW21 do not exist.

Each groundwater monitoring well was constructed with approximately 7 feet of 2-inch diameter PVC casing and 10 feet of 2-inch diameter, 10-slot, pre-packed, PVC well screen, which was positioned at an approximate depth of 14.5 feet bg. The wells were then completed by backfilling the annular space around the well screen with clean sand to approximately 2 feet above the interface of the casing and screen; followed by approximately a 1.5-foot thick bentonite chip seal; followed by another 0.5 foot of clean sand. Finally, approximately 1 foot of concrete was placed around the stick-up monitor well cover. Well Completion Logs are included in Appendix B.

Following the completion of the monitoring wells installations, BGES surveyed the top of casings and ground elevations for each of the monitoring wells. The wells were surveyed to the nearest vertical 0.01 foot, utilizing a fixed, semi-permanent reference point. The reference point for the survey is a northern fence post that was located one fence post to the east of the northwestern-most fence post on the Talkeetna Park fence.

3.6 Monitoring Well Development and Sampling

On June 12, 2013, prior to collection of groundwater samples, and in general accordance with the ADEC Field Sampling Guidance, the newly-installed monitoring wells (MW8, MW10, and MW22) were each developed using a disposable polyethylene bailer, approximately 24 hours after well installation activities. The bailer was surged in the well to entrain the maximum amount of silt as possible, which was then removed from the well with the bailer. Each well was developed until approximately 10 gallons of water were removed.

On June 13, 2013, BGES was onsite to collect groundwater samples from Monitoring Wells MW8,

MW10, and MW22. The monitoring wells were sampled in accordance with the ADEC Field Sampling Guidance, approximately 24 hours after the well development activities. Prior to sampling, the depth to water and the total depth of the wells were measured using an electronic water level indicator; which was decontaminated prior to use in each well by washing it in an Alconox solution and followed by a potable water rinse. The depth to groundwater in Monitoring Wells MW8, MW10, and MW22 were 7.7 feet, 7.7 feet, and 7.5 feet, respectively, below the top of the well casing.

Prior to the collection of groundwater samples, the volume of water in each well was calculated based on the measured depth to water in each well, the total depth of each well, and the respective diameter of the well casing. A positive-displacement bladder pump and dedicated tubing were used during the low-flow purging and sampling activities. Upon removal of each well volume, groundwater quality parameters for pH, conductivity, temperature, and oxidation reduction potential (ORP) were measured utilizing a YSI Professional Plus Multi-Meter and these measurements were recorded on a Water Monitoring Log for each well (included in Appendix B). A minimum of three well volumes were purged from each well. The field data documented during monitoring well purging and sampling activities are summarized in Table 1.

During sampling, the pumping rate was approximately 400 milliliters per minute (ml/min). The pumping rate was determined by filling a 1,000 milliliter container with purge water for one minute; and then after one minute of purging time, the volume of liquid in the container was observed and documented in the field notes. After completion of the purging activities, groundwater was pumped directly into the laboratory-supplied sample containers, in which case the containers for volatile analyses were filled first. Care was exercised during the sampling process to minimize the potential that headspace was created within the sample containers, and that none of the preservative was spilled from the containers scheduled for volatiles analyses. The samples were labeled, stored and transported in a chilled cooler, and delivered under chain of custody protocol to SGS in Anchorage.

Utilizing the surveyed monitoring well elevations, the groundwater elevations in each of the three monitoring wells were calculated. Then, the calculated groundwater elevations for the subject property were utilized to create a groundwater elevation contour map which suggests that groundwater flows in a southeasterly direction (Figure 5). A hydraulic gradient of approximately 0.011 foot per linear foot was calculated for this initial sampling event. The depth to water, the total depth of the wells, the water quality parameters, and the calculated water elevations are presented in Table 1.

Investigation-derived wastes generated during soil boring advancement and monitoring well installation (drill cuttings and decontamination water) and water sampling activities (purge and decontamination water) were containerized in 55-gallon drums (three drums of soil and one drum of water). These drums are temporarily stored onsite near Soil Boring SB2. Each 55-gallon drum was clearly labeled with the soil boring or monitoring well identification number, BGES' contact information, and a description of the contents (potentially-contaminated soil or water).

4.0 EVALUATION OF LABORATORY DATA

Laboratory analyses of soil and water samples collected during the March and June sampling activities were performed by SGS, an ADEC-approved laboratory. Analytical results are presented in Tables 2 and 3 and copies of the laboratory data are provided in Appendix C.

The soil and water samples were analyzed for GRO by Alaska (AK) Method 101; DRO by AK 102; residual range organics (RRO) by AK 103; and benzene, toluene, ethylbenzene, and xylenes (BTEX) by Environmental Protection Agency (EPA) Method 8021B. In addition to the analyses listed above, Soil Samples SB14-03, SB15-03, SB22-04, and SB22-09 (duplicate of SB22-04), and Water Samples MW22 and MW23 (duplicate of MW22) were analyzed for VOCs by EPA Method 8260B. Soil Samples SB2-4, SB2-11 (duplicate of SB2-4), and SB19-03, and Water Samples TW2, MW22, and MW23 (duplicate of MW22) were also analyzed for polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270D SIMS.

As a quality control measure, trip blank samples accompanied all samples scheduled for volatile analyses during the entire sampling and handling process until submission to the laboratory. The trip blanks were analyzed for GRO, BTEX, or VOCs by the same methods described above, to determine if cross-contamination of the samples had occurred. In addition, two duplicate soil samples and one duplicate water sample were collected and submitted "blindly" to the laboratory for analysis.

The soil samples collected from the subject property were numbered, for example, SB1-4-0319, where the prefix SB1 indicates the boring from which the soil sample was collected; -4 indicates the sample number within the soil boring; and -0319 indicates the month and day the sample was collected. For brevity in the text and in the associated figures, these samples are referred to as SB1-4, with the date omitted. The water samples collected from the subject property were numbered TW2-0319 or MW8-0613, where the prefix TW is an acronym for temporary well and MW is an acronym for monitoring well; the corresponding number indicates the temporary or monitoring well location from which the

sample was collected; and -0319 indicates the month and day the sample was collected. For brevity in the text and in the associated figures, these samples are referred to as TW2 and MW8 with the date omitted.

The soil sample results are compared to the ADEC Method 2 Cleanup Criteria listed in 18 Alaska Administrative Code (AAC) 75.341 – Tables B1 and B2 (under 40-inch zone) for soils, as revised on April 8, 2012. The cleanup concentrations were obtained from these tables listed in the "under 40-inch Zone" for soils, from the migration to groundwater values, except for RRO which is based on the more stringent, under 40-inch Zone, Ingestion Pathway. Water sample results were compared to the ADEC Method 2 Cleanup Criteria listed in 18 AAC 75.345—Table C for groundwater.

4.1 Soil Samples

March Soil Samples. Ten soil samples, including one duplicate soil sample, were collected from nine soil borings advanced at the subject property (SB1 through SB9) in March of 2013. Soil Sample SB2-4 and its duplicate Soil Sample SB2-11 (greatest concentration presented) exhibited GRO and benzene concentrations of 924 mg/Kg and 1.340 mg/Kg, respectively, which exceed their respective ADEC cleanup criteria. Soil Samples SB3-4, SB4-4, and SB8-4 exhibited GRO concentrations of 1,450 mg/Kg, 1,490 mg/Kg, and 433 mg/Kg, respectively, which exceed the ADEC cleanup criterion. Soil Samples SB3-4 and SB4-4 also exhibited benzene concentrations of 0.611 mg/Kg and 0.353 mg/Kg, respectively, which exceed the ADEC cleanup criterion. The remaining analytes in these soil samples were reported at concentrations below their respective ADEC cleanup criteria.

Elevated PID readings (greater than 530 ppm) were obtained for Soil Samples SB5-4, SB6-4, and SB7-5 indicating the potential presence of analytes in excess of ADEC cleanup criteria. However, these soil samples did not exhibit elevated concentrations of any analytes in excess of ADEC cleanup criteria. Therefore, BGES contacted SGS and requested further evaluation of the analytical chromatograms to determine which analytes might be causing the elevated PID field screening results when the analytical results are all below ADEC cleanup criteria. An SGS analytical chemist indicated that numerous analytes appeared to be present in these samples and these analytes appeared to be related to weathered gasoline; however, these analytes were not reported because they were not part of the Method 8021B analyte list.

Analytical results for soil samples are listed in Table 2, the laboratory results are included in Appendix C, the soil boring locations are shown on Figure 2, and the soil analytical results are shown on Figure 6.

June Soil Samples. Twelve soil samples, including one duplicate soil sample, were collected from thirteen soil borings advanced at the subject property (SB10 through SB22) in June of 2013. Soil Samples SB14-03 exhibited a GRO concentration of 392 mg/Kg, which exceeds the ADEC cleanup criterion. Soil Sample SB21-04 exhibited a benzene concentration of 0.0458 mg/Kg, which exceeds the ADEC cleanup criterion. The remaining analytes in these soil samples were reported at concentrations below their respective ADEC cleanup criteria. The limits of quantitation (LOQs) for 1,1,2,2-tetrachloroethane, 1,1,2-trichloroethane, 1,2,3-trichloropropane, 1,2-dibromoethane (EDB), 1,2-dichloroethane, 1,2-dichloropropane, and vinyl chloride exceeded their respective ADEC cleanup criteria in Samples SB14-03, SB15-03, SB22-04, and SB22-11 (duplicate of SB22-04).

Elevated PID readings (greater than 70 ppm) were obtained for Soil Samples SB13-04, SB19-03, and SB22-04, indicating the potential presence of analytes in excess of ADEC cleanup criteria. However, these soil samples did not exhibit elevated concentrations of any analytes in excess of ADEC cleanup criteria. Therefore, BGES contacted SGS and requested further evaluation of the analytical chromatograms to determine which analytes might be causing the elevated PID field screening results when the analytical results are all below ADEC cleanup criteria. An SGS analytical chemist indicated that numerous analytes appeared to be present in these samples and these analytes appeared to be related to weathered gasoline for all samples with the exception of Soil Sample SB22-04. The analytes indicated on the chromatograms for Soil Samples SB13-04 and SB19-03 were not reported because they were not part of the Method 8021B analyte list. The analytes indicated on the chromatograms for Soil Sample SB22-04 were all non-detectable and below the laboratory's LOQs and ADEC cleanup criteria.

Analytical results for soil samples are listed in Table 2, the laboratory results are included in Appendix C, the soil boring locations are shown on Figure 2, and the soil analytical results are shown on Figure 6.

4.2 Water Samples

March "Grab" Water Sample. One "grab" water sample (TW2) was collected from a temporary well installed in Soil Boring SB2 in March of 2013. Water Sample TW2 exhibited GRO, DRO, and benzene concentrations of 6.57 mg/L, 4.95 mg/L, and 0.00715 mg/L, respectively; all of which exceed their respective ADEC cleanup criteria.

June Water Samples. Four water samples, including a duplicate sample, were collected from three monitoring wells installed at the subject property in June of 2013. Water Sample MW8 exhibited

GRO and DRO concentrations of 2.89 mg/L and 1.92 mg/L, respectively; which exceed their respective ADEC cleanup criterion. The remaining analytes were detected at concentrations below their respective ADEC cleanup criteria. However, the LOQs for 1,2,3-trichloropropane and 1,2-dibromoethane exceeded their respective ADEC cleanup criteria in Samples MW22 and MW23 (duplicate of MW23).

Analytical results for water samples are listed in Table 3, the laboratory results are included in Appendix C, the monitoring well locations are shown on Figure 4, and the groundwater analytical results are shown on Figure 7.

5.0 LABORATORY DATA QUALITY REVIEW

Data quality was reviewed in accordance with ADEC guidance and standard industry practices. An ADEC laboratory data review checklist was completed for each laboratory work order, and these checklists are included in Appendix D. The checklists provide an overview of the quality of the laboratory data. The following is a discussion of our evaluation of sample conditions and laboratory procedures during the soil and water samples activities performed during March and June 2013.

Sample analyses were provided by SGS, which is approved to perform the specified analyses by the ADEC. The samples were hand-delivered to SGS in Anchorage by BGES personnel under chain of custody protocol.

The samples contained the proper preservatives for the requested analyses and no unusual sample conditions were noted by the laboratory. Trip blanks accompanied all soil and groundwater volatile samples (GRO, BTEX, and VOCs) through the entirety of the sampling process and delivery to the laboratory. Case narratives were included with all of the laboratory data. Quality Control (QC) failures identified in the case narratives are separated by work order and are described below.

5.1 Laboratory Samples (March 2013)

Work Order 1131015 (Soil Samples). The temperature of the sample cooler was measured at the laboratory at the time of receipt to be 5.7 degrees Celsius (C). This temperature is within the prescribed optimal temperature range of 4 degrees +/- 2 degrees C.

According to the laboratory, Field Sample SB2-11 was diluted because of matrix interference with the internal standards; therefore, the LOQs were elevated for the 8270D SIMS analytes. Because the

LOQs were well below ADEC cleanup criteria and because this sample exhibited PAH concentrations well below their respective ADEC cleanup criteria, it is our opinion that this QC failure does not affect the acceptability of these data for their intended use.

The percent recovery of the surrogate 4-bromofluorobenzene (BFB) was above the laboratory acceptance range (50 to 150 percent) in Field Samples SB2-4 and SB2-11 (duplicate of SB2-4) at 3,580 percent and 2,470 percent, respectively, which indicates a potential for the reported concentrations of GRO in these samples to be biased high. According to the laboratory, the high percent recovery of BFB was because BFB was accidently spiked into Field Sample SB2-4 and because of matrix interference for both field samples. Therefore, the GRO concentrations for these samples are qualified with a "J" in Table 2, and should be considered estimated values. However, because the Field Samples SB2-4 and SB2-11 exhibited concentrations of GRO that were well above the ADEC cleanup criterion and benzene concentrations was well above the ADEC cleanup criterion in these samples, it is our opinion that this QC failure does not affect the interpretation of the data for their intended use.

The percent recovery of the surrogate 2-fluorobiphenyl was below the laboratory acceptance range (45 to 105 percent) in Field Sample SB2-11 at 19.5 percent, which indicates a potential for the reported PAH concentrations in this field sample to be biased low. Therefore, the reported PAH concentrations for Field Sample SB2-11 are qualified with a "J" in Table 2, and should be considered estimates. However, because Field Sample SB2-11 exhibited concentrations of PAHs that were at least one order of magnitude below the ADEC cleanup criteria, it is our opinion that this QC failure does not affect the interpretation of the data for their intended use.

The percent recovery of the surrogate 1,4-difluorobenzene was measured above the laboratory acceptance range (72 to 119 percent) in the Field Sample SB2-11 at 122 percent, which indicates a potential for the reported BTEX concentrations within this field sample to be biased high. According to the laboratory, the poor recovery of this surrogate was because of matrix interference. Therefore, the reported concentrations for BTEX for Field Sample SB2-11 are qualified with a "J" in Table 2, and should be considered estimated values. However, because Field Sample SB2-11 exhibited a benzene concentration that was two orders of magnitude above the ADEC cleanup criterion and all other analytes were well below the ADEC cleanup criteria, it is our opinion that this QC failure does not affect the interpretation of the data for their intended use.

The percent recovery of the surrogate BFB was below the laboratory acceptance range (50 to 150 percent) in Field Samples SB3-4 and SB4-4 at 0 percent for both samples, which indicates a potential for the reported concentrations of GRO within these field samples to be biased low. Therefore, the reported concentrations for GRO for Field Samples SB3-4 and SB4-4 are qualified with a "J" in Table 2, and are considered estimated values. According to the laboratory, the poor recovery of this surrogate was because of matrix interference. However, because the Field Samples SB3-4 and SB4-4 exhibited GRO concentrations that were one order of magnitude above the applicable ADEC cleanup criterion; it is our opinion that this QC failure does not affect the interpretation of the data for their intended use.

The percent recovery of the surrogate BFB was slightly above the laboratory acceptance range (50 to 150 percent) in Field Samples SB5-4 and SB7-5 at 163 percent and 151 percent, respectively, which indicates a potential for the reported concentrations of GRO within these field samples to be biased high. Therefore, the reported concentrations for GRO for Field Samples SB5-4 and SB7-5 are qualified with a "J" in Table 2, and are considered estimated values. However, because the reported concentrations of GRO within these field samples were an order of magnitude below the ADEC cleanup criterion; it is our opinion that this QC failure does not affect the interpretation of the data for their intended use.

The percent recovery of the surrogate BFB was above the laboratory acceptance range (50 to 150 percent) in the Field Sample SB8-4 at 401 percent, which indicates a potential for the reported GRO concentration in this field sample to be biased high. According to the laboratory, the poor recovery of this surrogated was because of matrix interference. Therefore, the reported concentration for GRO for Field Sample SB8-4 was qualified with a "J" in Table 2, and should be considered an estimated value. However, because the reported concentration of GRO within this field sample was well above the applicable ADEC cleanup criterion; it is our opinion that this QC failure does not affect the interpretation of the datum for its intended use.

According to the laboratory, Field Samples SB4-4, SB5-4, SB6-4, SB7-5, and SB8-4 were reanalyzed outside of hold times for BTEX analysis by Method 8021B because of laboratory error. SGS was contacted to determine why the samples were analyzed outside of hold times. Reportedly, some of the field samples exhibited extremely high contaminant concentrations, and therefore had to be reanalyzed. The samples were analyzed approximately one week out of hold times, which indicates a potential for the reported BTEX concentrations for Field Samples SB4-4, SB5-4, SB6-4, SB7-5, and

SB8-4 to be biased low. Therefore, the reported concentrations for BTEX for Field Samples SB4-4, SB5-4, SB6-4, SB7-5, and SB8-4 are qualified with a "J" in Table 2, and should be considered estimated values. Because Field Samples SB4-4, SB5-4, SB6-4, SB7-5, and SB8-4 exhibited BTEX concentrations that were well below ADEC cleanup criteria with the exception of benzene in SB4-4, which exceed the ADEC cleanup criterion, it is our opinion that this QC failure does not affect the acceptability of these data for their intended use.

The percent recovery of chrysene and fluoranthene exceeded the laboratory's acceptance limit for the laboratory control sample (LCS), Laboratory Sample Number 1142737, indicating a potential for the reported concentrations of chrysene and fluoranthene to be biased high in Field Samples SB2-4 and SB2-11 (duplicate of Sample SB2-4). Chrysene and fluoranthene were not detected above the LOQs and the LOQs were well below the ADEC cleanup criteria in the associated Field Samples SB2-4 and SB2-11; therefore, it is our opinion that this QC failure does not affect the interpretation of the data.

The percent recoveries for 2-methylnaphthalene, acenaphthene, and naphthalene in the matrix spike (MS) and matrix spike duplicate (MSD) samples (Laboratory Sample Numbers 1142738 and 1142739, respectively) were above their laboratory's acceptance limits. However, because the percent recoveries for these analytes were within their acceptance limit ranges for the LCS, because Field Samples SB2-4 and SB2-11 exhibited concentrations of 2-methylnaphthalene, that are more than two orders of magnitude below the ADEC cleanup criterion, and because these field samples exhibited non-detectable concentrations of acenaphthene, and naphthalene, it is our opinion that this QC failure does not affect the interpretation of the data.

The percent recovery for 1-methylnaphthalene in a MSD sample (Laboratory Sample Number 1142739) was above the laboratory acceptance limit range of 44 to 107 percent. However, because the percent recovery for this analyte was within the acceptance limit range for the LCS and because Filed Samples SB2-4 and SB2-11 exhibited a concentration of 1-methylnaphthalene which was two orders of magnitude below the ADEC cleanup criterion it is our opinion that this QC failure does not affect the interpretation of the data.

Soil Sample SB2-11 was a duplicate of Soil Sample SB2-4 and was collected to evaluate sampling precision. The calculated relative percent differences (RPD's) between the reported concentrations of analytes within these samples were below the acceptable limit of 50 percent for GRO and DRO (23.73 percent and 30.53 percent, respectively), which indicates a fairly good measure of field sampling

precision. The analytes that did not have acceptable RPD's included BTEX, 1-methylnaphthalene, and 2-methylnaphthalene. The RPD's for these analytes ranged from 57.69 percent to 109.43 percent. These nonconforming RPDs are likely because of the heterogeneity of the soils. Because the reported concentration of benzene was two orders of magnitude above the ADEC cleanup criterion and the other analytes were below their respective ADEC cleanup criteria, it is our opinion that the data are acceptable for their intended use. The RPDs between the reported concentrations of numerous analytes could not be calculated, because they were not detected above the laboratory LOQs.

Work Order 1131014 (Water Sample). The temperature of the sample cooler was measured at the laboratory at the time of receipt to be 5.2 degrees C. This temperature is within the prescribed optimal temperature range of 4 degrees +/- 2 degrees C.

The percent recovery for the surrogate 1,4-difluorobenzene was above the laboratory acceptance limit (77 to 115 percent) in Sample TW2 at 140 percent, indicating a potential for the reported BTEX concentrations within this sample to be biased high. For this reason, the BTEX concentrations are qualified “J” in Table 3, and should be considered estimated values. The laboratory stated that the high surrogate recovery was caused by matrix interference. Because several other analytes exceeded ADEC cleanup criteria for this field sample, it is our opinion that this QC failure does not affect the interpretation of the data.

The percent recovery for the surrogate 2-fluorophenyl was below the laboratory acceptance limit (50 to 110 percent) in Field Sample TW2 at 45.9 percent, indicating a potential for the reported concentrations of PAH analytes within this sample to be biased low. For this reason, all of the PAH concentrations are qualified with "J" in Table 3, and should be considered estimates. The laboratory indicated that low surrogate recovery was caused by matrix interference. However, because the percent recovery of surrogate terphenyl-d14 was within the laboratory acceptance range of 50 to 135 percent for this field sample and because none of the PAH analytes exceeded their laboratory LOQs or ADEC cleanup criteria; it is our opinion that this QC failure does not affect the interpretation of the data.

5.2 Laboratory Samples (March 2013)

Work Order 1132391 (Soil Samples). The temperatures of the sample coolers were measured at the laboratory at the time of receipt to be 1.8 degrees C and 0.3 degrees C, which are below the recommended temperature range of 4 degrees +/- 2 degrees C. However, because the recorded temperatures were slightly below the acceptance range, there is a reduced potential for contaminant loss

within the samples due to natural attenuation. For this reason, it is our opinion that this QC failure does not affect the acceptability of the data for their intended use.

The percent recovery of the surrogate BFB was significantly above the laboratory acceptance range (50 to 150 percent) in Field Sample SB14-03 at 2,440 percent, indicating a potential for the reported GRO concentration in Field Sample SB14-03 to be biased high. For this reason, the GRO concentration is qualified with "J" in Table 2 and should be considered an estimated value. According to the laboratory, the high surrogate recovery was caused by matrix interference. However, because Field Sample SB14-03 exhibited a GRO concentration above the ADEC cleanup criterion; it is our opinion that this QC failure does not affect our interpretation of the data for their intended use.

The percent recovery of the surrogate toluene-d8 was slightly above the laboratory acceptance range (85 to 115 percent) in the Field Sample SB14-03 at 116 percent, indicating a potential for the reported VOC concentrations in Field Sample SB14-03 to be biased high. For this reason, the VOC concentrations are qualified with "J" in Table 2 and should be considered estimated values. According to the laboratory, the slightly high surrogate recovery was caused by matrix interference. However, because Field Sample SB14-03 exhibited VOC concentrations well below the laboratory's LOQs and ADEC cleanup criteria, it is our opinion that this QC failure does not affect the interpretation of the data.

According to the laboratory, Field Sample SB14-03 was analyzed outside of the holding time for the VOC analytes associated with the surrogate toluene-d8. Because this sample was not analyzed within the prescribed holding time, there is a potential that the VOC concentrations exhibited by Field Sample SB14-03 are biased low. Therefore, the VOC concentrations are qualified with “J” in Table 2, and are considered estimated values. SGS was contacted to determine why Field Sample SB14-03 was analyzed outside of holding time. According to the laboratory, the first VOC run was performed on June 21, 2013 and the recovery of surrogate Toluene d-8 was reported to be 12 percent, which is below the laboratory acceptance range (85 to 115 percent), and all of the analytes associated with this surrogate were non-detectable. Based on these results, the laboratory scheduled this field sample to be reanalyzed. However, the sample was not reanalyzed until after the holding time expired. The sample was reanalyzed on June 25, 2013, approximately 10 hours past expiration of the holding time, and the surrogate recovery was 116 percent, which is slightly above the laboratory acceptance range (85 to 115 percent). According to SGS, this relatively short exceedance of the holding time should not materially affect the results. Because the sample was reanalyzed only several hours beyond expiration of the holding time, and because the sample was properly stored and chilled by the laboratory; it is our opinion

that this QC failure does not affect the acceptability of these data for their intended use.

The percent recovery of the surrogate BFB was significantly above the laboratory acceptance range (50 to 150 percent) in Field Samples SB21-04 at 549 percent and SB22-04 at 621 percent; indicating a potential for the reported GRO concentrations to biased high. For this reason, the GRO concentrations are qualified with "J" in Table 2, and should be considered estimated values. However, because Field Samples SB21-04 and SB22-04 exhibited GRO concentrations well below the applicable ADEC cleanup criterion; it is our opinion that this QC failure does not affect the interpretation of the data.

The Continuing Calibration Verification (CCV) recoveries for trichlorofluoromethane, dichlorodifluoromethane, and several other analytes in Laboratory Samples 1153956, 1154516, 1154969, did not meet the QC criteria and were considered to be biased high by the laboratory, indicating a potential for these analytes in the field samples to be biased high. However, because these analytes were not reported at concentrations above the applicable LOQs and the ADEC cleanup criteria in any of the field samples, it is our opinion that this QC failure does not affect the interpretation of the data.

The percent recovery for benzo(k)fluoranthene exceeded the laboratory's acceptance limit of 45 to 125 percent for the LCS (Blank Spike Identification Number 1153542), indicating a potential for the reported concentration of benzo(k)fluoranthene to be biased high in Field Sample SB19-03. Because benzo(k)fluoranthene was not detected above the limit of quantitation (LOQ) in the associated Field Sample SB19-03, it is our opinion that this QC failure does not affect the interpretation of the data.

The percent recoveries for the surrogate BFB in the MS sample and MSD sample pair (Laboratory Sample Numbers 1154513 and 1154514, respectively) were below the laboratory acceptance limit range of 67 to 138 percent, indicating a potential for VOCs in the associated Field Samples SB14-03, SB15-03, SB22-04, and SB22-09 to be biased low. For this reason, the VOC concentrations are qualified with "J" in Table 2, and should be considered estimated values. However, because Field Samples SB14-03, SB15-03, SB22-04, and SB22-09 exhibited VOC concentrations well below ADEC cleanup criteria; it is our opinion that this QC failure does not affect the interpretation of the data.

The percent recovery for trichlorofluoromethane in the MSD sample (Laboratory Sample Number 1153952) exceeded the laboratory acceptance limit range of 25 to 185 percent. The percent recovery for this analyte was with its acceptance limit range for the LCS. Because the MSD sample was derived from a sample that was collected as part of another project; it is our opinion that there is a potential for

the data QC failure to be caused by matrix effects associated with soils different than those at this site. For this reason, it is our opinion that this QC failure does not affect the acceptability of the data for their intended use.

Soil Sample SB22-09 was a duplicate of SB22-04 and was collected to evaluate sampling precision. The RPD's between the reported concentrations for GRO in this sample and duplicate sample were below the acceptable limit of 50 percent (42.58 percent). This indicates a good measure of field sampling precision for the soil sample duplicate pair. The RPDs between the reported concentrations of numerous analytes could not be calculated, as they were not detected above the laboratory's LOQs.

The LOQs for 1,1,2,2-tetrachloroethane, 1,1,2-trichloroethane, 1,2,3-trichloropropane, EDB, 1,2-dichloroethane, 1,2-dichloropropane, and vinyl chloride exceeded the ADEC cleanup criteria in Field Samples SB14-03, SB15-03, SB22-04, and SB22-09 (duplicate of SB22-04). Therefore, it cannot be determined if actual concentrations of these VOCs within these field samples exceed their respective ADEC cleanup criteria.

Work Order 1132382 (Water Samples). The temperatures of the sample coolers were measured at the laboratory at the time of receipt to be 1.8 degrees C and 0.3 degrees C, which are below the recommended temperature range of 4 degrees +/- 2 degrees C. However, because the recorded temperatures were slightly below the acceptance range, there is a reduced potential for contaminant loss within the samples due to natural attenuation. For this reason, it is our opinion that this QC failure does not affect the acceptability of the data for their intended use.

The percent recovery of the surrogate BFB was above the laboratory acceptance range (50 to 150 percent) in Field Sample MW8 at 169 percent, indicating a potential for the reported concentration of GRO to be biased high. According to the laboratory, the high surrogate recovery was caused by matrix interference. For this reason, the GRO concentration for Field Sample MW8 was qualified with a “J” in Table 3, and should be considered an estimated value. However, because the reported concentration of GRO within this field sample was above the applicable ADEC cleanup criterion and because the reported concentration of DRO in this field sample exceeded the ADEC cleanup criterion, it is our opinion that this QC failure does not affect our interpretation of the datum for its intended use.

The percent recovery of the surrogate 1,4-difluorobenzene was above the laboratory acceptance range (77 to 115 percenet) in the Sample MW8 at 124 percent, indicating a potential for the reported BTEX concentrations to be biased high. According to the laboratory, the high surrogate recovery was likely

caused by matrix interference. For this reason, the reported BTEX concentrations for Field Sample MW8 are qualified with a "J" in Table 3, and should be considered estimated values. However, because the Field Sample MW8 exhibited BTEX concentrations well below ADEC cleanup criteria, it is our opinion that this QC failure does not affect our interpretation of the data.

Water Sample MW23 was a duplicate of MW22 and was collected to evaluate sampling precision. The RPD's for GRO and 4-isopropyltoluene in this sample and duplicate sample were less than the acceptable limit of 30 percent (2.68 percent and 1.63 percent, respectively); which indicates acceptable field sampling precision. The RPD for chloromethane (62.14 percent) was greater than the acceptable limit of 30 percent. Because the water sample and associated duplicate sample both exhibited chloromethane concentrations that were more than one order of magnitude below the ADEC cleanup criterion, and because numerous other analytes exhibited concentrations that were one or more magnitudes below ADEC cleanup criteria, it is our opinion that this lack of precision does not affect the interpretation of the data for their intended use. Choromethane is not a contaminant of concern at this site. However, because of the poor precision, this analyte is qualified with a "J" in Table 3 as an estimated concentration. The RPDs between the reported concentrations of several analytes could not be calculated, as they were not detected above the laboratory LOQs.

The LOQs for 1,2,3-trichloropropane and EDB exceeded the ADEC cleanup criteria in Field Samples MW22 and MW23 (duplicate of MW22). Therefore, it cannot be determined if actual concentrations of these analytes within these field samples exceed their respective ADEC cleanup criteria.

6.0 CONCEPTUAL SITE MODEL

Utilizing on-site observations, analytical results, and ADEC guidance documents, a CSM has been developed to depict potential contaminant exposure routes for human receptors identified or suspected for the subject property (Appendix E).

The potential source(s) of contamination at the subject property is not known. Several potential sources located near the subject property include the following: the former Hales Tesoro gasoline station which is located adjacent to, and north of the subject property; and historic train derailments from operation of trains by the United States federal government and the ARRC, which is located adjacent to, and east of the subject property.

Based on field observations and analytical results from the 2013 site characterization activities, the

vertical extent of soil contamination appears to be defined to an interval located immediately above groundwater and within the smear zone (zone of groundwater fluctuation). Groundwater was encountered between 7.5 and 7.7 feet bg across the subject property. Based on analytical results, the lateral extent of soil contamination does not appear to be defined in all directions on the subject property. The lateral extent of contamination is not bound to the east as indicated by the presence of elevated concentrations of GRO in Soil Boring SB14. The lateral extent of soil contamination appears to bound to the north by Soil Borings SB1, SB7, SB10, SB11, SB12, SB13, and SB17. The lateral extent of soil contamination appears to be bound to the south and southeast by Soil Borings SB5, SB6, SB9, SB15, SB16, and SB22 and to the west by Soil Borings SB18, SB19, and SB20. The analytical results for soil samples are presented on Figure 6 and are summarized in Table 2.

The lateral extent of contamination in groundwater appears to be defined to the north, and east; however, it does not appear to be defined to the south and west. The analytical results for water samples are presented on Figure 7 and are summarized in Table 3.

Based on available information, the potential source(s) of the contamination does not appear to be present on the subject property and were likely located north and/or east of the subject property, because all field observations and analytical results suggest that contamination is migrating in groundwater beneath the ground surface and adversely-impacting subsurface soils located within the zone of groundwater fluctuation (smear zone). The potential transport mechanisms include the migration through subsurface soil and groundwater, and volatilization. The potential exposure pathways for receptors include the following: incidental soil ingestion; dermal absorption of contaminants from subsurface soil; ingestion of groundwater; dermal absorption of contaminants in groundwater; inhalation of outdoor air; ingestion of surface water; and dermal absorption of contaminants in surface water. The potential receptors for these potential exposure pathways include site visitors, recreational users, and trespassers, commercial or industrial workers, and construction workers. Complete and incomplete, current and future human pathways for exposures to this contamination are discussed below.

As mentioned above, adversely-impacted subsurface soils are present within the smear zone (zone of fluctuating groundwater). Because of the shallow depth (six to eight feet bg) of adversely-impacted soils, receptors could potentially be affected by the exposure pathways of incidental soil ingestion and dermal absorption of contaminants from soil (Figure 6). The chemical parameters detected which can permeate the skin include 1-methynaphthalene and 2-methylnaphthalene. For these reasons, there is a potential for human receptors to be affected through these exposure pathways.

Groundwater was encountered at an approximate depth of 7.6 feet bg. Analytical results indicate that groundwater located in an area between the northeastern, central, and southwestern portions of the subject property have been adversely-impacted with contamination (Figure 7). The extent of contamination to the southwest of the subject property has not been defined. The northern portion of the subject property is not currently developed. The library is currently located south of the subject property and Twister Creek. It is not known whether the library is connected to the Talkeetna municipal water supply system or if they are utilizing water from a potable well. However, it is possible that private water supply wells are being utilized in the vicinity of the subject property. For these reasons, there is a potential for human receptors to be affected through the exposure pathways of ingestion of groundwater and dermal absorption of contaminants in groundwater.

Based on the analytical results, BTEX, 1-methylnaphthalene, 2-methylnaphthalene, GRO, DRO, and RRO contamination present in adversely-impacted soil have the potential to volatilize. These adversely-impacted soils are present at depths less than 10 feet in subsurface soils are located in the central portion of the subject property (Figure 6); therefore, the potential for impacted soils to adversely-impact outdoor air is possible. For these reasons, there is a potential for human receptors to be affected through the exposure pathway of inhalation of outdoor air.

Based on analytical results, the extent of groundwater contamination has not been defined southwest of the subject property and towards Twister Creek and the Susitna River. Analytical results indicate that GRO and DRO have been detected in the monitoring well closest to the southwestern property boundary (Figure 7); therefore, the potential for impacted groundwater to adversely-impact nearby surface water is possible in both Twister Creek and the Susitna River. Twister Creek is located approximately 240 feet south of the subject property and the Susitna River is located approximately 425 feet west of the subject property. For these reasons, there is a potential for human receptors to be affected through the exposure pathways of ingestion of surface water and the dermal absorption of contaminants in surface water.

A copy of the graphical representation of the conceptual site model is included in Appendix E.

7.0 CONCLUSIONS AND RECOMMENDATIONS

As described above, a total of 22 soil borings were advanced and 3 of these soil borings were completed as permanent monitoring wells and 1 of these soil borings was completed as a temporary well to evaluate the nature and extent of soil and groundwater contamination present at the subject

property. Soil samples located in the central portion of the subject property exhibited GRO and/or benzene concentrations which exceeded ADEC cleanup criteria. It appears that the extent of soil contamination is not defined to the east in the vicinity of Soil Boring SB14; however, the extent of soil contamination does appear to be defined in all other directions (Figure 6).

Three permanent Monitoring Wells MW8, MW10, and MW22 were installed to evaluate groundwater quality and to establish the approximate groundwater flow direction at the subject property. Groundwater was encountered at approximately 7.6 feet bg. Groundwater appeared to flow generally in a southeasterly direction (Figure 7) and the hydraulic gradient was calculated to be approximately 0.011 foot per linear foot during this initial sampling event. During June of 2013, water levels in the Talkeetna area were up because of rapid melting of the snow and ice during warm weather. Therefore, the groundwater flow at the subject property was to the southeast because of the high water levels in the river and not towards the river as would be expected during normal river levels.

Water samples collected from monitoring wells near the northern and eastern property boundaries exhibited either contaminant concentrations below ADEC cleanup criteria or non-detectable concentrations. However, Water Sample MW8, which is located from the southwestern portion of the subject property exhibited GRO and DRO concentrations in excess of ADEC cleanup criteria.

The potential source(s) of contamination encountered on the subject property was not determined during these limited site characterization activities. Because contamination was detected in soils at depth (approximately 6 to 8 feet bg) and in groundwater, the contamination appears to be migrating onto the subject property from an offsite source(s) which is likely located north and/or east of the subject property. Based on these results, the following activities are recommended: completing a potable well survey in the vicinity of the subject property; defining the extent of groundwater contamination southwest of the subject property; performing additional groundwater monitoring on a schedule that is acceptable to the ADEC; and providing a copy of this report to the ADEC. Additionally, it is recommended that the investigation-derived wastes (e.g., potentially-contaminated soil and water) currently stored in 55-gallon drums on site be appropriately disposed of in accordance with all applicable local, state and federal regulations.

8.0 EXCLUSIONS AND CONSIDERATIONS

This report presents facts, observations, and inferences based on conditions observed during the period of our project activities, and only those conditions that were evaluated as part of our scope of work.

Our conclusions are based solely on our observations made and work conducted, and only apply to the immediate vicinities of the locations where soil/water samples were collected. In addition, changes to site conditions may have occurred since the completion of our project activities. These changes may be from the actions of man or nature. Changes in regulations may also impact the interpretation of site conditions. BGES will not disclose our findings to any parties other than our client as listed above, except as directed by our client, or as required by law.

The field work was performed and this report was prepared by Joshua Barsis, Environmental Scientist with BGES, a Qualified Person (QP) as defined by the ADEC. Mr. Barsis has conducted numerous site characterization and remedial projects in Anchorage and throughout Alaska. This report was reviewed by Jayne Martin, Senior Environmental Scientist of BGES. Ms. Martin is a QP, as defined by the ADEC, and has more than 20 years of environmental consulting experience and has conducted and managed hundreds of site characterization and remediation efforts throughout Alaska and the lower 48 states. This report was approved by Robert N. Braunstein, C.P.G., a Certified Professional Geologist, who has more than 30 years of professional geologic and environmental experience, and has performed or managed thousands of environmental site assessments in the lower 48-States and in Alaska. He has extensive knowledge and experience with contaminated sites and remediation.

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Reviewed By:

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Approved By:

Robert N. Braunstein, C.P.G.
Principal Geologist

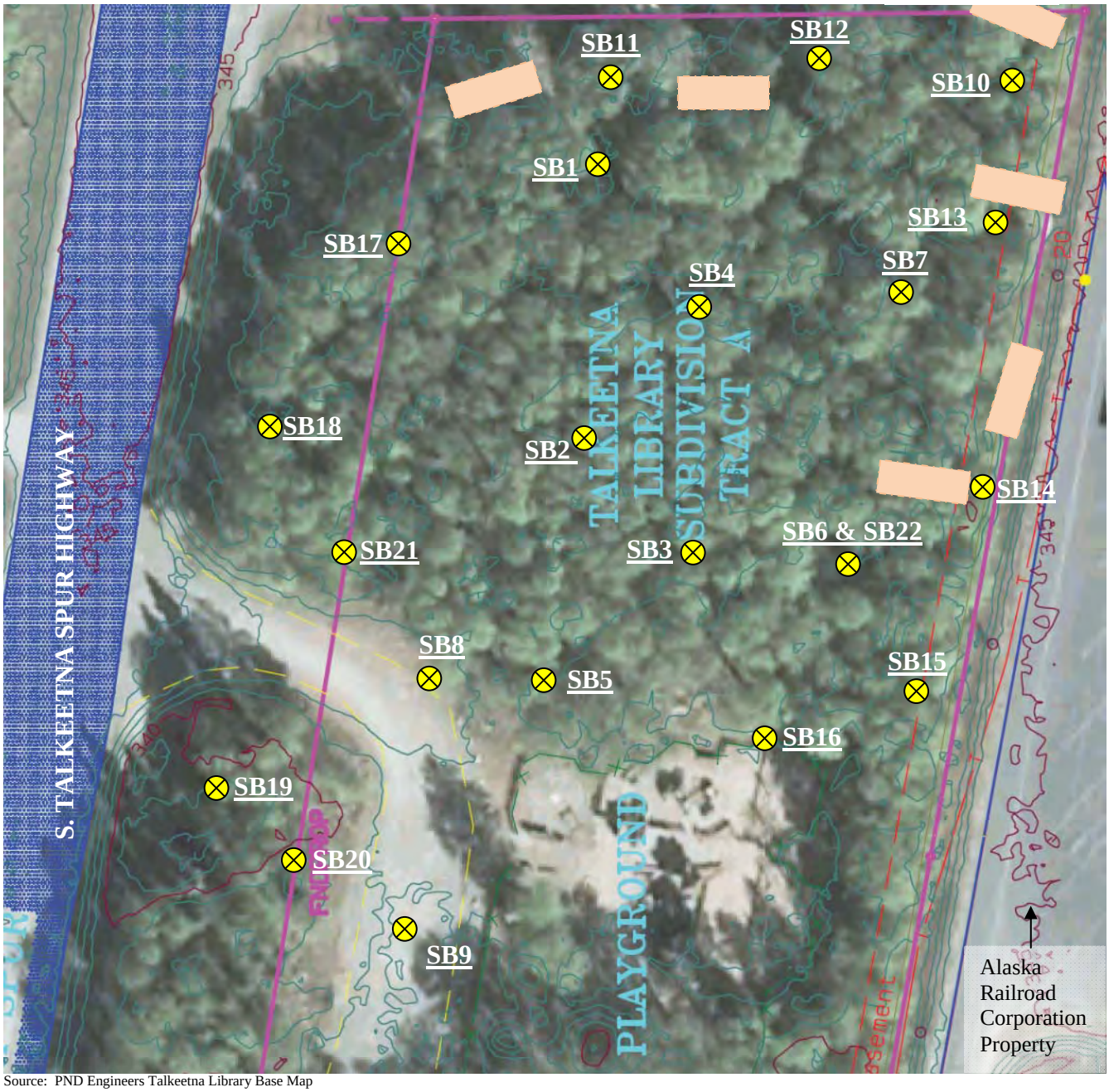
Source: MSR Maps, www.msrmaps.com

0 ½ 1 1½ 2

Approximate Scale (Miles)

Tract A, Talkeetna Library Subdivision
Talkeetna, Alaska
Property Vicinity Map

BGES, INC.	October 2013	Figure 1



Source: PND Engineers Talkeetna Library Base Map

N

BGES

0 60 120

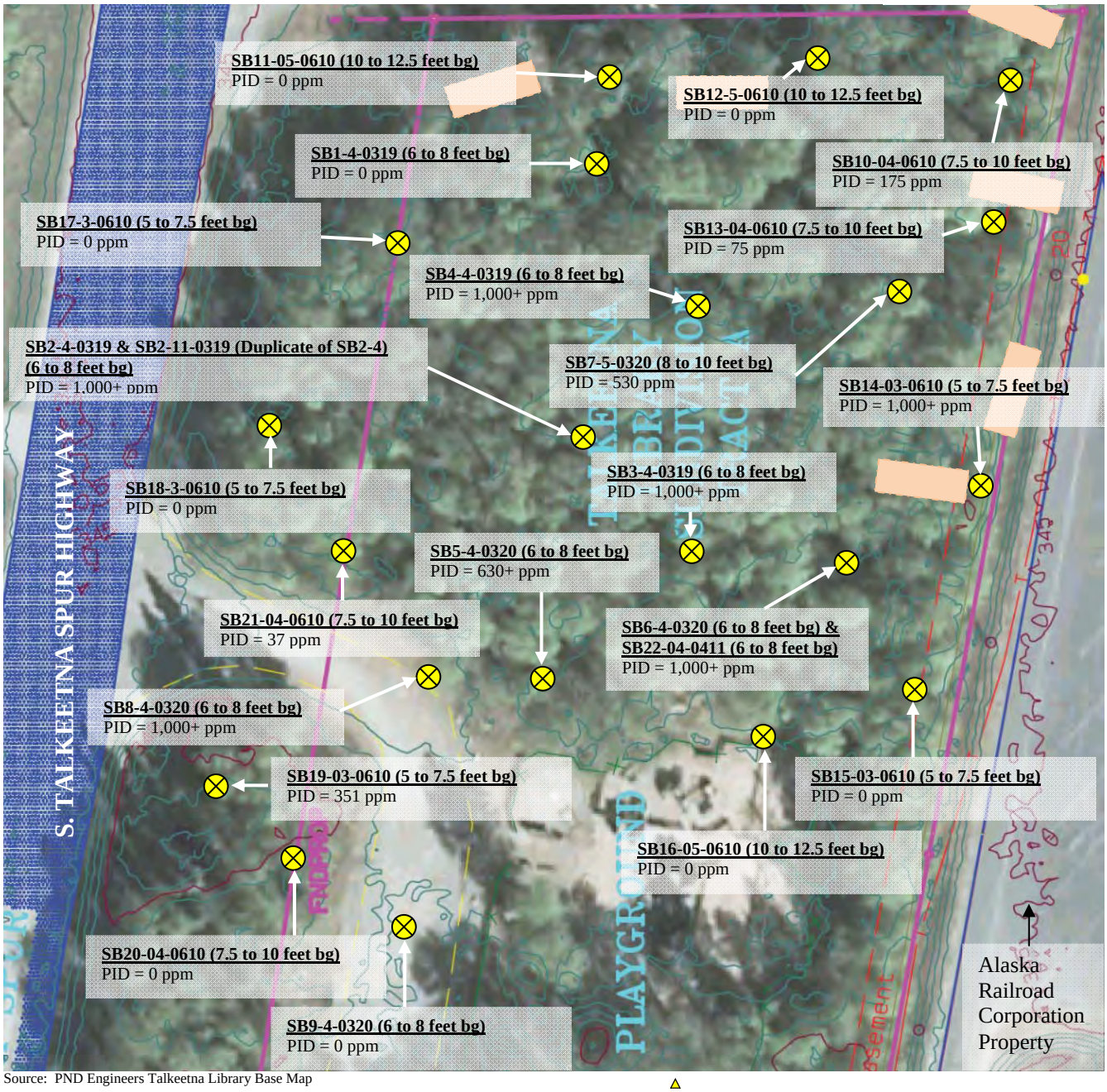
Approximate Scale (Feet)

LEGEND

- ⊗ = Approximate Soil Boring Location
- = Approximate Property Boundary
- = "Partially Buried" Railroad Car Chassis
- = Easement Line
- = Telephone Lines

Tract A, Talkeetna Library Subdivision
Talkeetna, Alaska
Soil Boring Location Map

BGES, INC.	October 2013	Figure 2



Source: PND Engineers Talkeetna Library Base Map

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BGES

0 60 120

Approximate Scale (Feet)

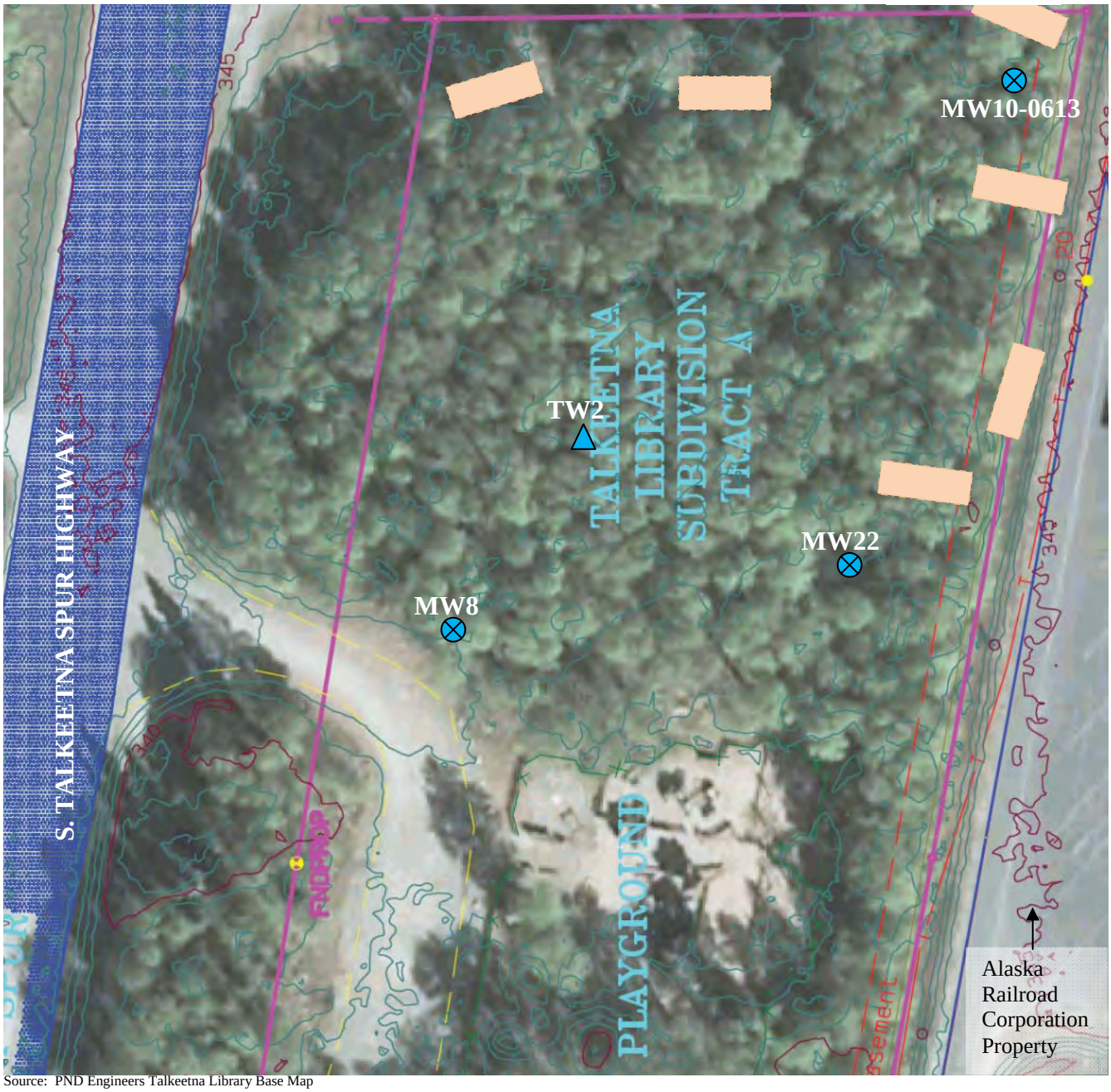
LEGEND

- = Soil Sample Field Screening Location
- = Approximate Property Boundary
- = "Partially Buried" Railroad Car Chassis
- = Easement Line
- = Telephone Lines

PID = photoionization detector; ppm = parts per million; mg/Kg = milligrams per kilogram; bg = below grade; GRO = gasoline range organics

Tract A, Talkeetna Library Subdivision
Talkeetna, Alaska
Field Screening Results Map

BGES, INC.	October 2013	Figure 3



Source: PND Engineers Talkeetna Library Base Map

LEGEND

- ⊗ = Approximate Monitoring Well Location
- △ = Approximate Temporary Well Location
- = Approximate Property Boundary
- = "Partially Buried" Railroad Car Chassis
- = Easement Line
- T = Telephone Lines

Note: Monitoring Wells MW10 and MW22 were installed in Soil Borings SB10 and SB22, respectively. Monitoring Well MW8 was installed north of Soil Boring SB8. Temporary Well TW2 was installed in Soil Boring SB2.

N

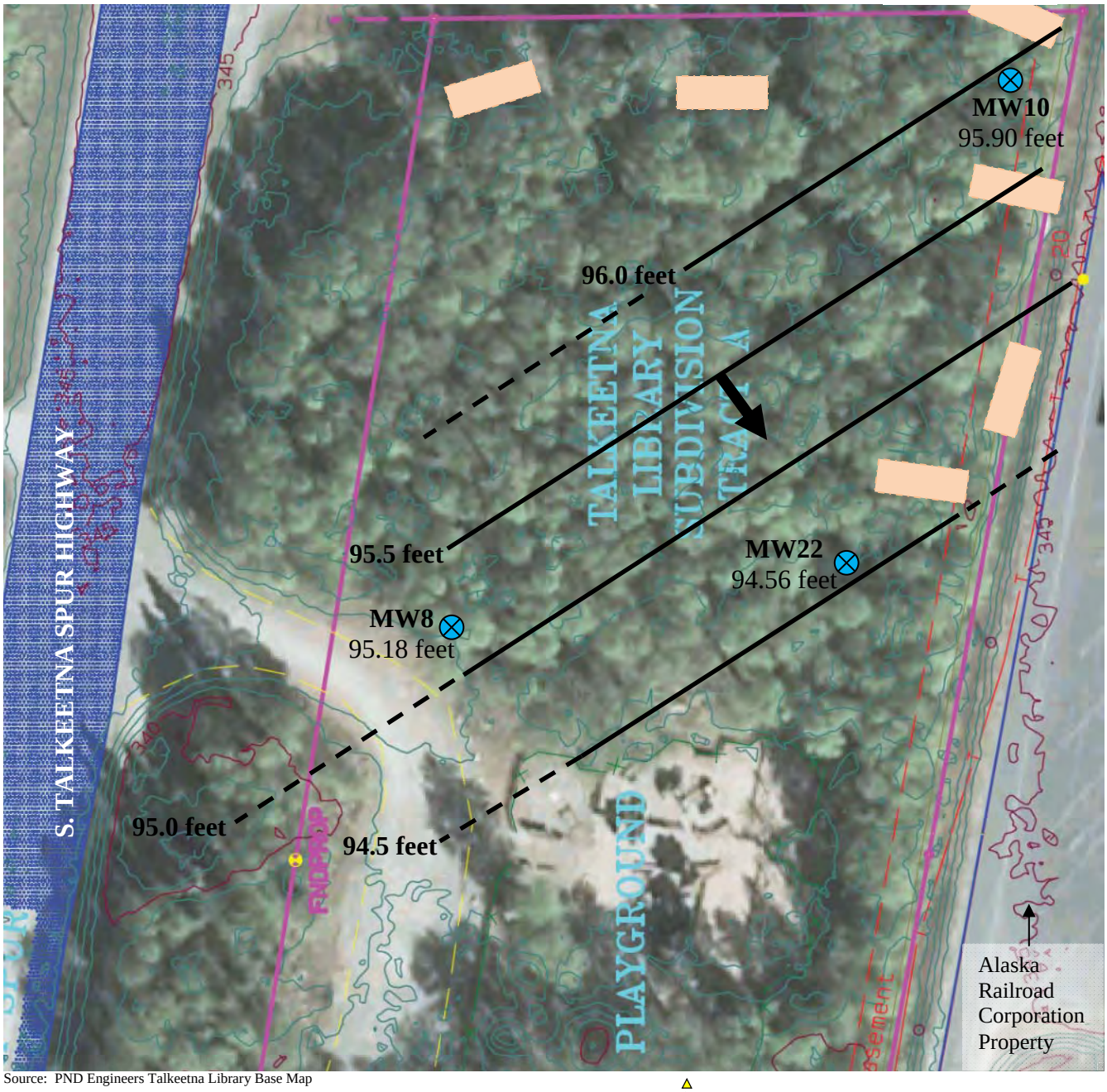
BGES

0 60 120

Approximate Scale (Feet)

Tract A, Talkeetna Library Subdivision
Talkeetna, Alaska
Monitoring Well Location Map

BGES, INC.	October 2013	Figure 4



Source: PND Engineers Talkeetna Library Base Map

LEGEND

- ⊗ = Approximate Monitoring Well Location
- = Groundwater Elevation Contour
- = Inferred Groundwater Elevation Contour
- = Groundwater Flow Direction
- = Approximate Property Boundary
- = "Partially Buried" Railroad Car Chassis
- = Easement Line
- = Telephone Lines

Note: The hydraulic gradient is approximately 0.011 foot per linear foot and groundwater flows to the southeast.

N

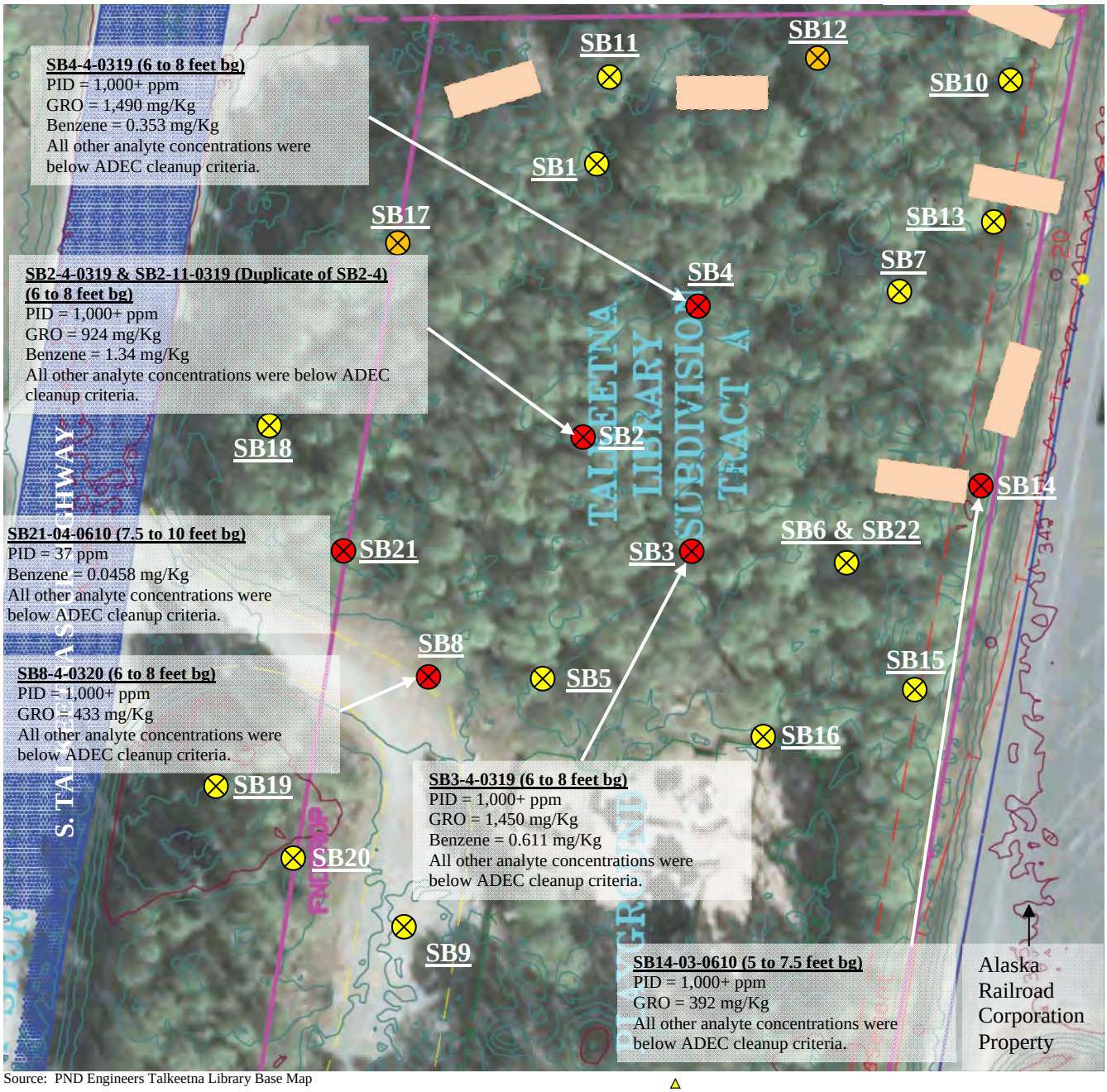
BGES

0 60 120

Approximate Scale (Feet)

Tract A, Talkeetna Library Subdivision
Talkeetna, Alaska
Groundwater Elevation Map

BGES, INC.	October 2013	Figure 5



Source: PND Engineers Talkeetna Library Base Map

LEGEND

- = Soil Sample exceeded ADEC Cleanup Criteria
- = Soil Sample did not exceed ADEC Cleanup Criteria
- = Soil Sample not submitted for laboratory analysis
- = Approximate Property Boundary
- = "Partially Buried" Railroad Car Chassis
- = Easement Line
- = Telephone Lines

PID = photoionization detector; ppm = parts per million; mg/Kg = milligrams per kilogram; bg = below grade; GRO = gasoline range organics

N

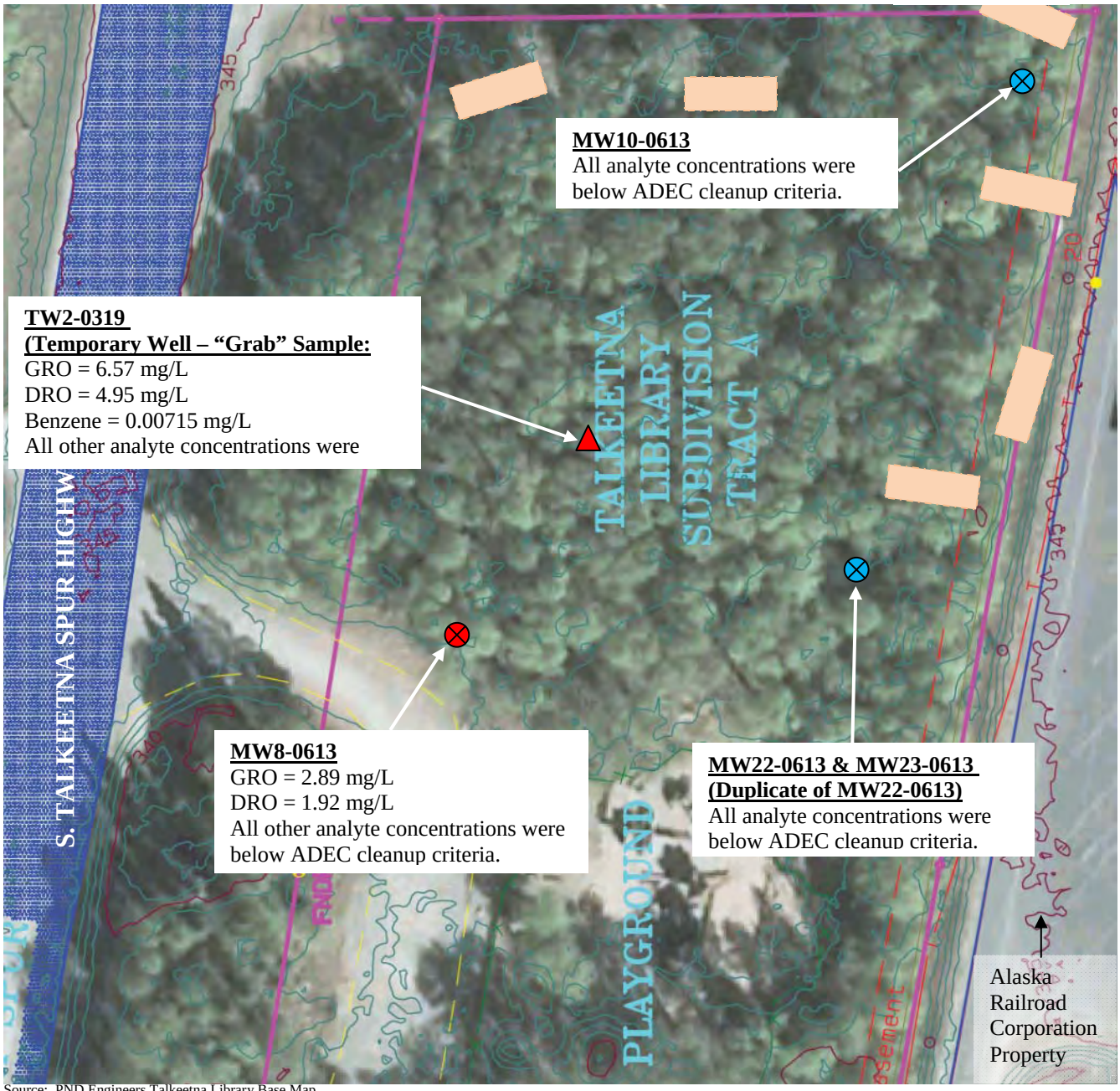
BGES

0 60 120

Approximate Scale (Feet)

Tract A, Talkeetna Library Subdivision
Talkeetna, Alaska
Soil Analytical Results Map

BGES, INC.	October 2013	Figure 6



Source: PND Engineers Talkeetna Library Base Map

LEGEND

- = Water Sample exceeded ADEC Cleanup Criteria
- = Water Sample did not exceed ADEC Cleanup Criteria
- = Approximate Property Boundary
- = "Partially Buried" Railroad Car Chassis
- = Easement Line
- = Telephone Lines

mg/L = milligrams per liter
GRO = gasoline range organics
DRO = diesel range organics
Note: Monitoring Wells MW10 and MW22 were installed in Soil Borings SB10 and SB22, respectively. Monitoring Well MW8 was installed north of Soil Boring SB8. Temporary Well TW2 was installed in Soil Boring SB2.

N

BGES

0 60 120

Approximate Scale (Feet)

Tract A, Talkeetna Library Subdivision
Talkeetna, Alaska
Water Analytical Results Map

BGES, INC.	October 2013	Figure 7

TABLE 1 **BGES, INC.**
TRACT 3, TALKEETNA LIRARY SUBDIVISION
TALKEETNA, ALASKA
MONITORING WELL SAMPLING DATA

Well Number	**MW8**	**MW10**	**MW22**
Date Sampled	06/13/13	06/13/13	06/13/13
Date of Depth and Elevation Measurement	06/13/13	06/13/13	06/13/13
Time of Depth to Water Measurement	11:20	11:15	11:10
Time Sample Collected	17:30	15:30	12:30
Top of Casing Elevation (feet)	102.88	103.60	102.06
Depth to Water (feet below top of casing)	7.7	7.7	7.5
Water Elevation (feet)	95.18	95.90	94.56
Total Depth of Well (feet below top of casing)	16.80	16.80	17.50
Well Casing Diameter (Inches)	2	2	2
Standing Water Well Volume (gallons)	1.49	1.49	1.63
Purge Volume-Actual (gallons)	5.0	5.0	5.0
Temperature (degrees Celsius)	7.3/6.1/5.7/5.6	7.0/5.5/5.2/4.3	7.2/6.0/5.7/5.5
pH (standard units)	5.6/5.7/5.6/5.6	5.8/6.2/6.4/6.6	5.5/5.9/6.2/6.4
Conductivity (millisiemans per centimeter)	13.6/39.4/17.4/35.6	61.0/37.1/49.6/48.4	92.6/80.3/72.3/70.7
Oxidation Reduction Potential (ORP)	9.6/25.7/2.2/19.4	-25.4/-21.0/-20.1/-19.5	-8.5/-21.0/-19.1/-15.0
Notes:			
Values separated by / indicate readings			
Sampler: J. Barsis			A strong petroleum odor was noted during
Field parameters measured with a YSI			the purging activites for this well.
Professional Plus Multi-Meter			
Elevations were surveyed for all of the wells			
during this sampling event.			
Monitoring Wells MW1 through MW7, MW9,			
and MW11 through MW 21 do not exist.			
Weather conditions on June 13, 2013 were			
clear and warm with calm winds and an ambient			
temperature of approximately 70 degrees	The intake of the bladder pump was set	The intake of the bladder pump was set	The intake of the bladder pump was set
Fahrenheit.	approximately 9 feet below TOC.	approximately 9 feet below TOC.	approximately 8.5 feet below TOC.

TABLE 2
TRACT 3, TALKEETNA LIRARY SUBDIVISION
TALKEETNA, ALASKA
ANALYTICAL RESULTS - MARCH & JUNE 2013 SOIL SAMPLES

Soil Sample No.	Parameter	Results (mg/Kg)	LOQ (mg/Kg)	ADEC Cleanup Criteria (mg/Kg)[1]	Analytical Method
MARCH OF 2013 SAMPLE RESULTS					
	Gasoline Range Organics	ND	2.71	300	AK101
SB1-4-0319	Diesel Range Organics	ND	23.6	250	AK102
PID = 0 ppm	Residual Range Organics	ND	23.6	10,000	AK103
Depth = 6-8 feet	Benzene	ND	0.0136	0.025	SW8021B
	Toluene	ND	0.0271	6.5	SW8021B
	Ethylbenzene	ND	0.0271	6.9	SW8021B
	Xylenes (Total)	ND	0.0543	63	SW8021B
	Gasoline Range Organics	**728 J**	27.5	300	AK101
SB2-4-0319	Diesel Range Organics	66.6	24.7	250	AK102
PID = 1,000+ ppm	Residual Range Organics	ND	24.7	10,000	AK103
Depth = 6-8 feet	Benzene	**0.740**	*0.137*	0.025	SW8021B
	Toluene	1.310	0.275	6.5	SW8021B
	Ethylbenzene	1.960	0.275	6.9	SW8021B
	Xylenes (Total)	3.910	0.549	63	SW8021B
	1-Methylnaphthalene	0.0339	0.0122	6.2	8270D SIMS
	2-Methylnapthalene	0.0257	0.0122	6.1	8270D SIMS
	All Other PAHs	ND	0.0122	varies	8270D SIMS
SB2-11-0319					
(Duplicate of SB2-4-0319)					
PID = 1,000+ ppm					
Depth = 6-8 feet					
RPD = 23.73%	Gasoline Range Organics	**924 J**	128	300	AK101
RPD = 30.53%	Diesel Range Organics	90.6	23.8	250	AK102
	Residual Range Organics	ND	23.8	10,000	AK103
RPD = 57.69%	Benzene	**1.340 J**	*0.128*	0.025	SW8021B
RPD = 69.98%	Toluene	2.720 J	0.256	6.5	SW8021B
RPD = 71.05%	Ethylbenzene	4.120 J	0.256	6.9	SW8021B
RPD = 100.19%	Xylenes (Total)	11.760 J	0.512	63	SW8021B
RPD = 104.44%	1-Methylnaphthalene	0.108 J	0.0593	6.2	8270D SIMS
RPD = 109.43%	2-Methylnapthalene	0.0878 J	0.0593	6.1	8270D SIMS
	All Other PAHs	ND J	0.0593	varies	8270D SIMS
	Gasoline Range Organics	**1,450 J**	106	300	AK101
SB3-4-0319	Diesel Range Organics	239	22.3	250	AK102
PID = 1,000+ ppm	Residual Range Organics	22.5	22.3	10,000	AK103
Depth = 6-8 feet	Benzene	**0.611**	*0.529*	0.025	SW8021B
	Toluene	2.680	1.060	6.5	SW8021B
	Ethylbenzene	4.550	1.060	6.9	SW8021B
	Xylenes (Total)	12.520	2.120	63	SW8021B
	Gasoline Range Organics	**1,490 J**	51.9	300	AK101
SB4-4-0319	Diesel Range Organics	232	23.9	250	AK102
PID = 1,000+ ppm	Residual Range Organics	ND	23.9	10,000	AK103
Depth = 6-8 feet	Benzene	**0.353 J**	*0.0649*	0.025	SW8021B
	Toluene	3.030 J	0.519	6.5	SW8021B
	Ethylbenzene	6.490 J	0.519	6.9	SW8021B
	Xylenes (Total)	19.400 J	1.040	63	SW8021B

TABLE 2
TRACT 3, TALKEETNA LIRARY SUBDIVISION
TALKEETNA, ALASKA
ANALYTICAL RESULTS - MARCH & JUNE 2013 SOIL SAMPLES

Soil Sample No.	Parameter	Results (mg/Kg)	LOQ (mg/Kg)	ADEC Cleanup Criteria (mg/Kg)[1]	Analytical Method
	Gasoline Range Organics	47 J	2.70	300	AK101
SB5-4-0320	Diesel Range Organics	ND	23.1	250	AK102
PID = 630 ppm	Residual Range Organics	ND	23.1	10,000	AK103
Depth = 6-8 feet	Benzene	ND J	0.0135	0.025	SW8021B
	Toluene	ND J	0.0270	6.5	SW8021B
	Ethylbenzene	ND J	0.0270	6.9	SW8021B
	Xylenes (Total)	0.722 J	0.0539	63	SW8021B
	Gasoline Range Organics	7.61 J	2.31	300	AK101
SB6-4-0320	Diesel Range Organics	ND	22.9	250	AK102
PID = 1,000+ ppm	Residual Range Organics	ND	22.9	10,000	AK103
Depth = 6-8 feet	Benzene	ND J	0.0115	0.025	SW8021B
	Toluene	ND J	0.0231	6.5	SW8021B
	Ethylbenzene	ND J	0.0231	6.9	SW8021B
	Xylenes (Total)	0.1097 J	0.0461	63	SW8021B
	Gasoline Range Organics	20.6 J	1.94	300	AK101
SB7-5-0320	Diesel Range Organics	ND	22.5	250	AK102
PID = 530 ppm	Residual Range Organics	ND	22.5	10,000	AK103
Depth = 8-10 feet	Benzene	ND J	0.00972	0.025	SW8021B
	Toluene	ND J	0.0194	6.5	SW8021B
	Ethylbenzene	0.0231 J	0.0194	6.9	SW8021B
	Xylenes (Total)	0.2572 J	0.0389	63	SW8021B
	Gasoline Range Organics	**433 J**	25.5	300	AK101
SB8-4-0320	Diesel Range Organics	ND	23.0	250	AK102
PID = 1,000+ ppm	Residual Range Organics	ND	23.0	10,000	AK103
Depth = 6-8 feet	Benzene	ND J	*0.0255*	0.025	SW8021B
	Toluene	4.980 J	0.255	6.5	SW8021B
	Ethylbenzene	0.919 J	0.255	6.9	SW8021B
	Xylenes (Total)	6.700 J	0.510	63	SW8021B
	Gasoline Range Organics	ND	1.72	300	AK101
SB9-4-0320	Diesel Range Organics	ND	21.6	250	AK102
PID = 0 ppm	Residual Range Organics	ND	21.6	10,000	AK103
Depth = 6-8 feet	Benzene	ND	0.00859	0.025	SW8021B
	Toluene	ND	0.0172	6.5	SW8021B
	Ethylbenzene	ND	0.0172	6.9	SW8021B
	Xylenes (Total)	ND	0.0344	63	SW8021B
JUNE OF 2013 SAMPLE RESULTS					
	Gasoline Range Organics	ND	2.38	300	AK101
SB10-04-0610	Diesel Range Organics	ND	23.1	250	AK102
PID = 175 ppm	Residual Range Organics	ND	23.1	10,000	AK103
Depth = 7.5-10 feet	Benzene	ND	0.0119	0.025	SW8021B
	Toluene	ND	0.0238	6.5	SW8021B
	Ethylbenzene	ND	0.0238	6.9	SW8021B
	Xylenes (Total)	ND	0.0476	63	SW8021B
	Gasoline Range Organics	ND	2.27	300	AK101
SB11-05-0610	Diesel Range Organics	ND	23.9	250	AK102
PID = 0 ppm	Residual Range Organics	ND	23.9	10,000	AK103
Depth = 10-12.5 feet	Benzene	ND	0.0114	0.025	SW8021B
	Toluene	ND	0.0227	6.5	SW8021B
	Ethylbenzene	ND	0.0227	6.9	SW8021B
	Xylenes (Total)	ND	0.0454	63	SW8021B

TABLE 2
TRACT 3, TALKEETNA LIRARY SUBDIVISION
TALKEETNA, ALASKA
ANALYTICAL RESULTS - MARCH & JUNE 2013 SOIL SAMPLES

Soil Sample No.	Parameter	Results (mg/Kg)	LOQ (mg/Kg)	ADEC Cleanup Criteria (mg/Kg)[1]	Analytical Method
	Gasoline Range Organics	4.33	2.48	300	AK101
SB13-04-0610	Diesel Range Organics	ND	23.8	250	AK102
PID = 75 ppm	Residual Range Organics	ND	23.8	10,000	AK103
Depth = 7.5-10 feet	Benzene	ND	0.0124	0.025	SW8021B
	Toluene	ND	0.0248	6.5	SW8021B
	Ethylbenzene	ND	0.0248	6.9	SW8021B
	Xylenes (Total)	0.0507	0.0497	63	SW8021B
	Gasoline Range Organics	**392 J**	20.2	300	AK101
SB14-03-0610	Diesel Range Organics	ND	23.1	250	AK102
PID = 1000+ ppm	Residual Range Organics	ND	23.1	10,000	AK103
Depth = 5-7.5 feet	Benzene	ND J	0.0101	0.025	SW8260B
	Toluene	ND J	0.0202	6.5	SW8260B
	Ethylbenzene	ND J	0.0202	6.9	SW8260B
	Xylenes (Total)	ND J	0.0807	63	SW8260B
	1,3,5-Trimethylbenzene	0.0680 J	0.0202	23	SW8260B
	4-Isopropyltoluene	0.138 J	0.0202	NA	SW8260B
	Isopropylbenzene	0.0303 J	0.0202	51	SW8260B
	n-Butylbenzene	0.137 J	0.0202	15	SW8260B
	n-Propylbenzene	0.0599 J	0.0202	15	SW8260B
	sec-Butylbenzene	0.123 J	0.0202	12	SW8260B
	1,1,2,2-Tetrachloroethane	*ND J*	*0.0403*	*0.017*	*SW8260B*
	1,1,2-Trichloroethane	*ND J*	*0.0202*	*0.018*	*SW8260B*
	1,2,3-Trichloropropane	*ND J*	*0.0202*	*0.00053*	*SW8260B*
	1,2-Dibromoethane (EDB)	*ND J*	*0.0202*	*0.00016*	*SW8260B*
	1,2-Dichloroethane	*ND J*	*0.0202*	*0.016*	*SW8260B*
	1,2-Dichloropropane	*ND J*	*0.0202*	*0.018*	*SW8260B*
	Vinyl Chloride	*ND J*	*0.0202*	*0.0085*	*SW8260B*
	All Other VOCs	ND J	varies	varies	SW8260B
	Gasoline Range Organics	ND	2.41	300	AK101
SB15-03-0610	Diesel Range Organics	ND	22.2	250	AK102
PID = 0 ppm	Residual Range Organics	34.3	22.2	10,000	AK103
Depth = 5-7.5 feet	Benzene	ND J	0.0121	0.025	SW8260B
	Toluene	ND J	0.0241	6.5	SW8260B
	Ethylbenzene	ND J	0.0241	6.9	SW8260B
	Xylenes (Total)	ND J	0.0965	63	SW8260B
	1,1,2,2-Tetrachloroethane	*ND J*	*0.0483*	*0.017*	*SW8260B*
	1,1,2-Trichloroethane	*ND J*	*0.0241*	*0.018*	*SW8260B*
	1,2,3-Trichloropropane	*ND J*	*0.0241*	*0.00053*	*SW8260B*
	1,2-Dibromoethane (EDB)	*ND J*	*0.0241*	*0.00016*	*SW8260B*
	1,2-Dichloroethane	*ND J*	*0.0241*	*0.016*	*SW8260B*
	1,2-Dichloropropane	*ND J*	*0.0241*	*0.018*	*SW8260B*
	Vinyl Chloride	*ND J*	*0.0241*	*0.0085*	*SW8260B*
	All Other VOCs	ND J	varies	varies	SW8260B
	Gasoline Range Organics	ND	2.29	300	AK101
SB16-05-0610	Diesel Range Organics	ND	23.7	250	AK102
PID = 0 ppm	Residual Range Organics	ND	23.7	10,000	AK103
Depth = 10-12.5 feet	Benzene	ND	0.0114	0.025	SW8021B
	Toluene	ND	0.0229	6.5	SW8021B
	Ethylbenzene	ND	0.0229	6.9	SW8021B
	Xylenes (Total)	ND	0.0457	63	SW8021B

TABLE 2
TRACT 3, TALKEETNA LIRARY SUBDIVISION
TALKEETNA, ALASKA
ANALYTICAL RESULTS - MARCH & JUNE 2013 SOIL SAMPLES

Soil Sample No.	Parameter	Results (mg/Kg)	LOQ (mg/Kg)	ADEC Cleanup Criteria (mg/Kg)[1]	Analytical Method
	Gasoline Range Organics	ND	2.33	300	AK101
SB18-03-0610	Diesel Range Organics	ND	24.6	250	AK102
PID = 0 ppm	Residual Range Organics	ND	24.6	10,000	AK103
Depth = 5-7.5 feet	Benzene	ND	0.0116	0.025	SW8021B
	Toluene	ND	0.0233	6.5	SW8021B
	Ethylbenzene	ND	0.0233	6.9	SW8021B
	Xylenes (Total)	ND	0.0465	63	SW8021B
	Gasoline Range Organics	ND	2.93	300	AK101
SB19-03-0610	Diesel Range Organics	ND	23.9	250	AK102
PID = 351 ppm	Residual Range Organics	ND	23.9	10,000	AK103
Depth = 5-7.5 feet	Benzene	ND	0.0146	0.025	SW8021B
	Toluene	ND	0.0293	6.5	SW8021B
	Ethylbenzene	ND	0.0293	6.9	SW8021B
	Xylenes (Total)	ND	0.0585	63	SW8021B
	All PAHs	ND	0.00607	varies	8270D SIMS
	Gasoline Range Organics	ND	2.39	300	AK101
SB20-04-0610	Diesel Range Organics	ND	23.5	250	AK102
PID = 0 ppm	Residual Range Organics	ND	23.5	10,000	AK103
Depth = 7.5-10 feet	Benzene	ND	0.0119	0.025	SW8021B
	Toluene	ND	0.0239	6.5	SW8021B
	Ethylbenzene	ND	0.0239	6.9	SW8021B
	Xylenes (Total)	ND	0.0478	63	SW8021B
	Gasoline Range Organics	109 J	2.84	300	AK101
SB21-04-0610	Diesel Range Organics	ND	24.3	250	AK102
PID = 37 ppm	Residual Range Organics	33.7	24.3	10,000	AK103
Depth = 7.5-10 feet	Benzene	**0.0458**	0.0142	0.025	SW8021B
	Toluene	0.185	0.0284	6.5	SW8021B
	Ethylbenzene	0.485	0.0284	6.9	SW8021B
	Xylenes (Total)	0.858	0.0569	63	SW8021B
	Gasoline Range Organics	90.2 J	2.57	300	AK101
SB22-04-0611	Diesel Range Organics	ND	23.6	250	AK102
PID = 1000+ ppm	Residual Range Organics	ND	23.6	10,000	AK103
Depth = 7.5-10 feet	Benzene	ND J	0.0128	0.025	SW8260B
	Toluene	ND J	0.0257	6.5	SW8260B
	Ethylbenzene	ND J	0.0257	6.9	SW8260B
	Xylenes (Total)	ND J	0.103	63	SW8260B
	1,1,2,2-Tetrachloroethane	*ND J*	*0.0513*	*0.017*	*SW8260B*
	1,1,2-Trichloroethane	*ND J*	*0.0257*	*0.018*	*SW8260B*
	1,2,3-Trichloropropane	*ND J*	*0.0257*	*0.00053*	*SW8260B*
	1,2-Dibromoethane (EDB)	*ND J*	*0.0257*	*0.00016*	*SW8260B*
	1,2-Dichloroethane	*ND J*	*0.0257*	*0.016*	*SW8260B*
	1,2-Dichloropropane	*ND J*	*0.0257*	*0.018*	*SW8260B*
	Vinyl Chloride	*ND J*	*0.0257*	*0.0085*	*SW8260B*
	All Other VOCs	ND J	varies	varies	SW8260B

TABLE 2
TRACT 3, TALKEETNA LIRARY SUBDIVISION
TALKEETNA, ALASKA
ANALYTICAL RESULTS - MARCH & JUNE 2013 SOIL SAMPLES

Soil Sample No.	Parameter	Results (mg/Kg)	LOQ (mg/Kg)	ADEC Cleanup Criteria (mg/Kg)[1]	Analytical Method
SB22-09-0611					
(Duplicate of SB22-04)					
PID = 1000+ ppm					
Depth = 7.5-10 feet					
RPD = 42.58%	Gasoline Range Organics	139 J	27.1	300	AK101
	Diesel Range Organics	ND	23.9	250	AK102
	Residual Range Organics	ND	23.9	10,000	AK103
	Benzene	ND J	0.0136	0.025	SW8260B
	Toluene	ND J	0.0271	6.5	SW8260B
	Ethylbenzene	ND J	0.0271	6.9	SW8260B
	Xylenes (Total)	ND J	0.109	63	SW8260B
	1,1,2,2-Tetrachloroethane	*ND J*	*0.0543*	*0.017*	*SW8260B*
	1,1,2-Trichloroethane	*ND J*	*0.0271*	*0.018*	*SW8260B*
	1,2,3-Trichloropropane	*ND J*	*0.0271*	*0.00053*	*SW8260B*
	1,2-Dibromoethane (EDB)	*ND J*	*0.0271*	*0.00016*	*SW8260B*
	1,2-Dichloroethane	*ND J*	*0.0271*	*0.016*	*SW8260B*
	1,2-Dichloropropane	*ND J*	*0.0271*	*0.018*	*SW8260B*
	Vinyl Chloride	*ND J*	*0.0271*	*0.0085*	*SW8260B*
	All Other VOCs	ND J	varies	varies	SW8260B

[1] Soil criteria from ADEC 18 Alaska Administrative Code (AAC) 75.341, Tables B1 and B2, Method 2, Under 40-Inch Zone, Migration to Groundwater; except for RRO, which is based on the more stringent ingestion pathway (April 8, 2012).

ADEC = Alaska Department of Environmental Conservation; PID = photoionization detector; J = estimated value;
LOQ = limit of quantitation; ppm = parts per million; mg/Kg = milligrams per kilogram; NA = not applicable;
ND = not detected above LOQ; PAHs = polynuclear aromatic hydrocarbons; VOCs = volatile organic compounds;
RPD = relative percent difference

Italics = The LOQ exceeds the applicable ADEC cleanup criterion.

BOLD = Concentration exceeds the applicable ADEC cleanup criterion.

TABLE 3
TRACT 3, TALKEETNA LIRARY SUBDIVISION
TALKEETNA, ALASKA
ANALYTICAL RESULTS - MARCH & JUNE 2013 GROUNDWATER SAMPLES

Water Sample No.	Parameter	Results (mg/L)	LOQ (mg/L)	ADEC Water Cleanup Criterion (mg/L)	Analytical Method
TW2-0319	Gasoline Range Organics	**6.57**	1.00	2.2	AK101
	Diesel Range Organics	**4.95**	0.600	1.5	AK102
	Residual Range Organics	ND	0.500	1.1	AK103
	Benzene	**0.00715 J**	0.000500	0.005	SW8021B
	Ethylbenzene	0.0182 J	0.00100	0.7	SW8021B
	Toluene	0.00570 J	0.00100	1.0	SW8021B
	Total Xylenes	0.0627 J	0.00200	10	SW8021B
	All PAHs	ND J	varies	varies	8270D SIMS
MW8-0613	Gasoline Range Organics	**2.89 J**	0.100	2.2	AK101
	Diesel Range Organics	**1.92**	0.600	1.5	AK102
	Residual Range Organics	ND	0.500	1.1	AK103
	Benzene	0.00383 J	0.000500	0.005	SW8021B
	Ethylbenzene	0.00554 J	0.00100	0.7	SW8021B
	Toluene	0.00306 J	0.00100	1.0	SW8021B
	Total Xylenes	0.01284 J	0.00200	10	SW8021B
MW10-0613	Gasoline Range Organics	1.26	0.100	2.2	AK101
	Diesel Range Organics	ND	0.600	1.5	AK102
	Residual Range Organics	ND	0.500	1.1	AK103
	Benzene	0.00129	0.000500	0.005	SW8021B
	Ethylbenzene	0.00302	0.00100	0.7	SW8021B
	Toluene	0.00205	0.00100	1.0	SW8021B
	Total Xylenes	0.00986	0.00200	10	SW8021B
MW22-0613	Gasoline Range Organics	0.757	0.100	2.2	AK101
	Diesel Range Organics	ND	0.600	1.5	AK102
	Residual Range Organics	ND	0.500	1.1	AK103
	Benzene	ND	0.000400	0.005	SW8260B
	Ethylbenzene	ND	0.00100	0.7	SW8260B
	Toluene	ND	0.00100	1.0	SW8260B
	Total Xylenes	ND	0.00300	10	SW8260B
	4-Isopropyltoluene	0.00122	0.00100	NA	SW8260B
	Chloromethane	0.00251 J	0.00100	0.066	SW8260B
	1,2,3-Trichloropropane	*ND*	*0.00100*	*0.00012*	*SW8260B*
	1,2-Dibromoethane	*ND*	*0.00100*	*0.00005*	*SW8260B*
	All Other VOCs	ND	varies	varies	SW8260B
	All PAHs	ND	varies	varies	8270D SIMS

TABLE 3
TRACT 3, TALKEETNA LIRARY SUBDIVISION
TALKEETNA, ALASKA
ANALYTICAL RESULTS - MARCH & JUNE 2013 GROUNDWATER SAMPLES

Water Sample No.	Parameter	Results (mg/L)	LOQ (mg/L)	ADEC Water Cleanup Criterion (mg/L)	Analytical Method
MW23-0613					
(Duplicate of MW22-0613)					
RPD = 2.68%	Gasoline Range Organics	0.737	0.100	2.2	AK101
	Diesel Range Organics	ND	0.600	1.5	AK102
	Residual Range Organics	ND	0.500	1.1	AK103
	Benzene	ND	0.000400	0.005	SW8260B
	Ethylbenzene	ND	0.00100	0.7	SW8260B
	Toluene	ND	0.00100	1.0	SW8260B
	Total Xylenes	ND	0.00300	10	SW8260B
RPD = 1.63%	4-Isopropyltoluene	0.00124	0.00100	NA	SW8260B
RPD = 62.14%	Chloromethane	0.00132 J	0.00100	0.066	SW8260B
	1,2,3-Trichloropropane	*ND*	*0.00100*	*0.00012*	*SW8260B*
	1,2-Dibromoethane	*ND*	*0.00100*	*0.00005*	*SW8260B*
	All Other VOCs	ND	varies	varies	SW8260B
	All PAHs	ND	varies	varies	8270D SIMS

[1] = Groundwater cleanup criteria based on 18 AAC 75.345 Table C (April 12, 2012).
mg/L = milligrams per liter; LOQ = limit of quantitation; NA = not applicable; ND = not detected above LOQ;
VOCs = volatile organic compounds; PAHs = polynuclear aromatic hydrocarbons; RPD = relative percent difference;
ADEC = Alaska Department of Environmental Conservation; J = estimated value.
Monitoring Wells MW1 through MW7, MW9, and MW11 through MW 21 do not exist.
Italics = The LOQ exceeds the applicable ADEC cleanup criterion.
BOLD **= i**ndicates concentration exceeds applicable cleanup criterion.

APPENDIX A
SITE PHOTOGRAPHS

Photo 1. Possible Abandoned Rail Car (looking north)

Photo 2. Abandoned Rail Car Parts (looking northeast)

Photo 3. Drilling Soil Boring SB1 (looking northwest)

Photo 4. Partially Buried Rail Car

Photo 5. Partially Buried Rail Car

Photo 6. Installing Monitoring Well MW8 (looking north)

Tract 3, Talkeetna Library Subdivision
Talkeetna, Alaska
Property Photographs

BGES, INC.	October 2013	Figure A-1

APPENDIX B

SOIL BORING LOGS, MONITORING WELL INSTALLATION LOGS, WATER MONITORING LOGS, AND FIELD NOTES

BGES, INC.

BGES, INC.
SOIL BORING LOG

CLIENT: MSB

SOIL BORING NUMBER: SB1

SOIL BORING LOCATION: 1' West of #7

Date: 3/19/2013 Weather Conditions: Clear blue, 10°F, low wind

Time: 1030 Drilling Company/Rig Type: Wininger / CME75 High Torque

Observer: JB Drilling/Sampling Method: Hammer / Split Spoon HSA

Sample No.	Depth (feet)	PID (ppm) Amb/H.S.	Graphic	Description	Blow Counts
1	From: 0 to: 2 Time: 1050	0		0-2 Ft: Frozen Sand (Brown)	2-4-3-1
2	From: 2 to: 4 Time: 1100	0		2-2.5: No Recovery 2.5-3.25: Frozen Silt 3.25-4: Sand (Brown)	1-1-7-5
3	From: 4 to: 6 Time: 1115	0		4-4.5: No Recovery 4.5-4.7: Moist Sand (Brown) 4.7-6: Gravely Sand w/ cobbles	1-5-5-7
4	From: 6 to: 8 Time: 1130	0	▲	6-7.5: Sand (Brown) 7.5-8: Saturation Zone (Moist sandy Gravel)	9-3-5-6
5	From: 8 to: 10 Time: 1150	0		8-10: Moist Sandy Gravel	3-6-4-5
6	From: 10 to: 12 Time:				
7	From: 12 to: 14 Time:				
8	From: 14 to: 16 Time:				
9	From: 16 to: 18 Time:				
10	From: 18 to: 20 Time:				
11	From: 20 to: 22 Time:				
12	From: 22 to: 24 Time:				

Notes: Amb = ambient; H.S. = headspace
▲ = depth to water at time of drilling

BGES, INC.

BGES, INC.
SOIL BORING LOG

CLIENT: MSB

SOIL BORING NUMBER: SB2

SOIL BORING LOCATION: 1' NW of #8

Date: 3/19/2013

Weather Conditions: Clear blue, 10°F, Gusts of wind

Time: 1210

Drilling Company/Rig Type: Wininger / CME75 High Torque

Observer: JB

Drilling/Sampling Method: ~~Hammer~~ / Split Spoon (A) HSA

Sample No.	Depth (feet)	PID (ppm) Amb/H.S.	Graphic	Description	Blow Counts
1	From: 0 to: 2 Time: 1230	0		0-.5: No Recovery .5-1: Frozen Silty Sand 1-2: Brown Silt	1-1-1-1
2	From: 2 to: 4 Time: ~~1230~~ (B) 1240	0		2-2.5: Silty Sand 2.5-4: Sand	2-2-2-2
3	From: 4 to: 6 Time: 1250	1000+		4-4.5: No Recovery 4.5-5.5: Sand (Brown) 5.5-6: Moist Sand (Gray) - Petroleum odor	1-1-1-2
4	From: 6 to: 8 Time: 1310	1000+	▲	6-6.75: Silty Sand 6.75-8: Saturation Zone (wet sand) - Petroleum odor	3-4-5-6
5	From: 8 to: 10 Time: 1340	370		8-10: Moist Sand - Petroleum odor	3-17-8-8
6	From: 10 to: 12 Time:				
7	From: 12 to: 14 Time:				
8	From: 14 to: 16 Time:				
9	From: 16 to: 18 Time:				
10	From: 18 to: 20 Time:				
11	From: 20 to: 22 Time: 1310	1000+	▲	DUPLICATE OF SB2-4	
12	From: 22 to: 24 Time:				

Notes: Amb = ambient; H.S. = headspace
▲ = depth to water at time of drilling

Temporary well set w/ 10ft Screen
SB2-11 is duplicate for SB2-4

BGES, INC.

BGES, INC.
SOIL BORING LOG

CLIENT: MSB

SOIL BORING NUMBER: SB3

SOIL BORING LOCATION: 1' North of #4

Date: 3/19/2013

Weather Conditions: Clear blue, 15°F, Medium wind

Time: 1400

Drilling Company/Rig Type: Wininger / CME 75 High Torque

Observer: JB

Drilling/Sampling Method: ~~Hammer~~ / Split Spoon HSA

Sample No.	Depth (feet)	PID (ppm) Amb/H.S.	Graphic	Description	Blow Counts
1	From: 0 to: 2 Time: 1415	0		0-1: Frozen Sand 1-2: Sand	2-6-8-2
2	From: 2 to: 4 Time: 1440	0		2-4: Sand	2-2-2-3
3	From: 4 to: 6 Time: 1455	0		4-4.5: Moist Sand 4.5-6: Sand - Petroleum odor	3-3-4-4
4	From: 6 to: 8 Time: 1505	1000+	▲	6-6.5: No Recovery 6.5-7: Sand 7-8: Saturation Zone (Sandy-gravel) - Petroleum odor	3-4-5-6
5	From: 8 to: 10 Time: 1525	1000+		8-10: Moist Sandy gravel - Petroleum odor	6-14-13-8
6	From: 10 to: 12 Time:				
7	From: 12 to: 14 Time:				
8	From: 14 to: 16 Time:				
9	From: 16 to: 18 Time:				
10	From: 18 to: 20 Time:				
11	From: 20 to: 22 Time:				
12	From: 22 to: 24 Time:				

Notes: Amb = ambient; H.S. = headspace
▲ = depth to water at time of drilling

BGES, INC.

BGES, INC.
SOIL BORING LOG

CLIENT: MSB

SOIL BORING NUMBER: SB4

SOIL BORING LOCATION: 25' SW of #6

Date: 3/19/2013

Weather Conditions: Clear blue, 20°F, Medium wind

Time: 1600

Drilling Company/Rig Type: Wininger / CME75 High Torque

Observer: JB

Drilling/Sampling Method: ~~Hammer~~ / Split Spoon HSA

Sample No.	Depth (feet)	PID (ppm) Amb/H.S.	Graphic	Description	Blow Counts
1	From: 0 to: 2 Time: 1615	0		0-2: Frozen Sand	5-10-4-1
2	From: 2 to: 4 Time: 1630	0		2-2.5: Silt 2.5-4: Sand	3-1-2-1
3	From: 4 to: 6 Time: 1645	3		4-4.5: No Recovery 4.5-6: Sand	1-1-1-2
4	From: 6 to: 8 Time: 1700	1000+	▲	6-7: Moist Sand 7-8: Saturated Zone	2-2-4-6
5	From: 8 to: 10 Time:				
6	From: 10 to: 12 Time:				
7	From: 12 to: 14 Time:				
8	From: 14 to: 16 Time:				
9	From: 16 to: 18 Time:				
10	From: 18 to: 20 Time:				
11	From: 20 to: 22 Time:				
12	From: 22 to: 24 Time:				

Notes: Amb = ambient; H.S. = headspace
▲ = depth to water at time of drilling

BGES, INC.

BGES, INC.
SOIL BORING LOG

CLIENT: MSB

SOIL BORING NUMBER: SB5

SOIL BORING LOCATION: 5' North of #1

Date: 3/20/13

Weather Conditions: Clear blue, 0°F, low wind

Time: 900

Drilling Company/Rig Type: Wininger / CME High Torque

Observer: JB

Drilling/Sampling Method: ~~Hanover~~ / Split Spoon HSA

Sample No.	Depth (feet)	PID (ppm) Amb/H.S.	Graphic	Description	Blow Counts
1	From: 0 to: 2 Time: 1010	0		0-2ft: Frozen Silt (Brown)	5-8-4-1
2	From: 2 to: 4 Time: 1025	0		2-3: Frozen Sandy Silt 3-4: Sand	3-3-2-2
3	From: 4 to: 6 Time: 1035	0		4-4.5: No Recovery 4.5-6: Sand	1-2-2-2
4	From: 6 to: 8 Time: 1045	630	▲	6-7.5: Sand 7.5-8: Saturation Zone - Petroleum odor	8-3-4-6
5	From: 8 to: 10 Time:				
6	From: 10 to: 12 Time:				
7	From: 12 to: 14 Time:				
8	From: 14 to: 16 Time:				
9	From: 16 to: 18 Time:				
10	From: 18 to: 20 Time:				
11	From: 20 to: 22 Time:				
12	From: 22 to: 24 Time:				

Notes: Amb = ambient; H.S. = headspace
▲ = depth to water at time of drilling

BGES, INC.

BGES, INC.
SOIL BORING LOG

CLIENT: MSB

SOIL BORING NUMBER: SB6

SOIL BORING LOCATION: 3' East of #3

Date: 3/20/13

Weather Conditions: Clear Blue, 10°F, low wind

Time: 1110

Drilling Company/Rig Type: Ulmiger / CME 75 High Torque

Observer: JB

Drilling/Sampling Method: ~~Hamm~~ / split spoon HSA

Sample No.	Depth (feet)	PID (ppm) Amb/H.S.	Graphic	Description	Blow Counts
1	From: 0 to: 2 Time: 1145	0		0-.75: Frozen Sand .75-1.25: Frozen Silt 1.25-2: Sand	35-2-2
2	From: 2 to: 4 Time: 1200	0		2-2.5: Silt 2.5-4: Sand	2-2-2-2
3	From: 4 to: 6 Time: 1215	0		4-6: Sand	12-1-2
4	From: 6 to: 8 Time: 1230	1000+	▲	6-7: Sand 7-8: Saturation Zone - Petroleum odor (Grey sand w/ large cobbles)	4-4-5-7
5	From: 8 to: 10 Time:				
6	From: 10 to: 12 Time:				
7	From: 12 to: 14 Time:				
8	From: 14 to: 16 Time:				
9	From: 16 to: 18 Time:				
10	From: 18 to: 20 Time:				
11	From: 20 to: 22 Time:				
12	From: 22 to: 24 Time:				

Notes: Amb = ambient; H.S. = headspace
▲ = depth to water at time of drilling

BGES, INC.

BGES, INC.
SOIL BORING LOG

CLIENT: MSB

SOIL BORING NUMBER: SB7

SOIL BORING LOCATION: 2' East of #5

Date: 3/20/13

Weather Conditions: Clear blue, 20°F, Medium wind

Time: 1300

Drilling Company/Rig Type: Winger / CME 75 High Torque

Observer: JB

Drilling/Sampling Method: ~~Hammer~~ / Split Spoon HSA

Sample No.	Depth (feet)	PID (ppm) Amb/H.S.	Graphic	Description	Blow Counts
1	From: 0 to: 2 Time: 1315	0		0-1.5: Frozen Silt 1.5-2: Sand	6-6-1-2
2	From: 2 to: 4 Time: 1335	0		2-2.5 Silt 2.5-4 Sand	1-2-1-1
3	From: 4 to: 6 Time: 1345	0		4-5 : Sand (Brown) 5-6 : gravely Sand (gray)	12-4-3
4	From: 6 to: 8 Time: 1400	0		6-7: No Recovery 7-8: Moist gravely Sand	2-3-4-6
5	From: 8 to: 10 Time: 1410	530	▲	8-8.5 : Moist brown gravely sand 8.5-10: Saturation Zone (gray Sandy gravel) - Petroleum odor	4-7-7-9
6	From: 10 to: 12 Time:				
7	From: 12 to: 14 Time:				
8	From: 14 to: 16 Time:				
9	From: 16 to: 18 Time:				
10	From: 18 to: 20 Time:				
11	From: 20 to: 22 Time:				
12	From: 22 to: 24 Time:				

Notes: Amb = ambient; H.S. = headspace
▲ = depth to water at time of drilling

BGES, INC.

BGES, INC.
SOIL BORING LOG

CLIENT: MSB

SOIL BORING NUMBER: SB8

SOIL BORING LOCATION: 50' West of #1

Date: 3/20/13

Time: 1415

Observer: JB

Weather Conditions: Clear blue, 25°F, low wind

Drilling Company/Rig Type: Wanzer / CME 75 High Torque

Drilling/Sampling Method: ~~Hand~~ / Split Spoon HSA

Sample No.	Depth (feet)	PID (ppm) Amb/H.S.	Graphic	Description	Blow Counts
1	From: 0 to: 2 Time: 1450	0		0-2: Frozen Silt	5-20-11-4 ~~25-34~~
2	From: 2 to: 4 Time: 1530	0		2-4: Sand	13-2-1
3	From: 4 to: 6 Time: 1540	0		4-6: Sand	2-2-2-2
4	From: 6 to: 8 Time: 1550	1000+	▲	6-7: Sand 7-8: Sand (Saturation Zone) - Petroleum odor	7-5-5-5
5	From: 8 to: 10 Time:				
6	From: 10 to: 12 Time:				
7	From: 12 to: 14 Time:				
8	From: 14 to: 16 Time:				
9	From: 16 to: 18 Time:				
10	From: 18 to: 20 Time:				
11	From: 20 to: 22 Time:				
12	From: 22 to: 24 Time:				

Notes: Amb = ambient; H.S. = headspace
▲ = depth to water at time of drilling

BGES, INC.

BGES, INC.
SOIL BORING LOG

CLIENT: MSB

SOIL BORING NUMBER: SB9

SOIL BORING LOCATION: 45' SW of Park Entrance

Date: 3/20/13

Weather Conditions: Clear blue, 25°F, Medium Wind

Time: 1600

Drilling Company/Rig Type: Wimmer / CME 75 High Torque

Observer: JB

Drilling/Sampling Method: Hammer / split spoon HSA

Sample No.	Depth (feet)	PID (ppm) Amb/H.S.	Graphic	Description	Blow Counts
1	From: 0 to: 2 Time: 1625	B.G.		No Recovery	5-50
2	From: 2 to: 4 Time: 1635	0		2-2.75: No Recovery 2.75-4: Sand	13-7-7-5
3	From: 4 to: 6 Time: 1650	0		4-6: Sand 2" silt layer at ~ 5 FT	2-3-5-7
4	From: 6 to: 8 Time: 1710	0	▲	6-7: Sand 7-7.5: Moist sand 7.5-8: Saturated Zone (Sandy gravel) - Petroleum odor	17-8-9-10
5	From: 8 to: 10 Time:				
6	From: 10 to: 12 Time:				
7	From: 12 to: 14 Time:				
8	From: 14 to: 16 Time:				
9	From: 16 to: 18 Time:				
10	From: 18 to: 20 Time:				
11	From: 20 to: 22 Time:				
12	From: 22 to: 24 Time:				

Notes: Amb = ambient; H.S. = headspace
▲ = depth to water at time of drilling

In SB9-4, A strong Petroleum odor was noticed, however, no concentrations of product were detected by the PID.

BGES, INC.
ENVIRONMENTAL CONSULTANTS

BGES, INC.
SOIL BORING LOG

CLIENT: MSB

SOIL BORING NUMBER: SB10

SOIL BORING LOCATION: NE Corner near boundary

Date: 6/10/13

Weather Conditions: Clear, 65°F, low wind

Time: 1000

Drilling Company/Rig Type: GeoTek, Geoprobe 6620DT

Observer: JB

Drilling/Sampling Method: Direct Push, Macrocore

Sample No.	Depth (feet)	PID (ppm) Amb/H.S.	Graphic	Description	Blow Counts
1	From: 0 to: 2.5 Time: 1010	0		0-2: No Recovery 60% 2-2.5: Silt 2.5-3.2: Sandy Silt	
2	From: 2.5 to: 5 Time: NA			3.2-3.9: Silty Sand 3.9-4.5: Silty Sand 4.5-5: Sand w/ cobbles (moist)	
3	From: 5 to: 7.5 Time: 1015	0		5-6: No Recovery 80% 6-8.5: Course grained Sand 8.5-9: Wet Sand 9-10: gravel & cobbles	
(4)	From: 7.5 to: 10 Time: 1020	175	▼	GW @ 9 feet	
5	From: 10 to: 12.5 Time: NA			10-14: No Recovery 20% 14-15: large cobbles & gravel	
6	From: 12.5 to: 15 Time: NA				
7	From: 15 to: 17.5 Time:				
8	From: 17.5 to: 20 Time:				
9	From: 20 to: 22.5 Time:				
10	From: 22.5 to: 25 Time:				
11	From: 25 to: 27.5 Time:				
12	From: 27.5 to: 30 Time:				

Notes: Amb = ambient; H.S. = headspace
▼ = depth to water at time of drilling

BGES, INC.
ENVIRONMENTAL CONSULTANTS

BGES, INC.
SOIL BORING LOG

CLIENT: MSB

SOIL BORING NUMBER: SB11

SOIL BORING LOCATION: 45' N of SB1

Date: 6/10/13

Weather Conditions: Clear, 65°F, low wind

Time: 1120

Drilling Company/Rig Type: Geotek, Geoprobe 6620 DT

Observer: JB

Drilling/Sampling Method: Direct Push, Macro core

Sample No.	Depth (feet)	PID (ppm) Amb/H.S.	Graphic	Description	Blow Counts
1	From: 0 to: 2.5 Time: 1130	0		0-2: No Recovery 2-2.5: Stuff 60%	
2	From: 2.5 to: 5 Time: NA			2.5-4.5: Mixure of sand/silt layers 4.5-5: Course grained sand	
3	From: 5 to: 7.5 Time: 1140	0		5-6: No Recovery 6-9: Moist silt 80% 9-10: Silty sand	
4	From: 7.5 to: 10 Time: 1145	0			
(5)	From: 10 to: 12.5 Time: 1150	0	▼	10-11: No Recovery 11-12: Course grained sand 80% 12-15: gravel & cobbles (Saturated)	
6	From: 12.5 to: 15 Time:				
7	From: 15 to: 17.5 Time:				
8	From: 17.5 to: 20 Time:				
9	From: 20 to: 22.5 Time:				
10	From: 22.5 to: 25 Time:				
11	From: 25 to: 27.5 Time:				
12	From: 27.5 to: 30 Time:				

Notes: Amb = ambient; H.S. = headspace
▼ = depth to water at time of drilling

BGES, INC.
ENVIRONMENTAL CONSULTANTS

BGES, INC.
SOIL BORING LOG

CLIENT: MSB

SOIL BORING NUMBER: SB12

SOIL BORING LOCATION: Between SB10 & SB11

Date: 6/10/13

Weather Conditions: Clear, 70°F, low wind

Time: 1210

Drilling Company/Rig Type: GeoTek, Geoprobe 6620 DT

Observer: JB

Drilling/Sampling Method: Direct Push, Macrocore

Sample No.	Depth (feet)	PID (ppm) Amb/H.S.	Graphic	Description	Blow Counts
1	From: 0 to: 2.5 Time: 1215	0		0-1': No Recovery 80% 1-3': Silt 3-5': Course grained Sand	
2	From: 2.5 to: 5 Time: 1220	0			
3	From: 5 to: 7.5 Time: 1225	0		5-5.5': No Recovery 90% 5.5-10': Slightly Moist Sand	
4	From: 7.5 to: 10 Time: 1230	0			
5	From: 10 to: 12.5 Time: 1235	0	▼	10-11': No Recovery 80% 11-13.5': Course grained Sand 13.5-15': gravel & cobbles (Saturated)	
(6)	From: 12.5 to: 15 Time: 1240	0			
7	From: 15 to: 17.5 Time:				
8	From: 17.5 to: 20 Time:				
9	From: 20 to: 22.5 Time:				
10	From: 22.5 to: 25 Time:				
11	From: 25 to: 27.5 Time:				
12	From: 27.5 to: 30 Time:				

Notes: Amb = ambient; H.S. = headspace
▼ = depth to water at time of drilling

BGES, INC.
ENVIRONMENTAL CONSULTANTS

BGES, INC.
SOIL BORING LOG

CLIENT: MSB

SOIL BORING NUMBER: SB13

SOIL BORING LOCATION: 60' NE of SB7

Date: 6/10/13

Weather Conditions: Clear, 75°F, low wind

Time: 1300

Drilling Company/Rig Type: GeoTek, Geoprobe 6620DT

Observer: JB

Drilling/Sampling Method: Direct Push, MacroCore

Sample No.	Depth (feet)	PID (ppm) Amb/H.S.	Graphic	Description	Blow Counts
1	From: 0 to: 2.5 Time: 1305	0		0-1: No Recovery 80% 1-1.5: Sluff 1.5-2.5: Silt	
2	From: 2.5 to: 5 Time: 1310	0		2.5-5: Sand	
3	From: 5 to: 7.5 Time: 1313	0		5-6: No Recovery 80% 6-6.5: Sluff 6.5-9.5: Brown Sand	
4	From: 7.5 to: 10 Time: 1315	75		9.5-10: gray Sand (wet)	
5	From: 10 to: 12.5 Time: 1320	0	▼	10-12: No Recovery ~~80%~~ 12-14.5: gravel & cobbles (Saturated) 60% 14.5-15: Sandy silt	
6	From: 12.5 to: 15 Time: 1330	0			
7	From: 15 to: 17.5 Time:				
8	From: 17.5 to: 20 Time:				
9	From: 20 to: 22.5 Time:				
10	From: 22.5 to: 25 Time:				
11	From: 25 to: 27.5 Time:				
12	From: 27.5 to: 30 Time:				

Notes: Amb = ambient; H.S. = headspace
▼ = depth to water at time of drilling

BGES, INC.
ENVIRONMENTAL CONSULTANTS

BGES, INC.
SOIL BORING LOG

CLIENT: MSIB

SOIL BORING NUMBER: SB14

SOIL BORING LOCATION: East of Railcar

Date: 6/10/13

Weather Conditions: Clear, 75°F, low wind

Time: 1340

Drilling Company/Rig Type: GeoTek, Geoprobe 6620DT

Observer: JB

Drilling/Sampling Method: Direct Push, Macrocore

Sample No.	Depth (feet)	PID (ppm) Amb/H.S.	Graphic	Description	Blow Counts
1	From: 0 to: 2.5 Time: 1345	0		0-1: No Recovery 80% 1-3: Silt 3-5: Sand	
2	From: 2.5 to: 5 Time: 1350	22	▼		
(3)	From: 5 to: 7.5 Time: 1400	9999+		5-7: No Recovery 60% 7-8.5: Sand mixed w/ large cobbles - Petroleum odor 8.5-10: gravel & cobbles (Saturated)	
4	From: 7.5 to: 10 Time: NA				
5	From: 10 to: 12.5 Time: NA			10-11: No Recovery 80% 11-15: gravel & cobbles (Saturated)	
6	From: 12.5 to: 15 Time: NA				
7	From: 15 to: 17.5 Time:				
8	From: 17.5 to: 20 Time:				
9	From: 20 to: 22.5 Time:				
10	From: 22.5 to: 25 Time:				
11	From: 25 to: 27.5 Time:				
12	From: 27.5 to: 30 Time:				

Notes: Amb = ambient; H.S. = headspace
▼ = depth to water at time of drilling

BGES, INC.
ENVIRONMENTAL CONSULTANTS

BGES, INC.
SOIL BORING LOG

CLIENT: MSB

SOIL BORING NUMBER: SB15

SOIL BORING LOCATION: 40' NE of Fence

Date: 6/10/13

Weather Conditions: Clear, 75°F, low wind

Time: 1430

Drilling Company/Rig Type: GeoTek, Geoprobe 6620DT

Observer: SB

Drilling/Sampling Method: Direct Push, Macrocore

Sample No.	Depth (feet)	PID (ppm) Amb/H.S.	Graphic	Description	Blow Counts
1	From: 0 to: 2.5 Time: 1500	0		0-2: No Recovery 60% 2-3: Silt 3-5: Sand	
2	From: 2.5 to: 5 Time: 1505	0			
3	From: 5 to: 7.5 Time: 1510	0	▼	5-6: No Recovery 80% 6-7: Moist coarse grained sand 7-10: gravel & cobbles (saturated)	
4	From: 7.5 to: 10 Time: 1515	0			
5	From: 10 to: 12.5 Time: ~~1520~~ NR				
6	From: 12.5 to: 15 Time: NR				
7	From: 15 to: 17.5 Time:				
8	From: 17.5 to: 20 Time:				
9	From: 20 to: 22.5 Time:				
10	From: 22.5 to: 25 Time:				
11	From: 25 to: 27.5 Time:				
12	From: 27.5 to: 30 Time:				

Notes: Amb = ambient; H.S. = headspace
▼ = depth to water at time of drilling

BGES, INC.
ENVIRONMENTAL CONSULTANTS

BGES, INC.
SOIL BORING LOG

CLIENT: MSB

SOIL BORING NUMBER: SB16

SOIL BORING LOCATION: NE Fence Corner

Date: 6/10/13

Weather Conditions: Clear, 80°F, low wind

Time: 1525

Drilling Company/Rig Type: GeoTek, Geoprobe 6620DT

Observer: SB

Drilling/Sampling Method: Direct Push, Macrocore

Sample No.	Depth (feet)	PID (ppm) Amb/H.S.	Graphic	Description	Blow Counts
1	From: 0 to: 2.5 Time: 1525	0		0-2.5: No Recovery 50% 2.5-3.5: Silt 3.5-5: Sand	
2	From: 2.5 to: 5 Time: ~~1530~~ (4)				
3	From: 5 to: 7.5 Time: 1535	0		5-7: No Recovery 60% 7-8.5: Course grained sand & cobbles	
4	From: 7.5 to: 10 Time: NA			8.5-9: Orange course grained Sand 9-10: Sand & large cobbles	
(5)	From: 10 to: 12.5 Time: 1545	0		10-12: No Recovery 60% 12-12.5: Moist sand 12.5-15: gravel & cobbles (Subtracted)	
6	From: 12.5 to: 15 Time: NA				
7	From: 15 to: 17.5 Time:				
8	From: 17.5 to: 20 Time:				
9	From: 20 to: 22.5 Time:				
10	From: 22.5 to: 25 Time:				
11	From: 25 to: 27.5 Time:				
12	From: 27.5 to: 30 Time:				

Notes: Amb = ambient; H.S. = headspace
▼ = depth to water at time of drilling

BGES, INC.
ENVIRONMENTAL CONSULTANTS

BGES, INC.
SOIL BORING LOG

CLIENT: MSB

SOIL BORING NUMBER: SB17

SOIL BORING LOCATION: West of SB4 (100' From Road)

Date: 6-10-13

Weather Conditions: Clear, 65°F, low wind

Time: 1600

Drilling Company/Rig Type: GeoTek, Geoprobe 6620 DT

Observer: JB

Drilling/Sampling Method: Direct Push, Macrocore

Sample No.	Depth (feet)	PID (ppm) Amb/H.S.	Graphic	Description	Blow Counts
1	From: 0 to: 2.5 Time: 1605	0		0-1: No Recovery 80% 1-2.5: Silt 2.5-5: Silty Sand	
2	From: 2.5 to: 5 Time: 1607	0			
(3)	From: 5 to: 7.5 Time: 1610	0	▼	5-6: No Recovery 80% 6-9: Course grain Sand 9-10: gravel & Cobbles (Saturated)	
4	From: 7.5 to: 10 Time: NA	NA			
5	From: 10 to: 12.5 Time:				
6	From: 12.5 to: 15 Time:				
7	From: 15 to: 17.5 Time:				
8	From: 17.5 to: 20 Time:				
9	From: 20 to: 22.5 Time:				
10	From: 22.5 to: 25 Time:				
11	From: 25 to: 27.5 Time:				
12	From: 27.5 to: 30 Time:				

Notes: Amb = ambient; H.S. = headspace
▼ = depth to water at time of drilling

BGES, INC.
ENVIRONMENTAL CONSULTANTS

BGES, INC.
SOIL BORING LOG

CLIENT: MSB

SOIL BORING NUMBER: SB18

SOIL BORING LOCATION: West of SB2 (50' from Road)

Date: 6-10-13

Weather Conditions: Clear, 75°F, low wind

Time: 1630

Drilling Company/Rig Type: GeoTek, Geoprobe 6620 DT

Observer: JB

Drilling/Sampling Method: Direct Push, Macrocore

Sample No.	Depth (feet)	PID (ppm) Amb/H.S.	Graphic	Description	Blow Counts
1	From: 0 to: 2.5 Time: 1640	0		0-1: No Recovery 1-3: silt 3-5: Silty sand 80%	
2	From: 2.5 to: 5 Time: 1645	0			
(3)	From: 5 to: 7.5 Time: 1650	0		5-7: No Recovery 7-8.5: Moist silt 8.5-10: gravel & cobbles (Saturated) 60%	
4	From: 7.5 to: 10 Time: NA		▼		
5	From: 10 to: 12.5 Time: 1655	0		10-12: No Recovery 12-12.5': Moist coarse grained sand 12.5-15: gravel & cobbles (Saturated) 60%	
6	From: 12.5 to: 15 Time: NA				
7	From: 15 to: 17.5 Time:				
8	From: 17.5 to: 20 Time:				
9	From: 20 to: 22.5 Time:				
10	From: 22.5 to: 25 Time:				
11	From: 25 to: 27.5 Time:				
12	From: 27.5 to: 30 Time:				

Notes: Amb = ambient; H.S. = headspace
▼ = depth to water at time of drilling

~~SB18-08 is duplicate of SB18-03~~ (X)

BGES, INC.
ENVIRONMENTAL CONSULTANTS

BGES, INC.
SOIL BORING LOG

CLIENT: MSB

SOIL BORING NUMBER: SB19

SOIL BORING LOCATION: West of Playground (30' from Road)

Date: 6-10-13

Weather Conditions: Clear, 70°F, low wind

Time: 1700

Drilling Company/Rig Type: GeoTek, Geoprobe 6620 DT

Observer: JB

Drilling/Sampling Method: Direct Push, Macrocore

Sample No.	Depth (feet)	PID (ppm) Amb/H.S.	Graphic	Description	Blow Counts
1	From: 0 to: 2.5 Time: 1715	0		0-1: No Recovery 80% 1-2.5: Silt 2.5-5: Sand	
2	From: 2.5 to: 5 Time: 1720	0			
(3)	From: 5 to: 7.5 Time: 1725	351	▼	5-6: No Recovery 80% 6-7.5: Moist coarse grained sand - Petroleum 7.5-10: gravel & Cobbles (saturated) odor	
4	From: 7.5 to: 10 Time: NA				
5	From: 10 to: 12.5 Time: NA				
6	From: 12.5 to: 15 Time: NA				
7	From: 15 to: 17.5 Time:				
8	From: 17.5 to: 20 Time:				
9	From: 20 to: 22.5 Time:				
10	From: 22.5 to: 25 Time:				
11	From: 25 to: 27.5 Time:				
12	From: 27.5 to: 30 Time:				

Notes: Amb = ambient; H.S. = headspace
▼ = depth to water at time of drilling

~~SB19-08 is duplicate of SB19-03~~

BGES, INC.
ENVIRONMENTAL CONSULTANTS

BGES, INC.
SOIL BORING LOG

CLIENT: MSB

SOIL BORING NUMBER: SB20

SOIL BORING LOCATION: NW of SB9 (10' From Road)

Date: 6-10-13

Weather Conditions: Clear, 70°F, low wind

Time: 1745

Drilling Company/Rig Type: Geotek, Geoprobe 6620 DT

Observer: JB

Drilling/Sampling Method: Direct Push, Macrocore

Sample No.	Depth (feet)	PID (ppm) Amb/H.S.	Graphic	Description	Blow Counts
1	From: 0 to: 2.5 Time: 1750	0		0-2.5: No Recovery 5% 2.5-3.5: Silt 3.5-5: Sand	
2	From: 2.5 to: 5 Time: NA				
3	From: 5 to: 7.5 Time: 1755	0		5-6: No Recovery 80% 6-9: Course grained Sand 9-10: gravel & cobbles (Saturated)	
4	From: 7.5 to: 10 Time: 1800	0	▼		
5	From: 10 to: 12.5 Time: NA			10-11: No Recovery 80% 11-15: gravel & cobbles (Saturated)	
6	From: 12.5 to: 15 Time: NA				
7	From: 15 to: 17.5 Time:				
8	From: 17.5 to: 20 Time:				
9	From: 20 to: 22.5 Time:				
10	From: 22.5 to: 25 Time:				
11	From: 25 to: 27.5 Time:				
12	From: 27.5 to: 30 Time:				

Notes: Amb = ambient; H.S. = headspace
▼ = depth to water at time of drilling

BGES, INC.
ENVIRONMENTAL CONSULTANTS

BGES, INC.
SOIL BORING LOG

CLIENT: MSB

SOIL BORING NUMBER: SB21

SOIL BORING LOCATION: NW of SB8 (10' from Road)

Date: 6-10-13

Weather Conditions: Clear, 65°F, low wind

Time: 1830

Drilling Company/Rig Type: Geotek, Geoprobe 6620DT

Observer: JB

Drilling/Sampling Method: Direct Push, Macrocore

Sample No.	Depth (feet)	PID (ppm) Amb/H.S.	Graphic	Description	Blow Counts
1	From: 0 to: 2.5 Time: 1835			0-1': No Recovery 1-2': Silt 2-4': Moist coarse grained Sand 80%	
2	From: 2.5 to: 5 Time: 1837			4-5': Sand	
3	From: 5 to: 7.5 Time: 1840			5-6': No Recovery 6-10': Sand (last 6" gray colored) 80%	
(4)	From: 7.5 to: 10 Time: 1845	37			
5	From: 10 to: 12.5 Time: 1850	17	▼	10-12.5': gray coarse grained Sand 100% 12.5-15': gravel & cobbles (saturated)	
6	From: 12.5 to: 15 Time:				
7	From: 15 to: 17.5 Time:				
8	From: 17.5 to: 20 Time:				
9	From: 20 to: 22.5 Time:				
10	From: 22.5 to: 25 Time:				
11	From: 25 to: 27.5 Time:				
12	From: 27.5 to: 30 Time:				

Notes: Amb = ambient; H.S. = headspace
▼ = depth to water at time of drilling

BGES, INC.
ENVIRONMENTAL CONSULTANTS

BGES, INC.
SOIL BORING LOG

CLIENT: MSB

SOIL BORING NUMBER: SB22

SOIL BORING LOCATION: Adjacent to SB6

Date: ~~6/10/13~~ 6-11-13

Weather Conditions: Clear, 65°F

Time: 800

Drilling Company/Rig Type: Geotek, Geoprobe 6620 DT

Observer: JB

Drilling/Sampling Method: Direct Push, Macrocore

Sample No.	Depth (feet)	PID (ppm) Amb/H.S.	Graphic	Description	Blow Counts
1	From: 0 to: 2.5 Time: 955	0		0-1; No Recovery 1-2.5: Silt 2.5-5: Sand 80%	
2	From: 2.5 to: 5 Time: 1000	0			
3	From: 5 to: 7.5 Time: 1005	0		5-6: No Recovery 6-7.5; Silty Sand 7.5-9: Moist Course grained Sand - Petroleum odor 80%	
(4)	From: 7.5 to: 10 Time: 1015	999+	▼	9-10; gravel & cobbles (Saturated)	
5	From: 10 to: 12.5 Time: NA			10-12: No Recovery 12-13; gravel & cobbles (Saturated) 60%	
6	From: 12.5 to: 15 Time: NA				
7	From: 15 to: 17.5 Time:				
8	From: 17.5 to: 20 Time:				
9	From: 20 to: 22.5 Time:				
10	From: 22.5 to: 25 Time:				
11	From: 25 to: 27.5 Time:				
12	From: 27.5 to: 30 Time:				

Notes: Amb = ambient; H.S. = headspace
▼ = depth to water at time of drilling

SB22-09 is duplicate of SB22-04

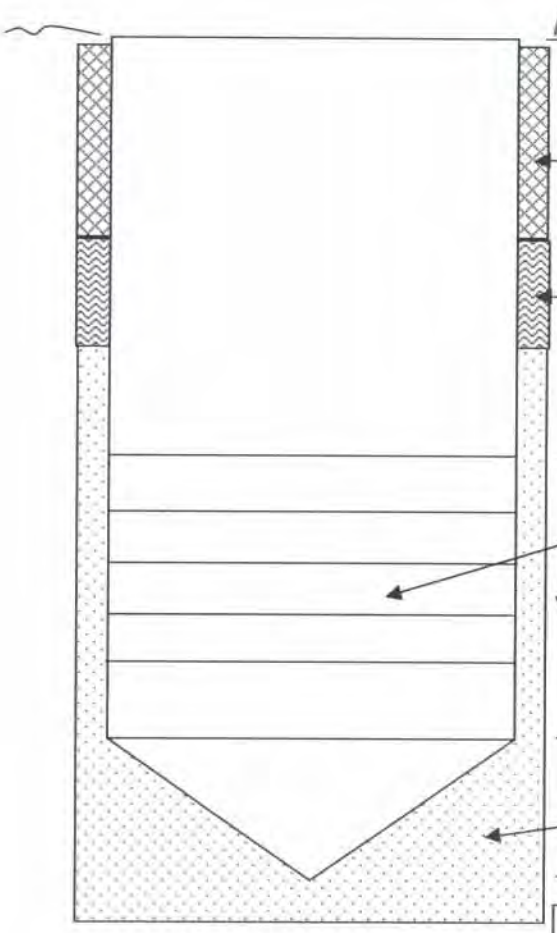
BGES, INC.
WELL COMPLETION LOG

WELL NUMBER: MW3

Date: 6-11-2013 Weather Conditions: Clear, warm, calm winds, temperature of 70^0 Fahrenheit

Time: 1600 Drilling Company/Rig Type: GeoTek/Geoprobe 6620DT

Observer: J. Barsis Drilling/Sampling Method: Direct Push/Hollow Stem Auger



Above Ground Top of Casing ~~Grade~~ (GS)

Sand Pack

0.5 Ft bg

1.5 Ft Bentonite Seal ~~Grout Seal~~ (GS)

2 Ft bg Sand Pack

4 Ft bg Top of Screen

10 Feet of 10 -Slot PVC Screen

7 Ft bg Depth to Water at Time of Drilling (Feet Below Grade)

14 Ft bg Bottom of Screen

Sand Pack

14.5 Ft bg Bottom of End Cap

Well Completion – Flush Grade ☐ Stickup ☒

TOC Elevation: 102.88 Total Well Depth (Ft. BTOC): 16.80 Ft

Notes: bg = below grade

BGES, INC.

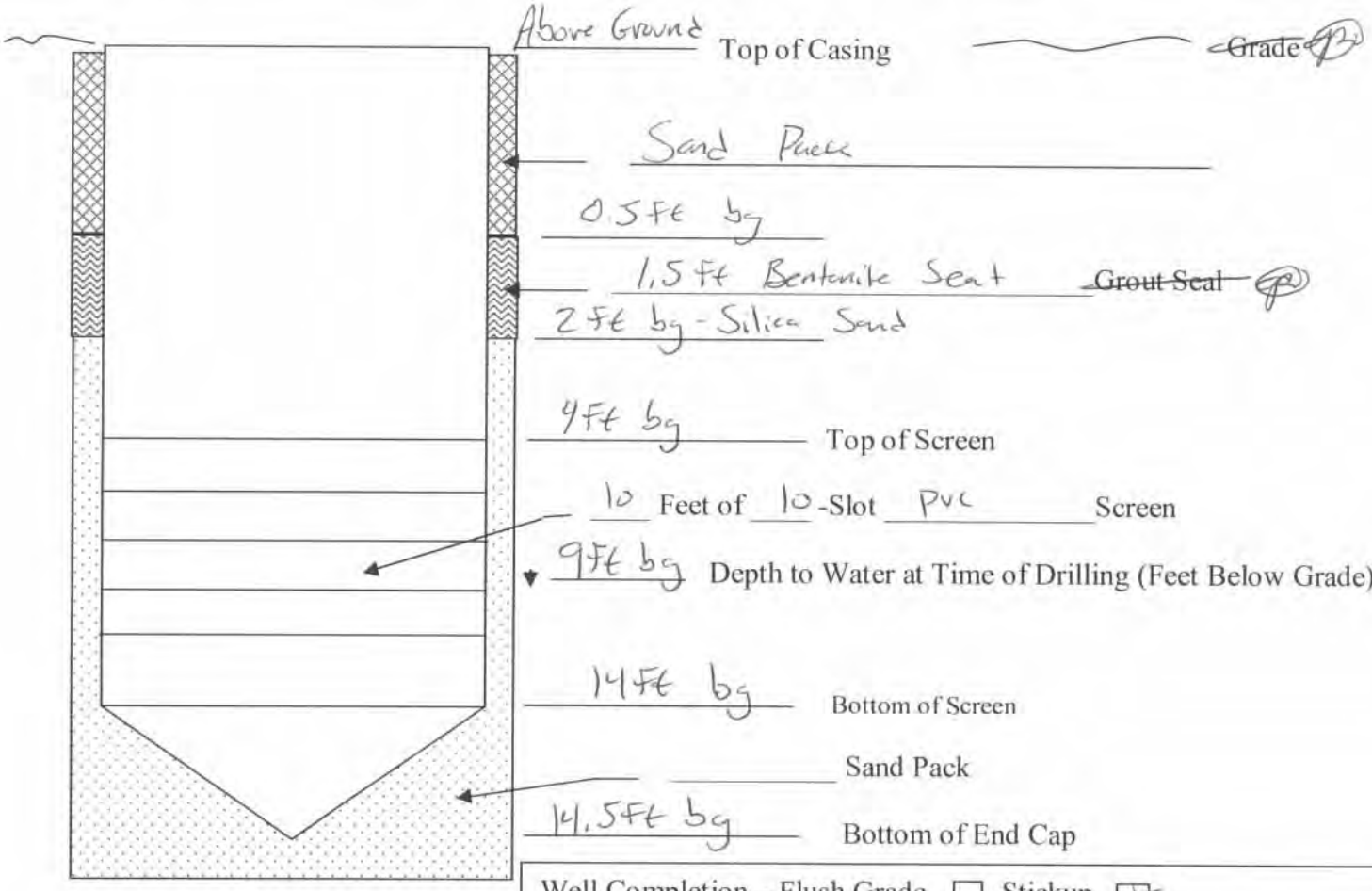
BGES, INC.
WELL COMPLETION LOG

WELL NUMBER: MW10

Date: 6-11-2013 Weather Conditions: Clear, warm, calm winds, temperature of 70^0 Fahrenheit

Time: 1300 Drilling Company/Rig Type: GeoTek/Geoprobe 6620DT

Observer: J. Barsis Drilling/Sampling Method: Direct Push/Hollow Stem Auger



Well Completion – Flush Grade ☐ Stickup ☒

TOC Elevation: 103.60 Total Well Depth (Ft. BTOC): 16.8 Ft

Notes: bg = below grade

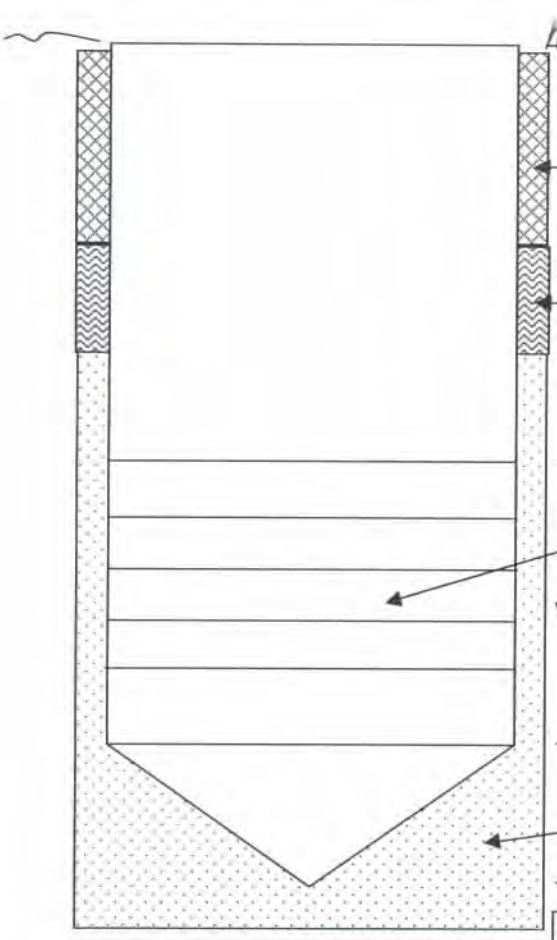
BGES, INC.
WELL COMPLETION LOG

WELL NUMBER: MW22

Date: 6-11-2013 Weather Conditions: Clear, warm, calm winds, temperature of 70^0 Fahrenheit

Time: 1030 Drilling Company/Rig Type: GeoTek/Geoprobe 6620DT

Observer: J. Barsis Drilling/Sampling Method: Direct Push/Hollow Stem Auger



Above Ground Top of Casing ~~Grade~~

Sand Pack

0.5 Ft bg

1.5 Ft Bentonite Seal ~~Grout Seal~~

~~2 Ft bg Sand Pack~~ 2 Ft bg - Sand Pack

4Ft bg Top of Screen

10 Feet of 10 -Slot PVC Screen

9Ft bg Depth to Water at Time of Drilling (Feet Below Grade)

14Ft bg Bottom of Screen

Sand Pack

14.5 Ft bg Bottom of End Cap

Well Completion – Flush Grade ☐ Stickup ☒

TOC Elevation: 102.06 Total Well Depth (Ft. BTOC): 17.50 Ft

Notes: bg = below grade

GROUND WATER MONITORING LOG BGES, INC.

Well Number: _MW8_

Time Arrived On Site: _1600_ Weather Conditions:_Warm, 70^0 Fahrenheit_

Date of Depth to Water Measurement: _June 13, 2013_ Time of Depth to Water Measurement: _1120_

Top of Casing Elevation:	102.88	Type of Sampling Equipment:
Depth to Water (feet below TOC):	7.7	QED MP50 Controller; Battery; 1.75 inch
Water Elevation:	95.18	Bladder Pump, Water Level Indicator; YSI
		Professional Plus Muti-Meter
Total Depth of Well (feet below TOC):	16.8	
Depth to Water (feet below TOC):	7.7	
Water Column (feet):	9.1	
Volume of well (gals)	1.49	=0.1632 X Water Column (For 2-inch well)
		=0.6528 X Water Column (For 4-inch well)
		=1.4688 X Water Column (For 6-inch well)

Time Purging Began 16:30

Time of Sampling: 17:30

Volume purged 5 Gallons

PURGE A MINIMUM OF THREE WELL VOLUMES

pH	5.6	pH	
Conductivity	13.6	Conductivity	
ORP	9.6	ORP	
Temperature	7.3	Temperature	
pH	5.7	pH	
Conductivity	39.4	Conductivity	
ORP	25.7	ORP	
Temperature	6.1	Temperature	
pH	5.6	pH	
Conductivity	17.4	Conductivity	
ORP	2.2	ORP	
Temperature	5.7	Temperature	
pH	5.6	pH	
Conductivity	35.6	Conductivity	
ORP	19.4	ORP	
Temperature	5.6	Temperature	
pH		pH	
Conductivity		Conductivity	
ORP		ORP	
Temperature		Temperature	
pH		pH	
Conductivity		Conductivity	
ORP		ORP	
Disolved Oxygen		Disolved Oxygen	
Temperature		Temperature	

The bladder pump intake was set approximately 9 feet below the top of casing during purging and sampling activities.

Groundwater purging rate was 400 ml/min.

GROUND WATER MONITORING LOG BGES, INC.

Well Number: _MW10_

Time Arrived On Site: _1400_ Weather Conditions:_Warm, 70^0 Fahrenheit_

Date of Depth to Water Measurement: _June 13, 2013_ Time of Depth to Water Measurement: _1115_

Top of Casing Elevation:	103.6	Type of Sampling Equipment:
Depth to Water (feet below TOC):	7.7	QED MP50 Controller; Battery; 1.75 inch
Water Elevation:	95.9	Bladder Pump, Water Level Indicator; YSI
		Professional Plus Muti-Meter
Total Depth of Well (feet below TOC):	16.8	
Depth to Water (feet below TOC):	7.7	
Water Column (feet):	9.1	
Volume of well (gals)	1.49	=0.1632 X Water Column (For 2-inch well)
		=0.6528 X Water Column (For 4-inch well)
		=1.4688 X Water Column (For 6-inch well)

Time Purging Began 14:30

Time of Sampling: 15:30

Volume purged 5 Gallons

PURGE A MINIMUM OF THREE WELL VOLUMES

pH	5.8	pH	
Conductivity	61	Conductivity	
ORP	-25.4	ORP	
Temperature	7	Temperature	
pH	6.2	pH	
Conductivity	37.1	Conductivity	
ORP	-21	ORP	
Temperature	5.5	Temperature	
pH	6.4	pH	
Conductivity	49.6	Conductivity	
ORP	-20.1	ORP	
Temperature	5.2	Temperature	
pH	6.6	pH	
Conductivity	48.4	Conductivity	
ORP	-19.5	ORP	
Temperature	4.3	Temperature	
pH		pH	
Conductivity		Conductivity	
ORP		ORP	
Temperature		Temperature	
pH		pH	
Conductivity		Conductivity	
ORP		ORP	
Disolved Oxygen		Disolved Oxygen	
Temperature		Temperature	

The bladder pump intake was set approximately 9 feet below the top of casing during purging and sampling activities.

Groundwater purging rate was 400 ml/min.

GROUND WATER MONITORING LOG BGES, INC.

Well Number: _MW22_

Time Arrived On Site: _1100_ Weather Conditions:_Warm, 70^0 Fahrenheit_

Date of Depth to Water Measurement: _June 13, 2013_ Time of Depth to Water Measurement: _1110_

Top of Casing Elevation:	102.06	Type of Sampling Equipment:
Depth to Water (feet below TOC):	7.5	QED MP50 Controller; Battery; 1.75 inch
Water Elevation:	95.56	Bladder Pump, Water Level Indicator; YSI
		Professional Plus Muti-Meter
Total Depth of Well (feet below TOC):	17.5	
Depth to Water (feet below TOC):	7.5	
Water Column (feet):	10	
Volume of well (gals)	1.63	=0.1632 X Water Column (For 2-inch well)
		=0.6528 X Water Column (For 4-inch well)
		=1.4688 X Water Column (For 6-inch well)

Time Purging Began 11:30

Time of Sampling: 12:30

Volume purged 5 Gallons

PURGE A MINIMUM OF THREE WELL VOLUMES

pH	5.5	pH	
Conductivity	92.6	Conductivity	
ORP	-8.5	ORP	
Temperature	7.2	Temperature	
pH	5.9	pH	
Conductivity	80.3	Conductivity	
ORP	-21	ORP	
Temperature	6	Temperature	
pH	6.2	pH	
Conductivity	72.3	Conductivity	
ORP	-19.1	ORP	
Temperature	5.7	Temperature	
pH	6.4	pH	
Conductivity	70.7	Conductivity	
ORP	-15.0	ORP	
Temperature	5.5	Temperature	
pH		pH	
Conductivity		Conductivity	
ORP		ORP	
Temperature		Temperature	
pH		pH	
Conductivity		Conductivity	
ORP		ORP	
Disolved Oxygen		Disolved Oxygen	
Temperature		Temperature	

The bladder pump intake was set approximately 8.5 feet below the top of casing during purging and sampling activities.

Groundwater purging rate was 400 ml/min.

A strong petroleum odor was noted during purging activities.

Talkeetna
3/20/13

1900 BGES Finish swing ties
BGES OFFSite

1900
3/20/13
End

Summary of Soil Borings

Sample	Date	Time	Matrix	Greatest PID
SB1-4-0319		1130	Soil	0
SB2-4-0319		1310		1000+
SB3-4-0319		1505		1000+
SB4-4-0319		1700		1000+
SB5-4-0320		1045		63
SB6-4-0320		1230		1000+
SB7-5-0320		1410		530
SB8-4-0320		1550		1000+
SB9-4-0320		1710	↓	0
SB2-11-0319		1310	Soil (Duplicate of SB2-4)	
TW2-0319		1720	Water	

Scale: 1 square = _____

Talkeetna
6/10/13

900 BGES (Josh), GeoTek (Dmitri), & City (Katy) onsite.

City started locating water lines
BGES & GeoTek get set up.
BGES located 3 old rail cars, & Miscellaneous rail car parts

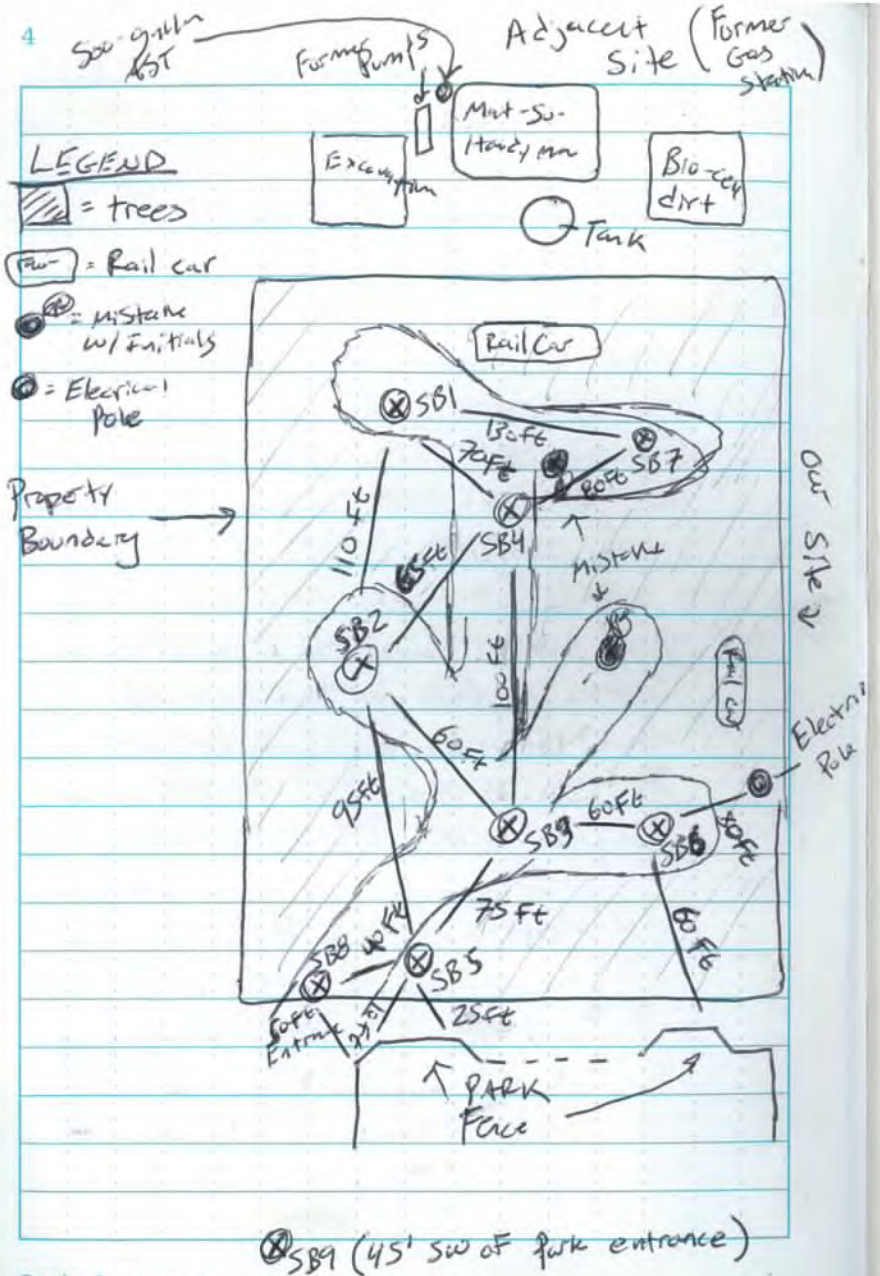
1000 Begn drilling on NE corner near boundary.

Completed Borings SB10-SB21

1900
6-10-13
End
#17

Scale: 1 square = _____

Rite in the Rain



Scale: 1 square = _____

Tailgate
3/20/13

1845 Final Notes:

- Two rail cars noted on property. More are suspected under the snow
- Trees are wide enough to fit a small drilling rig between provided that the snow and dirt is cleared between them
- No PID reading was indicated on SB1 or SB9, However, SB9 had a strong petroleum odor at the soil/groundwater interface. All other borings had strong petroleum odors & high PID readings at the soil/groundwater interface.
- Mat-So Handy Man Service (Former Hales Gas Station) was located north of the property. An excavation was located west, along with a 500-gallon AST. A large AST (Approx ~~2000~~ gallons) was South of Shop. A Bio-cell was East.

Scale: 1 square = _____

Rite in the Rain

03/19/2013

Weather Conditions: Clear blue skies, 10°F, low wind

900 BGES (Joshua Bass) onsite
Area is covered by snow. Paths ~~have~~ have been cleared to borings that were previously advanced. Will use fence to mark swingties. North of property is Mat-Su Handy man service w/ a 500-gallon AST for Diesel out front. East ~~Right~~ is railroad. South is park & library. west is South Talkeetna Spur. Across the spur is "Susitna River lodging" which uses diesel ASTs.

1000 Wimmger Drilling onsite - start @ boring #7.

1745 BGES & Wimmger offsite
Completed 4 borings
SB1, SB2, SB3, & SB4
3/19/2013
End

Scale: 1 square = _____

3/20/2013

Weather Conditions: Clear blue, -2°F, little wind

800 BGES (Joshua Bass) onsite

1115 called utility locates for drilling next to park & lot
Ken @ MEA Jeff @ AFS
Fritz @ MTA
Gloria @ GCI MSB
- All clear

1330 Vernon Williams with MSB Parks stops by. Informs me that a train de-railed about 15 miles north of this site & some of the rail cars were dumped here. 733-1228 phone

SITE MAP ON NEXT PAGE

Scale: 1 square = _____

Rite in the Rain

TG/Heath
6-13-13

1100 BGES onsite to sample wells MW22, MW10, & MW8

Well	Time	DTW	TDW	Gallons
MW22	1110	7.5	17.5	1.6
MW10	1115	7.2	16.8	1.5
MW8	1120	7.7	16.8	1.5

End 1800 6-13-13

Scale: 1 square = _____

Scale: 1 square = _____

Richard Burgenar, of the Ak Railroad or visit the Talkeetna Historical Society and view their old newspapers.

1630 BGES visits the Alaska Railroad Depot, Richard Burgenar, employee, indicated that he had no information about the derailments. He mentioned that he had seen some buried rail cars on the subject property. He stated that Bruce Lalonde, Manager might have more information. He called Mr. Lalonde, who indicated That he would call me back tonight.

1700 BGES returns to the Historic Society to ~~the~~ view old newspapers from the 1960's & 1970's.

one newspaper article stated that a tram derailment occurred ~~vehicle~~ in the vicinity of the Talkeetna

Scale: 1 square = _____

track crossing. Five or six coal cars derailed. The article did not have a date but other articles near this one were from the mid-1980's

No other articles were found involving train derailments.

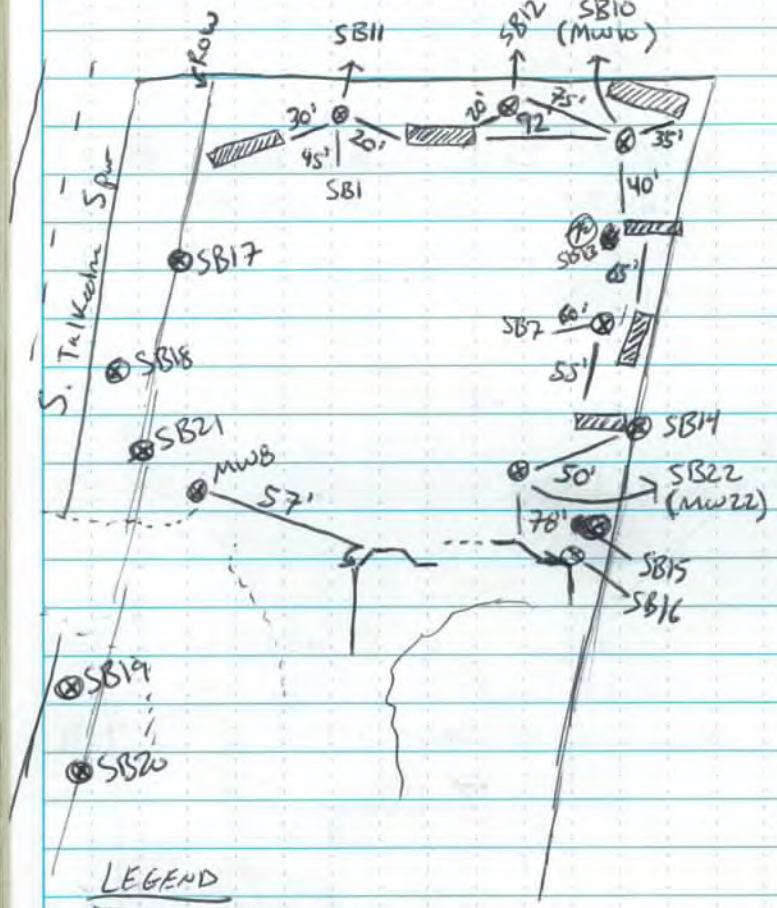
1730 BGES returns to Talkeetna Library to look in the Alaska Section.

1800 No information was found & Library was closing.

End 6-12-13 1800

Scale: 1 square = _____

Map of Borings & Rail Cars



Scale: 1 square = _____

1330 BGES visited the Talkeetna Historical
1530 Society Museum, Jamie Spires, Manager, indicated that the area north of the playground (the subject property) used to be an old junkyard with dilapidated vehicles. She stated that she had no knowledge of the tram derailment. She indicated that I could check the library or with the railroad.

1600 BGES visited the Talkeetna Library. Ann Yadon, Librarian, stated that she had heard about two tram derailments; one in the 1970's & one in the 1990's. She mentioned that I could research their Alaska section, although she indicated that she had not read anything pertinent to the tram derailment. She stated that I could speak with

Scale: 1 square = _____

Talkeetna

6-11-13

MW8 had a very strong petroleum odor during well installation.

1530 GeoTek ~~runs~~ runs out of drums. BGES called True Value & Crowley - one drum located. GeoTek left to retrieve drum

1545 GeoTek returns

1600 GeoTek begins filling wells platform w/ concrete.

~~1630~~ 1730 Begin Surveying wells

Completes SB22 & MW8, MW10, & MW 22

6-11-13

END 1800

Scale: 1 square = _____

Talkeetna

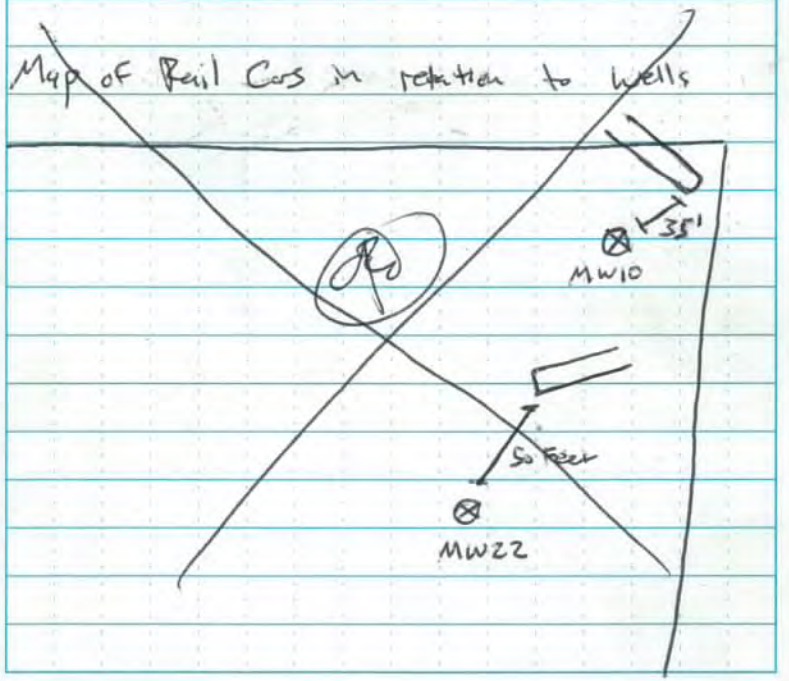
6-12-13

1100 BGES onsite to develop MW8, MW10, & MW 22

~~BGES~~ Task

Time	Well	DTW	TDW	Total Gallons	Total Purged
1115	MW22	7.5	17.5	1.6	8 gallons
1125	MW10	7.8	16.8	1.5	8 gallons
1130	MW 8	7.7	16.8	1.5	8 gallons

Map of Rail Cars in relation to wells

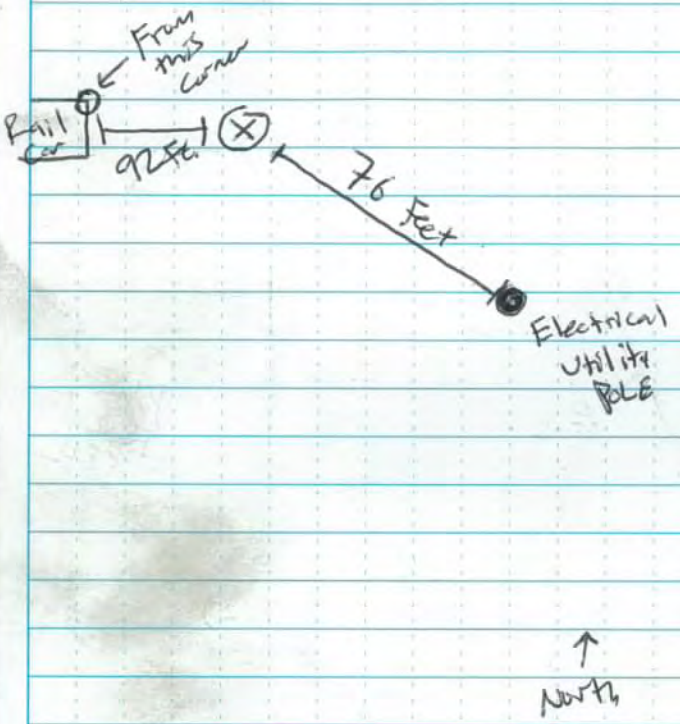


Scale: 1 square = _____

Rite in the Rain

Talkeetna
6-11-13

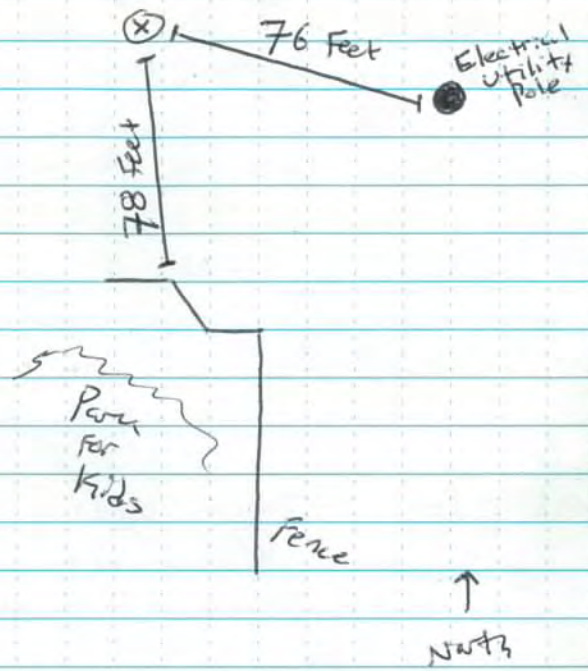
MW10



Scale: 1 square = _____

Talkeetna
6-11-13

MW 22



Scale: 1 square = _____

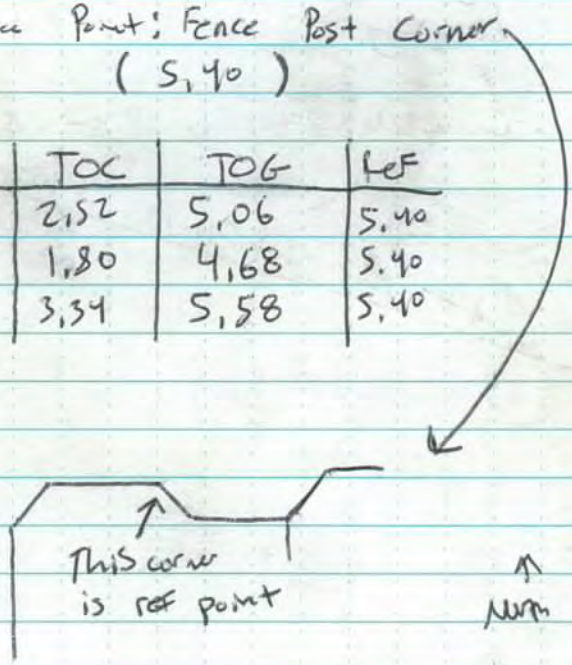
800 BGES / GeoTek onsite.
- GeoTek left to get decon water for last Soil boring

930 GeoTek back onsite & decon equipment.

Survey Tabe

Reference Point: Fence Post Corner
(5,40)

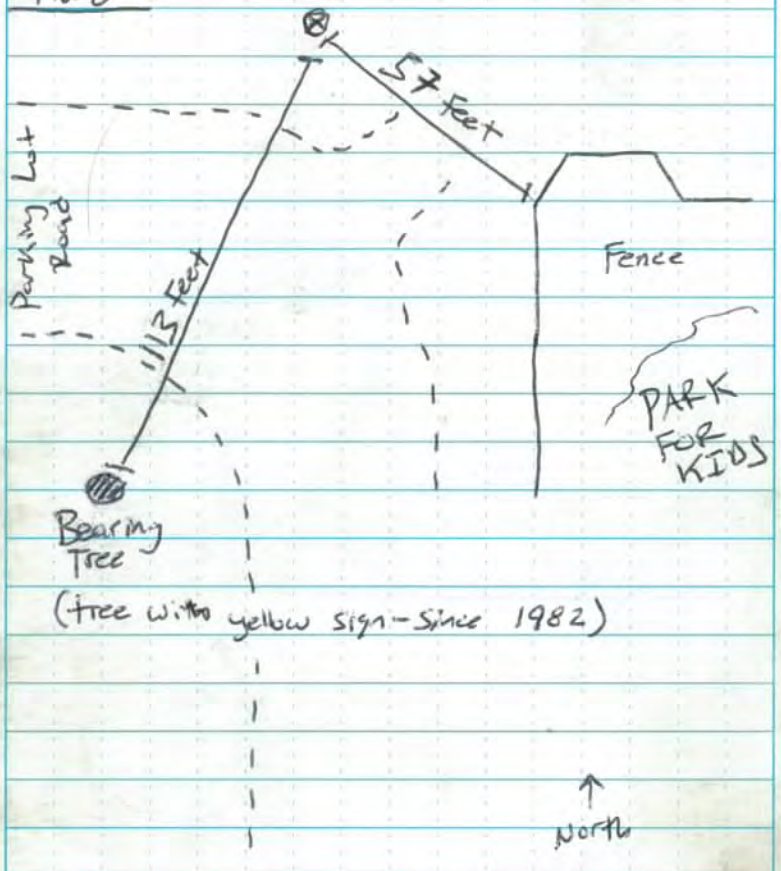
Well	TOC	TOG	REF
MW8	2,52	5,06	5,40
MW10	1,80	4,68	5.40
MW22	3,34	5,58	5,40



Scale: 1 square = _____

Monitoring Well Locations (Swing Ties)

MW8



Scale: 1 square = _____

APPENDIX C
LABORATORY ANALYTICAL DATA

Laboratory Report of Analysis

To: BGES Inc.
1042 E 6th Ave
Anchorage, AK 99501
(907)644-2900

Report Number: **1131014**

Client Project: **Talkeetna**

Dear Jayne Martin,

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 five 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 thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or services performed during this project, please call Heather 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.

Heather L. Hall
2013.04.11 15:40:34
-08'00'

SGS North America Inc.
Environmental Services – Alaska Division
Quality Service Manager

Date

Heather Hall
Project Manager
Heather.Hall@sgs.com

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

Case Narrative

SGS Client: **BGES Inc.**
SGS Project: **1131014**
Project Name/Site: **Talkeetna**
Project Contact: **Jayne Martin**

Refer to sample receipt form for information on sample condition.

TW2-0319 (1131014001) PS

8021B - 1,4-difluorobenzene (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.
8270D SIM- Surrogate (2-fluorophenyl) recovery is outside of QC criteria due to matrix interference.
AK102 - The pattern is consistent with a weathered gasoline.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

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

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. If you have any questions regarding this report, or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343. All work is provided under SGS general terms and conditions (<http://www.sgs.com/terms_and_conditions.htm>), unless other written agreements have been accepted by both parties.

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: 1020A, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035B, 6020, 7470A, 7471B, 8021B, 8082A, 8260B, 8270D, 8270D-SIM, 9040B, 9045C, 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	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
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., 2xDL)
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
RL	Reporting Limit
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.

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
TW2-0319	1131014001	03/19/2013	03/21/2013	Water (Surface, Eff., Ground)
Trip Blank	1131014002	03/19/2013	03/21/2013	Water (Surface, Eff., Ground)

Method	Method Description
8270D SIMS (PAH)	8270 PAH SIM Semi-Vol GC/MS Liq/Liq ext.
AK101	AK101/8021 Combo.
SW8021B	AK101/8021 Combo.
AK102	Diesel/Residual Range Organics Water
AK103	Diesel/Residual Range Organics Water

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Detectable Results Summary

Client Sample ID: **TW2-0319**
Lab Sample ID: 1131014001

Semivolatile Organic Fuels
Volatile Fuels

Parameter	Result	Units
Diesel Range Organics	4.95	mg/L
Benzene	7.15	ug/L
Ethylbenzene	18.2	ug/L
Gasoline Range Organics	6.57	mg/L
o-Xylene	10.8	ug/L
P & M -Xylene	51.9	ug/L
Toluene	5.70	ug/L

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Results of **TW2-0319**

Client Sample ID: **TW2-0319**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131014001
Lab Project ID: 1131014

Collection Date: 03/19/13 17:20
Received Date: 03/21/13 09:20
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
1-Methylnaphthalene	0.0500	U	0.0500	0.0150	ug/L	1	03/27/13 15:55
2-Methylnaphthalene	0.0500	U	0.0500	0.0150	ug/L	1	03/27/13 15:55
Acenaphthene	0.0500	U	0.0500	0.0150	ug/L	1	03/27/13 15:55
Acenaphthylene	0.0500	U	0.0500	0.0150	ug/L	1	03/27/13 15:55
Anthracene	0.0500	U	0.0500	0.0150	ug/L	1	03/27/13 15:55
Benzo(a)Anthracene	0.0500	U	0.0500	0.0150	ug/L	1	03/27/13 15:55
Benzo[a]pyrene	0.0500	U	0.0500	0.0150	ug/L	1	03/27/13 15:55
Benzo[b]Fluoranthene	0.0500	U	0.0500	0.0150	ug/L	1	03/27/13 15:55
Benzo[g,h,i]perylene	0.0500	U	0.0500	0.0150	ug/L	1	03/27/13 15:55
Benzo[k]fluoranthene	0.0500	U	0.0500	0.0150	ug/L	1	03/27/13 15:55
Chrysene	0.0500	U	0.0500	0.0150	ug/L	1	03/27/13 15:55
Dibenzo[a,h]anthracene	0.0500	U	0.0500	0.0150	ug/L	1	03/27/13 15:55
Fluoranthene	0.0500	U	0.0500	0.0150	ug/L	1	03/27/13 15:55
Fluorene	0.0500	U	0.0500	0.0150	ug/L	1	03/27/13 15:55
Indeno[1,2,3-c,d] pyrene	0.0500	U	0.0500	0.0150	ug/L	1	03/27/13 15:55
Naphthalene	0.100	U	0.100	0.0310	ug/L	1	03/27/13 15:55
Phenanthrene	0.0500	U	0.0500	0.0150	ug/L	1	03/27/13 15:55
Pyrene	0.0500	U	0.0500	0.0150	ug/L	1	03/27/13 15:55
Surrogates							
2-Fluorobiphenyl	45.9	*	50-110		%	1	03/27/13 15:55
Terphenyl-d14	61.3		50-135		%	1	03/27/13 15:55

Batch Information

Analytical Batch: XMS7251
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 03/27/13 15:55
Container ID: 1131014001-F

Prep Batch: XXX28820
Prep Method: SW3520C
Prep Date/Time: 03/26/13 09:00
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

Print Date: 04/11/2013 10:36:03AM

Results of **TW2-0319**

Client Sample ID: **TW2-0319**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131014001
Lab Project ID: 1131014

Collection Date: 03/19/13 17:20
Received Date: 03/21/13 09:20
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	4.95		0.600	0.180	mg/L	1	04/08/13 12:02
Surrogates							
5a Androstane	66.7		50-150		%	1	04/08/13 12:02

Batch Information

Analytical Batch: XFC10856
Analytical Method: AK102
Analyst: EAB
Analytical Date/Time: 04/08/13 12:02
Container ID: 1131014001-E

Prep Batch: XXX28842
Prep Method: SW3520C
Prep Date/Time: 04/02/13 11:15
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	0.500	U	0.500	0.150	mg/L	1	04/08/13 12:02
Surrogates							
n-Triacontane-d62	68.6		50-150		%	1	04/08/13 12:02

Batch Information

Analytical Batch: XFC10856
Analytical Method: AK103
Analyst: EAB
Analytical Date/Time: 04/08/13 12:02
Container ID: 1131014001-E

Prep Batch: XXX28842
Prep Method: SW3520C
Prep Date/Time: 04/02/13 11:15
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

Print Date: 04/11/2013 10:36:03AM

Results of **TW2-0319**

Client Sample ID: **TW2-0319**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131014001
Lab Project ID: 1131014

Collection Date: 03/19/13 17:20
Received Date: 03/21/13 09:20
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	6.57		1.00	0.310	mg/L	10	03/25/13 13:44
Surrogates							
4-Bromofluorobenzene	116		50-150		%	10	03/25/13 13:44

Batch Information

Analytical Batch: VFC11376
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 03/25/13 13:44
Container ID: 1131014001-A

Prep Batch: VXX24583
Prep Method: SW5030B
Prep Date/Time: 03/25/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	7.15		0.500	0.150	ug/L	1	03/25/13 11:35
Ethylbenzene	18.2		1.00	0.310	ug/L	1	03/25/13 11:35
o-Xylene	10.8		1.00	0.310	ug/L	1	03/25/13 11:35
P & M -Xylene	51.9		2.00	0.620	ug/L	1	03/25/13 11:35
Toluene	5.70		1.00	0.310	ug/L	1	03/25/13 11:35
Surrogates							
1,4-Difluorobenzene	140	*	77-115		%	1	03/25/13 11:35

Batch Information

Analytical Batch: VFC11376
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 03/25/13 11:35
Container ID: 1131014001-A

Prep Batch: VXX24583
Prep Method: SW5030B
Prep Date/Time: 03/25/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 04/11/2013 10:36:03AM

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131014002
Lab Project ID: 1131014

Collection Date: 03/19/13 17:20
Received Date: 03/21/13 09:20
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	0.100	U	0.100	0.0310	mg/L	1	03/25/13 12:12
Surrogates							
4-Bromofluorobenzene	95.4		50-150		%	1	03/25/13 12:12

Batch Information

Analytical Batch: VFC11376
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 03/25/13 12:12
Container ID: 1131014002-A

Prep Batch: VXX24583
Prep Method: SW5030B
Prep Date/Time: 03/25/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	0.500	U	0.500	0.150	ug/L	1	03/25/13 12:12
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1	03/25/13 12:12
o-Xylene	1.00	U	1.00	0.310	ug/L	1	03/25/13 12:12
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1	03/25/13 12:12
Toluene	1.00	U	1.00	0.310	ug/L	1	03/25/13 12:12
Surrogates							
1,4-Difluorobenzene	94		77-115		%	1	03/25/13 12:12

Batch Information

Analytical Batch: VFC11376
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 03/25/13 12:12
Container ID: 1131014002-A

Prep Batch: VXX24583
Prep Method: SW5030B
Prep Date/Time: 03/25/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 04/11/2013 10:36:03AM

Method Blank

Blank ID: MB for HBN 1425564 [VXX/24583]
Blank Lab ID: 1141974

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1131014001, 1131014002

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0620U	0.100	0.0310	mg/L
Surrogates				
4-Bromofluorobenzene	92.2	50-150		%

Batch Information

Analytical Batch: VFC11376
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 3/25/2013 11:17:00AM

Prep Batch: VXX24583
Prep Method: SW5030B
Prep Date/Time: 3/25/2013 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1131014 [VXX24583]
Blank Spike Lab ID: 1141977
Date Analyzed: 03/25/2013 10:59

Spike Duplicate ID: LCSD for HBN 1131014 [VXX24583]
Spike Duplicate Lab ID: 1141978
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1131014001, 1131014002

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate ()					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	1.01	101	1.00	1.02	102	(60-120)	0.98	(< 20)
Surrogates									
4-Bromofluorobenzene		98	98	0.0500	97.3		(50-150)	0.70	

Batch Information

Analytical Batch: **VFC11376**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX24583**
Prep Method: **SW5030B**
Prep Date/Time: **03/25/2013 08:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1425564 [VXX/24583]
Blank Lab ID: 1141974

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1131014001, 1131014002

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.300U	0.500	0.150	ug/L
Ethylbenzene	0.620U	1.00	0.310	ug/L
o-Xylene	0.620U	1.00	0.310	ug/L
P & M -Xylene	1.24U	2.00	0.620	ug/L
Toluene	0.620U	1.00	0.310	ug/L
Surrogates				
1,4-Difluorobenzene	95.2	77-115		%

Batch Information

Analytical Batch: VFC11376
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 3/25/2013 11:17:00AM

Prep Batch: VXX24583
Prep Method: SW5030B
Prep Date/Time: 3/25/2013 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Blank Spike Summary

Blank Spike ID: LCS for HBN 1131014 [VXX24583]
Blank Spike Lab ID: 1141975
Date Analyzed: 03/25/2013 10:40

Spike Duplicate ID: LCSD for HBN 1131014 [VXX24583]
Spike Duplicate Lab ID: 1141976
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1131014001, 1131014002

Results by **SW8021B**

	Blank Spike (ug/L)			Spike Duplicate ()					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	100	108	108	100	94.3	94	(80-120)	13.90	(< 20)
Ethylbenzene	100	107	107	100	109	109	(75-125)	2.60	(< 20)
o-Xylene	100	102	102	100	108	108	(80-120)	5.20	(< 20)
P & M -Xylene	200	210	105	200	218	109	(75-130)	3.90	(< 20)
Toluene	100	107	107	100	109	109	(75-120)	1.30	(< 20)
Surrogates									
1,4-Difluorobenzene		100	100	50	86.5		(77-115)	14.90	

Batch Information

Analytical Batch: **VFC11376**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX24583**
Prep Method: **SW5030B**
Prep Date/Time: **03/25/2013 08:00**
Spike Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL

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t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Method Blank

Blank ID: MB for HBN 1425458 [XXX/28820]
Blank Lab ID: 1141904

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1131014001

Results by **8270D SIMS (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	0.0300U	0.0500	0.0150	ug/L
2-Methylnaphthalene	0.0300U	0.0500	0.0150	ug/L
Acenaphthene	0.0300U	0.0500	0.0150	ug/L
Acenaphthylene	0.0300U	0.0500	0.0150	ug/L
Anthracene	0.0300U	0.0500	0.0150	ug/L
Benzo(a)Anthracene	0.0300U	0.0500	0.0150	ug/L
Benzo[a]pyrene	0.0300U	0.0500	0.0150	ug/L
Benzo[b]Fluoranthene	0.0300U	0.0500	0.0150	ug/L
Benzo[g,h,i]perylene	0.0300U	0.0500	0.0150	ug/L
Benzo[k]fluoranthene	0.0300U	0.0500	0.0150	ug/L
Chrysene	0.0300U	0.0500	0.0150	ug/L
Dibenzo[a,h]anthracene	0.0300U	0.0500	0.0150	ug/L
Fluoranthene	0.0300U	0.0500	0.0150	ug/L
Fluorene	0.0300U	0.0500	0.0150	ug/L
Indeno[1,2,3-c,d] pyrene	0.0300U	0.0500	0.0150	ug/L
Naphthalene	0.0620U	0.100	0.0310	ug/L
Phenanthrene	0.0300U	0.0500	0.0150	ug/L
Pyrene	0.0300U	0.0500	0.0150	ug/L
Surrogates				
2-Fluorobiphenyl	83.5	50-110		%
Terphenyl-d14	102	50-135		%

Batch Information

Analytical Batch: XMS7251
Analytical Method: 8270D SIMS (PAH)
Instrument: HP 6890/5973 MS SVQA
Analyst: RTS
Analytical Date/Time: 3/27/2013 3:03:00PM

Prep Batch: XXX28820
Prep Method: SW3520C
Prep Date/Time: 3/26/2013 9:00:00AM
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1131014 [XXX28820]
Blank Spike Lab ID: 1141905
Date Analyzed: 03/27/2013 15:20

Spike Duplicate ID: LCSD for HBN 1131014 [XXX28820]
Spike Duplicate Lab ID: 1141906
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1131014001

Results by **8270D SIMS (PAH)**

	Blank Spike (ug/L)			Spike Duplicate ()					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	0.5	0.422	85	0.5	0.399	80	(47-107)	5.70	(< 30)
2-Methylnaphthalene	0.5	0.359	72	0.5	0.344	69	(45-105)	4.30	(< 30)
Acenaphthene	0.5	0.395	79	0.5	0.380	76	(45-110)	4.00	(< 30)
Acenaphthylene	0.5	0.392	78	0.5	0.383	77	(50-105)	2.30	(< 30)
Anthracene	0.5	0.408	82	0.5	0.386	77	(55-110)	5.70	(< 30)
Benzo(a)Anthracene	0.5	0.452	90	0.5	0.438	88	(55-110)	3.00	(< 30)
Benzo[a]pyrene	0.5	0.425	85	0.5	0.420	84	(55-110)	1.00	(< 30)
Benzo[b]Fluoranthene	0.5	0.455	91	0.5	0.441	88	(45-120)	3.00	(< 30)
Benzo[g,h,i]perylene	0.5	0.458	92	0.5	0.451	90	(40-125)	1.60	(< 30)
Benzo[k]fluoranthene	0.5	0.468	94	0.5	0.474	95	(45-125)	1.20	(< 30)
Chrysene	0.5	0.477	95	0.5	0.476	95	(55-110)	0.03	(< 30)
Dibenzo[a,h]anthracene	0.5	0.455	91	0.5	0.457	92	(40-125)	0.46	(< 30)
Fluoranthene	0.5	0.454	91	0.5	0.457	92	(55-115)	0.84	(< 30)
Fluorene	0.5	0.414	83	0.5	0.396	79	(50-110)	4.50	(< 30)
Indeno[1,2,3-c,d] pyrene	0.5	0.465	93	0.5	0.456	91	(45-125)	1.80	(< 30)
Naphthalene	0.5	0.393	79	0.5	0.361	72	(40-100)	8.50	(< 30)
Phenanthrene	0.5	0.411	82	0.5	0.403	81	(50-115)	2.00	(< 30)
Pyrene	0.5	0.446	89	0.5	0.447	90	(50-130)	0.19	(< 30)
Surrogates									
2-Fluorobiphenyl		75.7	76	0.5	76.9		(50-110)	1.60	
Terphenyl-d14		82.6	83	0.5	85.6		(50-135)	3.60	

Batch Information

Analytical Batch: **XMS7251**
Analytical Method: **8270D SIMS (PAH)**
Instrument: **HP 6890/5973 MS SVQA**
Analyst: **RTS**

Prep Batch: **XXX28820**
Prep Method: **SW3520C**
Prep Date/Time: **03/26/2013 09:00**
Spike Init Wt./Vol.: 0.5 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 0.5 ug/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1428461 [XXX/28842]
Blank Lab ID: 1142722

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1131014001

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.360U	0.600	0.180	mg/L
Surrogates				
5a Androstane	80.1	60-120		%

Batch Information

Analytical Batch: XFC10856
Analytical Method: AK102
Instrument: HP 7890A FID SV E R
Analyst: EAB
Analytical Date/Time: 4/8/2013 11:00:00AM

Prep Batch: XXX28842
Prep Method: SW3520C
Prep Date/Time: 4/2/2013 11:15:00AM
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1131014 [XXX28842]
Blank Spike Lab ID: 1142723
Date Analyzed: 04/08/2013 11:21

Spike Duplicate ID: LCSD for HBN 1131014 [XXX28842]
Spike Duplicate Lab ID: 1142724
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1131014001

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate ()					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	5	4.05	81	5	3.94	79	(75-125)	2.70	(< 20)
Surrogates									
5a Androstane		81.6	82	0.1	78.7		(60-120)	3.60	

Batch Information

Analytical Batch: **XFC10856**
Analytical Method: **AK102**
Instrument: **HP 7890A FID SV E R**
Analyst: **EAB**

Prep Batch: **XXX28842**
Prep Method: **SW3520C**
Prep Date/Time: **04/02/2013 11:15**
Spike Init Wt./Vol.: 5 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 5 mg/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1428461 [XXX/28842]
Blank Lab ID: 1142722

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1131014001

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	0.300U	0.500	0.150	mg/L
Surrogates				
n-Triacontane-d62	82.4	60-120		%

Batch Information

Analytical Batch: XFC10856
Analytical Method: AK103
Instrument: HP 7890A FID SV E R
Analyst: EAB
Analytical Date/Time: 4/8/2013 11:00:00AM

Prep Batch: XXX28842
Prep Method: SW3520C
Prep Date/Time: 4/2/2013 11:15:00AM
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

SGS North America Inc.
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Blank Spike Summary

Blank Spike ID: LCS for HBN 1131014 [XXX28842]
Blank Spike Lab ID: 1142723
Date Analyzed: 04/08/2013 11:21

Spike Duplicate ID: LCSD for HBN 1131014 [XXX28842]
Spike Duplicate Lab ID: 1142724
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1131014001

Results by **AK103**

	Blank Spike (mg/L)			Spike Duplicate ()					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	5	4.42	88	5	4.18	84	(60-120)	5.50	(< 20)
Surrogates									
n-Triacontane-d62		79.2	79	0.1	76.6		(60-120)	3.40	

Batch Information

Analytical Batch: **XFC10856**
Analytical Method: **AK103**
Instrument: **HP 7890A FID SV E R**
Analyst: **EAB**

Prep Batch: **XXX28842**
Prep Method: **SW3520C**
Prep Date/Time: **04/02/2013 11:15**
Spike Init Wt./Vol.: 5 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 5 mg/L Extract Vol: 1 mL

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CHAIN OF CUSTODY RECORD

1131014

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

Page 1 of 1

1

CLIENT: BGES

CONTACT: Joshua Barsis PHONE NO: (907) 644-2900

PROJECT NAME: Talkeetna PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Jayne Morton E-MAIL: josh@bgesinc.com

INVOICE TO: BGES QUOTE #: P.O. #:

2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Preservative Used: 3 TYPE C = COMP G = GRAB MI = Multi Incre-mental Soils			GRO/BTEX AK101/AK0213	DRO/RRO AK102/AK103	PAHs 8270 Sim							REMARKS/ LOC ID
(1) A-G	TW2-0319	3/19/13	1720	W	7	G			X	X	X							
(2) A-C	Trip Blank	-	-	W	3	-			X									

5

Relinquished By:	Date	Time	Received By:
(1)	3/21	9:20	
(2)			
(3)			
(4)	3/21/13	0920	Received For Laboratory By:

4

DOD Project? YES (NO)

Cooler ID:

Data Deliverable Requirements: level 2

Requested Turnaround Time and-or Special Instructions:

Standard

Temp Blank °C: 52 #35 or Ambient [ ]

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle) INTACT BROKEN (ABSENT)

(See attached Sample Receipt Form)

SGS-00082 (6/12)

[ ] 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

SGS

1131014

SAMPLE RECEIPT FORM

Review Criteria:	Condition:	Comments/Action Taken:
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	Yes No (N/A) (Yes) No N/A	
Temperature blank compliant* (i.e., 0-6°C after CF)? * *Note: Exemption permitted for chilled samples collected less than 8 hours ago.* Cooler ID: 1 @ 5.2 w/ Therm.ID: 35 Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ *Note: If non-compliant, use form FS-0029 to document affected samples/analyses.* If samples are received without 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." **If temperature(s) <0°C, were all sample containers ice free?**	(Yes) No N/A Yes No (N/A)	
Delivery method (specify all that apply): (Client) USPS Alert Courier C&D Delivery AK Air Lynden Carlile ERA PenAir FedEx UPS NAC Other: → *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?*	Note ABN/ tracking # See Attached or N/A Yes No (N/A)	
→ For samples received with payment, note amount ($) and cash / check / CC **(circle one)** or note: (N/A) → For samples **received in FBKS**, ANCH staff will verify all criteria are reviewed. SRF Initiated by: (N/A)		
Were samples received within hold time? *Note: Refer to form F-083 "Sample Guide" for hold time information.* Do samples **match COC*** (i.e., sample IDs, dates/times collected)? * *Note: Exemption permitted if times differ <1hr; in that case, use times on COC.* Were analyses requested unambiguous?	(Yes) No N/A (Yes) No N/A (Yes) No N/A	
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): Bubble Wrap Separate plastic bags Vermiculite Other:	(Yes) No N/A	
Were all VOA vials **free of headspace** (i.e., bubbles ≤6 mm)? Were all soil VOAs **field extracted** with MeOH+BFB?	Yes (No) N/A Yes No (N/A)	(2) B & C >6mm (TB)
Were **proper containers** (type/mass/volume/preservative*) used? * *Note: Exemption permitted for waters to be analyzed for metals.* Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	(Yes) No N/A (Yes) No N/A	
For **special handling** (e.g., "MI" or foreign soils, lab filter, limited volume, Ref Lab), were bottles/paperwork flagged (e.g., sticker)?	(Yes) No N/A	Trip Blank LV
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was **pH verified and compliant**? If pH was adjusted, were bottles flagged (i.e., stickers)?	(Yes) No N/A Yes No (N/A)	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	Yes No (N/A)	
For **SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP**, were containers / paperwork flagged accordingly?	Yes No (N/A)	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	(Yes) No N/A	SRF Completed by: MGM PM = HLH N/A
Was **PEER REVIEW** of ***sample numbering/labeling completed?***	Yes No (N/A)	Peer Reviewed by: N/A
Additional notes (if applicable):		

Note to Client: Any "no" circled above indicates non-compliance with standard procedures and may impact data quality.

Laboratory Report of Analysis

To: BGES Inc.
1042 E 6th Ave
Anchorage, AK 99501
(907)644-2900

Report Number: **1131015** Revised report to clarify case narrative.

Client Project: **Talkeetna**

Dear Jayne Martin,

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 five 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 Victoria 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.

Victoria Pennick
2013.07.11
14:48:10 -08'00'

Victoria Pennick Date
Project Manager

Print Date: 07/11/2013 2:41:49PM

Case Narrative

SGS Client: **BGES Inc.**
SGS Project: **1131015**
Project Name/Site: **Talkeetna**
Project Contact: **Jayne Martin**

Refer to sample receipt form for information on sample condition.

SB2-4-0319 (1131015002) PS

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference. BFB was spiked into sample on accident. Matrix interference is so great that the recovery was not significantly affected.
AK102 - The pattern is consistent with a weathered gasoline.

SB2-11-0319 (1131015003) PS

AK102 - The pattern is consistent with a weathered gasoline.
8270D SIM - LOQs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.
AK101/8021B - BFB and 1,4-difluorobenzene (surrogate) recoveries do not meet QC criteria (biased high) due to matrix interference.

SB3-4-0319 (1131015004) PS

AK101 - BFB (surrogate) recovery does not meet QC criteria due to matrix interference.
AK102 - The pattern is consistent with a weathered gasoline.
AK103 - Unknown hydrocarbon with several peaks is present.

SB4-4-0319 (1131015005) PS

AK101 - BFB (surrogate) recovery does not meet QC criteria due to matrix interference.
AK102 - The pattern is consistent with a weathered gasoline.
8021B - Sample was re-analyzed outside of hold time for benzene due to laboratory error.

SB5-4-0320 (1131015006) PS

8021B - Sample was re-analyzed outside of hold time due to laboratory error.
AK101 - BFB field surrogate does not meet QC criteria (biased high). This is likely due to non-homogeneity for the unpreserved aliquot which was used for Total Solids determination, causing an over-compensation to the results.

SB6-4-0320 (1131015007) PS

8021B - Sample was re-analyzed outside of hold time due to laboratory error.

SB7-5-0320 (1131015008) PS

8021B - Sample was re-analyzed outside of hold time due to laboratory error.
AK101 - BFB field surrogate does not meet QC criteria (biased high). This is likely due to non-homogeneity for the unpreserved aliquot which was used for Total Solids determination, causing an over-compensation to the results.

SB8-4-0320 (1131015009) PS

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.
8021B - Sample was re-analyzed outside of hold time for benzene due to laboratory error.

LCS for HBN 1428658 [XXX/28845 (1142737) LCS

8270D SIM - LCS recoveries for fluoranthene and chrysene are outside of QC criteria (biased high).These analytes were not detected above the LOQ in the associated samples.

1131015002MS (1142738) MS

8270D SIM - MS recoveries for three analytes are outside of QC criteria. Refer to LCS for accuracy.
8270D SIM - LCS recoveries for fluoranthene and chrysene are outside of QC criteria (biased high).

1131015002MSD (1142739) MSD

8270D SIM - MSD recoveries for four analytes are outside of QC criteria. Refer to LCS for accuracy.
8270D SIM - LCS recoveries for fluoranthene and chrysene are outside of QC criteria (biased high).

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Report of Manual Integrations

Laboratory ID	Client Sample ID	Analytical Batch	Analyte	Reason
8270D SIMS (PAH)				
1131015002	SB2-4-0319	XMS7258	Acenaphthene	SP
1131015003	SB2-11-0319	XMS7257	Acenaphthene	SP

Manual Integration Reason Code Descriptions

Code	Description
O	Original Chromatogram
M	Modified Chromatogram
SS	Skimmed surrogate
BLG	Closed baseline gap
RP	Reassign peak name
PIR	Pattern integration required
IT	Included tail
SP	Split peak
RSP	Removed split peak
FPS	Forced peak start/stop
BLC	Baseline correction
PNF	Peak not found by software

All DRO/RRO analysis are integrated per SOP.

Print Date: 07/11/2013 2:41:54PM

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. If you have any questions regarding this report, or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343. All work is provided under SGS general terms and conditions (<http://www.sgs.com/terms_and_conditions.htm>), unless other written agreements have been accepted by both parties.

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: 1020A, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035B, 6020, 7470A, 7471B, 8021B, 8082A, 8260B, 8270D, 8270D-SIM, 9040B, 9045C, 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	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., 2xDL)
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.

SGS North America Inc.
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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
SB1-4-0319	1131015001	03/19/2013	03/21/2013	Soil/Solid (dry weight)
SB2-4-0319	1131015002	03/19/2013	03/21/2013	Soil/Solid (dry weight)
SB2-11-0319	1131015003	03/19/2013	03/21/2013	Soil/Solid (dry weight)
SB3-4-0319	1131015004	03/19/2013	03/21/2013	Soil/Solid (dry weight)
SB4-4-0319	1131015005	03/19/2013	03/21/2013	Soil/Solid (dry weight)
SB5-4-0320	1131015006	03/20/2013	03/21/2013	Soil/Solid (dry weight)
SB6-4-0320	1131015007	03/20/2013	03/21/2013	Soil/Solid (dry weight)
SB7-5-0320	1131015008	03/20/2013	03/21/2013	Soil/Solid (dry weight)
SB8-4-0320	1131015009	03/20/2013	03/21/2013	Soil/Solid (dry weight)
SB9-4-0320	1131015010	03/20/2013	03/21/2013	Soil/Solid (dry weight)
Trip Blank	1131015011	03/19/2013	03/21/2013	Soil/Solid (dry weight)

Method	Method Description
8270D SIMS (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK101	AK101/8021 Combo. (S)
SW8021B	AK101/8021 Combo. (S)
AK102	Diesel/Residual Range Organics
AK103	Diesel/Residual Range Organics
SM21 2540G	Percent Solids SM2540G

SGS North America Inc.
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Detectable Results Summary

Client Sample ID: **SB2-4-0319**
Lab Sample ID: 1131015002

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	33.9	ug/Kg
	2-Methylnaphthalene	25.7	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	66.6	mg/Kg
Volatile Fuels	Benzene	740	ug/Kg
	Ethylbenzene	1960	ug/Kg
	Gasoline Range Organics	728	mg/Kg
	o-Xylene	3910	ug/Kg
	Toluene	1310	ug/Kg

Client Sample ID: **SB2-11-0319**
Lab Sample ID: 1131015003

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	108	ug/Kg
	2-Methylnaphthalene	87.8	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	90.6	mg/Kg
Volatile Fuels	Benzene	1340	ug/Kg
	Ethylbenzene	4120	ug/Kg
	Gasoline Range Organics	924	mg/Kg
	o-Xylene	8840	ug/Kg
	P & M -Xylene	2920	ug/Kg
	Toluene	2720	ug/Kg

Client Sample ID: **SB3-4-0319**
Lab Sample ID: 1131015004

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	239	mg/Kg
	Residual Range Organics	22.5	mg/Kg
Volatile Fuels	Benzene	611	ug/Kg
	Ethylbenzene	4550	ug/Kg
	Gasoline Range Organics	1450	mg/Kg
	o-Xylene	8810	ug/Kg
	P & M -Xylene	3710	ug/Kg
	Toluene	2680	ug/Kg

Client Sample ID: **SB4-4-0319**
Lab Sample ID: 1131015005

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	232	mg/Kg
Volatile Fuels	Benzene	353	ug/Kg
	Ethylbenzene	6490	ug/Kg
	Gasoline Range Organics	1490	mg/Kg
	o-Xylene	14200	ug/Kg
	P & M -Xylene	5200	ug/Kg
	Toluene	3030	ug/Kg

Client Sample ID: **SB5-4-0320**
Lab Sample ID: 1131015006

	Parameter	Result	Units
Volatile Fuels	Gasoline Range Organics	47.0	mg/Kg
	o-Xylene	722	ug/Kg

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Detectable Results Summary

Client Sample ID: **SB6-4-0320**
Lab Sample ID: 1131015007
Volatile Fuels

Parameter	Result	Units
Gasoline Range Organics	7.61	mg/Kg
o-Xylene	63.6	ug/Kg
P & M -Xylene	46.1	ug/Kg

Client Sample ID: **SB7-5-0320**
Lab Sample ID: 1131015008
Volatile Fuels

Parameter	Result	Units
Ethylbenzene	23.1	ug/Kg
Gasoline Range Organics	20.6	mg/Kg
o-Xylene	170	ug/Kg
P & M -Xylene	87.2	ug/Kg

Client Sample ID: **SB8-4-0320**
Lab Sample ID: 1131015009
Volatile Fuels

Parameter	Result	Units
Ethylbenzene	919	ug/Kg
Gasoline Range Organics	433	mg/Kg
o-Xylene	3880	ug/Kg
P & M -Xylene	2820	ug/Kg
Toluene	4980	ug/Kg

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Results of **SB1-4-0319**

Client Sample ID: **SB1-4-0319**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015001
Lab Project ID: 1131015

Collection Date: 03/19/13 11:30
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%): 83.4

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	23.6	U	23.6	7.32	mg/Kg	1	04/03/13 00:46
Surrogates							
5a Androstane	85.7		50-150		%	1	04/03/13 00:46

Batch Information

Analytical Batch: XFC10851
Analytical Method: AK102
Analyst: EAB
Analytical Date/Time: 04/03/13 00:46
Container ID: 1131015001-A

Prep Batch: XXX28840
Prep Method: SW3550C
Prep Date/Time: 04/02/13 10:00
Prep Initial Wt./Vol.: 30.456 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	23.6	U	23.6	7.32	mg/Kg	1	04/03/13 00:46
Surrogates							
n-Triacontane-d62	82.8		50-150		%	1	04/03/13 00:46

Batch Information

Analytical Batch: XFC10851
Analytical Method: AK103
Analyst: EAB
Analytical Date/Time: 04/03/13 00:46
Container ID: 1131015001-A

Prep Batch: XXX28840
Prep Method: SW3550C
Prep Date/Time: 04/02/13 10:00
Prep Initial Wt./Vol.: 30.456 g
Prep Extract Vol: 1 mL

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Results of **SB1-4-0319**

Client Sample ID: **SB1-4-0319**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015001
Lab Project ID: 1131015

Collection Date: 03/19/13 11:30
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%): 83.4

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	2.71	U	2.71	0.814	mg/Kg	1	03/26/13 21:47
Surrogates							
4-Bromofluorobenzene	117		50-150		%	1	03/26/13 21:47

Batch Information

Analytical Batch: VFC11379
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 03/26/13 21:47
Container ID: 1131015001-B

Prep Batch: VXX24590
Prep Method: SW5035A
Prep Date/Time: 03/19/13 11:30
Prep Initial Wt./Vol.: 87.193 g
Prep Extract Vol: 39.4662 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	13.6	U	13.6	4.34	ug/Kg	1	03/26/13 21:47
Ethylbenzene	27.1	U	27.1	8.47	ug/Kg	1	03/26/13 21:47
o-Xylene	27.1	U	27.1	8.47	ug/Kg	1	03/26/13 21:47
P & M -Xylene	54.3	U	54.3	16.3	ug/Kg	1	03/26/13 21:47
Toluene	27.1	U	27.1	8.47	ug/Kg	1	03/26/13 21:47
Surrogates							
1,4-Difluorobenzene	97		72-119		%	1	03/26/13 21:47

Batch Information

Analytical Batch: VFC11379
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 03/26/13 21:47
Container ID: 1131015001-B

Prep Batch: VXX24590
Prep Method: SW5035A
Prep Date/Time: 03/19/13 11:30
Prep Initial Wt./Vol.: 87.193 g
Prep Extract Vol: 39.4662 mL

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Results of **SB2-4-0319**

Client Sample ID: **SB2-4-0319**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015002
Lab Project ID: 1131015

Collection Date: 03/19/13 13:10
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%): 80.9

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
1-Methylnaphthalene	33.9		12.2	3.67	ug/Kg	2	04/03/13 19:51
2-Methylnaphthalene	25.7		12.2	3.67	ug/Kg	2	04/03/13 19:51
Acenaphthene	12.2	U	12.2	3.67	ug/Kg	2	04/03/13 19:51
Acenaphthylene	12.2	U	12.2	3.67	ug/Kg	2	04/03/13 19:51
Anthracene	12.2	U	12.2	3.67	ug/Kg	2	04/03/13 19:51
Benzo(a)Anthracene	12.2	U	12.2	3.67	ug/Kg	2	04/03/13 19:51
Benzo[a]pyrene	12.2	U	12.2	3.67	ug/Kg	2	04/03/13 19:51
Benzo[b]Fluoranthene	12.2	U	12.2	3.67	ug/Kg	2	04/03/13 19:51
Benzo[g,h,i]perylene	12.2	U	12.2	3.67	ug/Kg	2	04/03/13 19:51
Benzo[k]fluoranthene	12.2	U	12.2	3.67	ug/Kg	2	04/03/13 19:51
Chrysene	12.2	U	12.2	3.67	ug/Kg	2	04/03/13 19:51
Dibenzo[a,h]anthracene	12.2	U	12.2	3.67	ug/Kg	2	04/03/13 19:51
Fluoranthene	12.2	U	12.2	3.67	ug/Kg	2	04/03/13 19:51
Fluorene	12.2	U	12.2	3.67	ug/Kg	2	04/03/13 19:51
Indeno[1,2,3-c,d] pyrene	12.2	U	12.2	3.67	ug/Kg	2	04/03/13 19:51
Naphthalene	12.2	U	12.2	3.67	ug/Kg	2	04/03/13 19:51
Phenanthrene	12.2	U	12.2	3.67	ug/Kg	2	04/03/13 19:51
Pyrene	12.2	U	12.2	3.67	ug/Kg	2	04/03/13 19:51
Surrogates							
2-Fluorobiphenyl	79.7		45-105		%	2	04/03/13 19:51
Terphenyl-d14	103		30-125		%	2	04/03/13 19:51

Batch Information

Analytical Batch: XMS7258
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 04/03/13 19:51
Container ID: 1131015002-A

Prep Batch: XXX28845
Prep Method: SW3550C
Prep Date/Time: 04/02/13 11:45
Prep Initial Wt./Vol.: 22.711 g
Prep Extract Vol: 1 mL

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Results of **SB2-4-0319**

Client Sample ID: **SB2-4-0319**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015002
Lab Project ID: 1131015

Collection Date: 03/19/13 13:10
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%): 80.9

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	66.6		24.7	7.65	mg/Kg	1	04/03/13 01:06
Surrogates							
5a Androstane	82.9		50-150		%	1	04/03/13 01:06

Batch Information

Analytical Batch: XFC10851
Analytical Method: AK102
Analyst: EAB
Analytical Date/Time: 04/03/13 01:06
Container ID: 1131015002-A

Prep Batch: XXX28840
Prep Method: SW3550C
Prep Date/Time: 04/02/13 10:00
Prep Initial Wt./Vol.: 30.03 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	24.7	U	24.7	7.65	mg/Kg	1	04/03/13 01:06
Surrogates							
n-Triacontane-d62	78.9		50-150		%	1	04/03/13 01:06

Batch Information

Analytical Batch: XFC10851
Analytical Method: AK103
Analyst: EAB
Analytical Date/Time: 04/03/13 01:06
Container ID: 1131015002-A

Prep Batch: XXX28840
Prep Method: SW3550C
Prep Date/Time: 04/02/13 10:00
Prep Initial Wt./Vol.: 30.03 g
Prep Extract Vol: 1 mL

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Results of **SB2-4-0319**

Client Sample ID: **SB2-4-0319**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015002
Lab Project ID: 1131015

Collection Date: 03/19/13 13:10
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%): 80.9

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	728		27.5	8.24	mg/Kg	10	03/26/13 16:08
Surrogates							
4-Bromofluorobenzene	3580	*	50-150		%	10	03/26/13 16:08

Batch Information

Analytical Batch: VFC11379
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 03/26/13 16:08
Container ID: 1131015002-C

Prep Batch: VXX24590
Prep Method: SW5035A
Prep Date/Time: 03/19/13 13:10
Prep Initial Wt./Vol.: 98.498 g
Prep Extract Vol: 43.7744 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	740		137	43.9	ug/Kg	10	03/26/13 16:08
Ethylbenzene	1960		275	85.7	ug/Kg	10	03/26/13 16:08
o-Xylene	3910		275	85.7	ug/Kg	10	03/26/13 16:08
P & M -Xylene	549	U	549	165	ug/Kg	10	03/26/13 16:08
Toluene	1310		275	85.7	ug/Kg	10	03/26/13 16:08
Surrogates							
1,4-Difluorobenzene	111		72-119		%	10	03/26/13 16:08

Batch Information

Analytical Batch: VFC11379
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 03/26/13 16:08
Container ID: 1131015002-C

Prep Batch: VXX24590
Prep Method: SW5035A
Prep Date/Time: 03/19/13 13:10
Prep Initial Wt./Vol.: 98.498 g
Prep Extract Vol: 43.7744 mL

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Results of **SB2-11-0319**

Client Sample ID: **SB2-11-0319**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015003
Lab Project ID: 1131015

Collection Date: 03/19/13 13:10
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%): 82.9

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
1-Methylnaphthalene	108		59.3	17.8	ug/Kg	10	04/02/13 19:26
2-Methylnaphthalene	87.8		59.3	17.8	ug/Kg	10	04/02/13 19:26
Acenaphthene	59.3	U	59.3	17.8	ug/Kg	10	04/02/13 19:26
Acenaphthylene	59.3	U	59.3	17.8	ug/Kg	10	04/02/13 19:26
Anthracene	59.3	U	59.3	17.8	ug/Kg	10	04/02/13 19:26
Benzo(a)Anthracene	59.3	U	59.3	17.8	ug/Kg	10	04/02/13 19:26
Benzo[a]pyrene	59.3	U	59.3	17.8	ug/Kg	10	04/02/13 19:26
Benzo[b]Fluoranthene	59.3	U	59.3	17.8	ug/Kg	10	04/02/13 19:26
Benzo[g,h,i]perylene	59.3	U	59.3	17.8	ug/Kg	10	04/02/13 19:26
Benzo[k]fluoranthene	59.3	U	59.3	17.8	ug/Kg	10	04/02/13 19:26
Chrysene	59.3	U	59.3	17.8	ug/Kg	10	04/02/13 19:26
Dibenzo[a,h]anthracene	59.3	U	59.3	17.8	ug/Kg	10	04/02/13 19:26
Fluoranthene	59.3	U	59.3	17.8	ug/Kg	10	04/02/13 19:26
Fluorene	59.3	U	59.3	17.8	ug/Kg	10	04/02/13 19:26
Indeno[1,2,3-c,d] pyrene	59.3	U	59.3	17.8	ug/Kg	10	04/02/13 19:26
Naphthalene	59.3	U	59.3	17.8	ug/Kg	10	04/02/13 19:26
Phenanthrene	59.3	U	59.3	17.8	ug/Kg	10	04/02/13 19:26
Pyrene	59.3	U	59.3	17.8	ug/Kg	10	04/02/13 19:26
Surrogates							
2-Fluorobiphenyl	19.5	*	45-105		%	10	04/02/13 19:26
Terphenyl-d14	100		30-125		%	10	04/02/13 19:26

Batch Information

Analytical Batch: XMS7257
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 04/02/13 19:26
Container ID: 1131015003-A

Prep Batch: XXX28845
Prep Method: SW3550C
Prep Date/Time: 04/02/13 11:45
Prep Initial Wt./Vol.: 22.902 g
Prep Extract Vol: 1 mL

Print Date: 07/11/2013 2:42:02PM

Results of **SB2-11-0319**

Client Sample ID: **SB2-11-0319**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015003
Lab Project ID: 1131015

Collection Date: 03/19/13 13:10
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%): 82.9

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	90.6		23.8	7.39	mg/Kg	1	04/03/13 01:27
Surrogates							
5a Androstane	83.5		50-150		%	1	04/03/13 01:27

Batch Information

Analytical Batch: XFC10851
Analytical Method: AK102
Analyst: EAB
Analytical Date/Time: 04/03/13 01:27
Container ID: 1131015003-A

Prep Batch: XXX28840
Prep Method: SW3550C
Prep Date/Time: 04/02/13 10:00
Prep Initial Wt./Vol.: 30.368 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	23.8	U	23.8	7.39	mg/Kg	1	04/03/13 01:27
Surrogates							
n-Triacontane-d62	78.5		50-150		%	1	04/03/13 01:27

Batch Information

Analytical Batch: XFC10851
Analytical Method: AK103
Analyst: EAB
Analytical Date/Time: 04/03/13 01:27
Container ID: 1131015003-A

Prep Batch: XXX28840
Prep Method: SW3550C
Prep Date/Time: 04/02/13 10:00
Prep Initial Wt./Vol.: 30.368 g
Prep Extract Vol: 1 mL

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Results of **SB2-11-0319**

Client Sample ID: **SB2-11-0319**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015003
Lab Project ID: 1131015

Collection Date: 03/19/13 13:10
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%): 82.9

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	924		128	38.4	mg/Kg	50	03/29/13 04:58
Surrogates							
4-Bromofluorobenzene	2470	*	50-150		%	50	03/29/13 04:58

Batch Information

Analytical Batch: VFC11380
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 03/29/13 04:58
Container ID: 1131015003-C

Prep Batch: VXX24594
Prep Method: SW5035A
Prep Date/Time: 03/19/13 13:10
Prep Initial Wt./Vol.: 98.581 g
Prep Extract Vol: 41.8566 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	1340		128	41.0	ug/Kg	10	03/26/13 16:26
Ethylbenzene	4120		256	79.9	ug/Kg	10	03/26/13 16:26
o-Xylene	8840		256	79.9	ug/Kg	10	03/26/13 16:26
P & M -Xylene	2920		512	154	ug/Kg	10	03/26/13 16:26
Toluene	2720		256	79.9	ug/Kg	10	03/26/13 16:26
Surrogates							
1,4-Difluorobenzene	122	*	72-119		%	10	03/26/13 16:26

Batch Information

Analytical Batch: VFC11379
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 03/26/13 16:26
Container ID: 1131015003-C

Prep Batch: VXX24590
Prep Method: SW5035A
Prep Date/Time: 03/19/13 13:10
Prep Initial Wt./Vol.: 98.581 g
Prep Extract Vol: 41.8566 mL

Results of **SB3-4-0319**

Client Sample ID: **SB3-4-0319**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015004
Lab Project ID: 1131015

Collection Date: 03/19/13 15:05
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%): 89.5

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	239		22.3	6.90	mg/Kg	1	04/03/13 01:48
Surrogates							
5a Androstane	89.8		50-150		%	1	04/03/13 01:48

Batch Information

Analytical Batch: XFC10851
Analytical Method: AK102
Analyst: EAB
Analytical Date/Time: 04/03/13 01:48
Container ID: 1131015004-A

Prep Batch: XXX28840
Prep Method: SW3550C
Prep Date/Time: 04/02/13 10:00
Prep Initial Wt./Vol.: 30.109 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	22.5		22.3	6.90	mg/Kg	1	04/03/13 01:48
Surrogates							
n-Triacontane-d62	84.9		50-150		%	1	04/03/13 01:48

Batch Information

Analytical Batch: XFC10851
Analytical Method: AK103
Analyst: EAB
Analytical Date/Time: 04/03/13 01:48
Container ID: 1131015004-A

Prep Batch: XXX28840
Prep Method: SW3550C
Prep Date/Time: 04/02/13 10:00
Prep Initial Wt./Vol.: 30.109 g
Prep Extract Vol: 1 mL

Print Date: 07/11/2013 2:42:02PM

Results of **SB3-4-0319**

Client Sample ID: **SB3-4-0319**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015004
Lab Project ID: 1131015

Collection Date: 03/19/13 15:05
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%): 89.5

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	1450		106	31.7	mg/Kg	50	03/26/13 22:41
Surrogates							
4-Bromofluorobenzene	0	*	50-150		%	50	03/26/13 22:41

Batch Information

Analytical Batch: VFC11379
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 03/26/13 22:41
Container ID: 1131015004-B

Prep Batch: VXX24590
Prep Method: SW5035A
Prep Date/Time: 03/19/13 15:05
Prep Initial Wt./Vol.: 91.108 g
Prep Extract Vol: 34.5323 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	611		529	169	ug/Kg	50	03/26/13 22:41
Ethylbenzene	4550		1060	330	ug/Kg	50	03/26/13 22:41
o-Xylene	8810		1060	330	ug/Kg	50	03/26/13 22:41
P & M -Xylene	3710		2120	635	ug/Kg	50	03/26/13 22:41
Toluene	2680		1060	330	ug/Kg	50	03/26/13 22:41
Surrogates							
1,4-Difluorobenzene	98.6		72-119		%	50	03/26/13 22:41

Batch Information

Analytical Batch: VFC11379
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 03/26/13 22:41
Container ID: 1131015004-B

Prep Batch: VXX24590
Prep Method: SW5035A
Prep Date/Time: 03/19/13 15:05
Prep Initial Wt./Vol.: 91.108 g
Prep Extract Vol: 34.5323 mL

Results of **SB4-4-0319**

Client Sample ID: **SB4-4-0319**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015005
Lab Project ID: 1131015

Collection Date: 03/19/13 17:00
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%): 83.3

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	232		23.9	7.42	mg/Kg	1	04/03/13 02:09
Surrogates							
5a Androstane	81.3		50-150		%	1	04/03/13 02:09

Batch Information

Analytical Batch: XFC10851
Analytical Method: AK102
Analyst: EAB
Analytical Date/Time: 04/03/13 02:09
Container ID: 1131015005-A

Prep Batch: XXX28840
Prep Method: SW3550C
Prep Date/Time: 04/02/13 10:00
Prep Initial Wt./Vol.: 30.106 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	23.9	U	23.9	7.42	mg/Kg	1	04/03/13 02:09
Surrogates							
n-Triacontane-d62	76.7		50-150		%	1	04/03/13 02:09

Batch Information

Analytical Batch: XFC10851
Analytical Method: AK103
Analyst: EAB
Analytical Date/Time: 04/03/13 02:09
Container ID: 1131015005-A

Prep Batch: XXX28840
Prep Method: SW3550C
Prep Date/Time: 04/02/13 10:00
Prep Initial Wt./Vol.: 30.106 g
Prep Extract Vol: 1 mL

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Results of **SB4-4-0319**

Client Sample ID: **SB4-4-0319**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015005
Lab Project ID: 1131015

Collection Date: 03/19/13 17:00
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%): 83.3

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	1490		51.9	15.6	mg/Kg	20	03/26/13 22:58
Surrogates							
4-Bromofluorobenzene	0	*	50-150		%	20	03/26/13 22:58

Batch Information

Analytical Batch: VFC11379
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 03/26/13 22:58
Container ID: 1131015005-B

Prep Batch: VXX24590
Prep Method: SW5035A
Prep Date/Time: 03/19/13 17:00
Prep Initial Wt./Vol.: 94.17 g
Prep Extract Vol: 40.73 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	353		64.9	20.8	ug/Kg	5	04/09/13 22:22
Ethylbenzene	6490		519	162	ug/Kg	20	03/26/13 22:58
o-Xylene	14200		519	162	ug/Kg	20	03/26/13 22:58
P & M -Xylene	5200		1040	312	ug/Kg	20	03/26/13 22:58
Toluene	3030		519	162	ug/Kg	20	03/26/13 22:58
Surrogates							
1,4-Difluorobenzene	101		72-119		%	20	03/26/13 22:58

Batch Information

Analytical Batch: VFC11379
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 03/26/13 22:58
Container ID: 1131015005-B

Prep Batch: VXX24590
Prep Method: SW5035A
Prep Date/Time: 03/19/13 17:00
Prep Initial Wt./Vol.: 94.17 g
Prep Extract Vol: 40.73 mL

Analytical Batch: VFC11387
Analytical Method: SW8021B
Analyst: EAB
Analytical Date/Time: 04/09/13 22:22
Container ID: 1131015005-B

Prep Batch: VXX24616
Prep Method: SW5035A
Prep Date/Time: 03/19/13 17:00
Prep Initial Wt./Vol.: 94.17 g
Prep Extract Vol: 40.73 mL

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Results of **SB5-4-0320**

Client Sample ID: **SB5-4-0320**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015006
Lab Project ID: 1131015

Collection Date: 03/20/13 10:45
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%): 85.2

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	23.1	U	23.1	7.17	mg/Kg	1	04/03/13 02:50
Surrogates							
5a Androstane	83.5		50-150		%	1	04/03/13 02:50

Batch Information

Analytical Batch: XFC10851
Analytical Method: AK102
Analyst: EAB
Analytical Date/Time: 04/03/13 02:50
Container ID: 1131015006-A

Prep Batch: XXX28840
Prep Method: SW3550C
Prep Date/Time: 04/02/13 10:00
Prep Initial Wt./Vol.: 30.437 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	23.1	U	23.1	7.17	mg/Kg	1	04/03/13 02:50
Surrogates							
n-Triacontane-d62	80.3		50-150		%	1	04/03/13 02:50

Batch Information

Analytical Batch: XFC10851
Analytical Method: AK103
Analyst: EAB
Analytical Date/Time: 04/03/13 02:50
Container ID: 1131015006-A

Prep Batch: XXX28840
Prep Method: SW3550C
Prep Date/Time: 04/02/13 10:00
Prep Initial Wt./Vol.: 30.437 g
Prep Extract Vol: 1 mL

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Results of **SB5-4-0320**

Client Sample ID: **SB5-4-0320**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015006
Lab Project ID: 1131015

Collection Date: 03/20/13 10:45
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%): 85.2

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	47.0		2.70	0.809	mg/Kg	1	04/10/13 15:00
Surrogates							
4-Bromofluorobenzene	163	*	50-150		%	1	04/10/13 15:00

Batch Information

Analytical Batch: VFC11388
Analytical Method: AK101
Analyst: EAB
Analytical Date/Time: 04/10/13 15:00
Container ID: 1131015006-B

Prep Batch: VXX24618
Prep Method: SW5035A
Prep Date/Time: 03/20/13 10:45
Prep Initial Wt./Vol.: 80.372 g
Prep Extract Vol: 36.912 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	13.5	U	13.5	4.31	ug/Kg	1	04/10/13 15:00
Ethylbenzene	27.0	U	27.0	8.41	ug/Kg	1	04/10/13 15:00
o-Xylene	722		27.0	8.41	ug/Kg	1	04/10/13 15:00
P & M -Xylene	53.9	U	53.9	16.2	ug/Kg	1	04/10/13 15:00
Toluene	27.0	U	27.0	8.41	ug/Kg	1	04/10/13 15:00
Surrogates							
1,4-Difluorobenzene	95.9		72-119		%	1	04/10/13 15:00

Batch Information

Analytical Batch: VFC11388
Analytical Method: SW8021B
Analyst: EAB
Analytical Date/Time: 04/10/13 15:00
Container ID: 1131015006-B

Prep Batch: VXX24618
Prep Method: SW5035A
Prep Date/Time: 03/20/13 10:45
Prep Initial Wt./Vol.: 80.372 g
Prep Extract Vol: 36.912 mL

Results of **SB6-4-0320**

Client Sample ID: **SB6-4-0320**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015007
Lab Project ID: 1131015

Collection Date: 03/20/13 12:30
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%): 85.7

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	22.9	U	22.9	7.09	mg/Kg	1	04/03/13 03:11
Surrogates							
5a Androstane	80.2		50-150		%	1	04/03/13 03:11

Batch Information

Analytical Batch: XFC10851
Analytical Method: AK102
Analyst: EAB
Analytical Date/Time: 04/03/13 03:11
Container ID: 1131015007-A

Prep Batch: XXX28840
Prep Method: SW3550C
Prep Date/Time: 04/02/13 10:00
Prep Initial Wt./Vol.: 30.586 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	22.9	U	22.9	7.09	mg/Kg	1	04/03/13 03:11
Surrogates							
n-Triacontane-d62	77.3		50-150		%	1	04/03/13 03:11

Batch Information

Analytical Batch: XFC10851
Analytical Method: AK103
Analyst: EAB
Analytical Date/Time: 04/03/13 03:11
Container ID: 1131015007-A

Prep Batch: XXX28840
Prep Method: SW3550C
Prep Date/Time: 04/02/13 10:00
Prep Initial Wt./Vol.: 30.586 g
Prep Extract Vol: 1 mL

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Results of **SB6-4-0320**

Client Sample ID: **SB6-4-0320**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015007
Lab Project ID: 1131015

Collection Date: 03/20/13 12:30
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%): 85.7

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	7.61		2.31	0.692	mg/Kg	1	04/10/13 13:13
Surrogates							
4-Bromofluorobenzene	119		50-150		%	1	04/10/13 13:13

Batch Information

Analytical Batch: VFC11388
Analytical Method: AK101
Analyst: EAB
Analytical Date/Time: 04/10/13 13:13
Container ID: 1131015007-B

Prep Batch: VXX24618
Prep Method: SW5035A
Prep Date/Time: 03/20/13 12:30
Prep Initial Wt./Vol.: 98.917 g
Prep Extract Vol: 39.1052 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	11.5	U	11.5	3.69	ug/Kg	1	04/10/13 13:13
Ethylbenzene	23.1	U	23.1	7.19	ug/Kg	1	04/10/13 13:13
o-Xylene	63.6		23.1	7.19	ug/Kg	1	04/10/13 13:13
P & M -Xylene	46.1		46.1	13.8	ug/Kg	1	04/10/13 13:13
Toluene	23.1	U	23.1	7.19	ug/Kg	1	04/10/13 13:13
Surrogates							
1,4-Difluorobenzene	94.9		72-119		%	1	04/10/13 13:13

Batch Information

Analytical Batch: VFC11388
Analytical Method: SW8021B
Analyst: EAB
Analytical Date/Time: 04/10/13 13:13
Container ID: 1131015007-B

Prep Batch: VXX24618
Prep Method: SW5035A
Prep Date/Time: 03/20/13 12:30
Prep Initial Wt./Vol.: 98.917 g
Prep Extract Vol: 39.1052 mL

Results of **SB7-5-0320**

Client Sample ID: **SB7-5-0320**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015008
Lab Project ID: 1131015

Collection Date: 03/20/13 14:10
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%): 88.2

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	22.5	U	22.5	6.96	mg/Kg	1	04/03/13 03:31
Surrogates							
5a Androstane	80.4		50-150		%	1	04/03/13 03:31

Batch Information

Analytical Batch: XFC10851
Analytical Method: AK102
Analyst: EAB
Analytical Date/Time: 04/03/13 03:31
Container ID: 1131015008-A

Prep Batch: XXX28840
Prep Method: SW3550C
Prep Date/Time: 04/02/13 10:00
Prep Initial Wt./Vol.: 30.311 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	22.5	U	22.5	6.96	mg/Kg	1	04/03/13 03:31
Surrogates							
n-Triacontane-d62	77.3		50-150		%	1	04/03/13 03:31

Batch Information

Analytical Batch: XFC10851
Analytical Method: AK103
Analyst: EAB
Analytical Date/Time: 04/03/13 03:31
Container ID: 1131015008-A

Prep Batch: XXX28840
Prep Method: SW3550C
Prep Date/Time: 04/02/13 10:00
Prep Initial Wt./Vol.: 30.311 g
Prep Extract Vol: 1 mL

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Results of **SB7-5-0320**

Client Sample ID: **SB7-5-0320**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015008
Lab Project ID: 1131015

Collection Date: 03/20/13 14:10
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%): 88.2

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	20.6		1.94	0.583	mg/Kg	1	04/10/13 15:35
Surrogates							
4-Bromofluorobenzene	151	*	50-150		%	1	04/10/13 15:35

Batch Information

Analytical Batch: VFC11388
Analytical Method: AK101
Analyst: EAB
Analytical Date/Time: 04/10/13 15:35
Container ID: 1131015008-B

Prep Batch: VXX24618
Prep Method: SW5035A
Prep Date/Time: 03/20/13 14:10
Prep Initial Wt./Vol.: 111.502 g
Prep Extract Vol: 38.2124 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	9.72	U	9.72	3.11	ug/Kg	1	04/10/13 15:35
Ethylbenzene	23.1		19.4	6.06	ug/Kg	1	04/10/13 15:35
o-Xylene	170		19.4	6.06	ug/Kg	1	04/10/13 15:35
P & M -Xylene	87.2		38.9	11.7	ug/Kg	1	04/10/13 15:35
Toluene	19.4	U	19.4	6.06	ug/Kg	1	04/10/13 15:35
Surrogates							
1,4-Difluorobenzene	97.1		72-119		%	1	04/10/13 15:35

Batch Information

Analytical Batch: VFC11388
Analytical Method: SW8021B
Analyst: EAB
Analytical Date/Time: 04/10/13 15:35
Container ID: 1131015008-B

Prep Batch: VXX24618
Prep Method: SW5035A
Prep Date/Time: 03/20/13 14:10
Prep Initial Wt./Vol.: 111.502 g
Prep Extract Vol: 38.2124 mL

Print Date: 07/11/2013 2:42:02PM

Results of **SB8-4-0320**

Client Sample ID: **SB8-4-0320**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015009
Lab Project ID: 1131015

Collection Date: 03/20/13 15:50
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%): 85.6

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	23.0	U	23.0	7.13	mg/Kg	1	04/03/13 03:52
Surrogates							
5a Androstane	83.8		50-150		%	1	04/03/13 03:52

Batch Information

Analytical Batch: XFC10851
Analytical Method: AK102
Analyst: EAB
Analytical Date/Time: 04/03/13 03:52
Container ID: 1131015009-A

Prep Batch: XXX28840
Prep Method: SW3550C
Prep Date/Time: 04/02/13 10:00
Prep Initial Wt./Vol.: 30.485 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	23.0	U	23.0	7.13	mg/Kg	1	04/03/13 03:52
Surrogates							
n-Triacontane-d62	80.3		50-150		%	1	04/03/13 03:52

Batch Information

Analytical Batch: XFC10851
Analytical Method: AK103
Analyst: EAB
Analytical Date/Time: 04/03/13 03:52
Container ID: 1131015009-A

Prep Batch: XXX28840
Prep Method: SW3550C
Prep Date/Time: 04/02/13 10:00
Prep Initial Wt./Vol.: 30.485 g
Prep Extract Vol: 1 mL

Print Date: 07/11/2013 2:42:02PM

Results of **SB8-4-0320**

Client Sample ID: **SB8-4-0320**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015009
Lab Project ID: 1131015

Collection Date: 03/20/13 15:50
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%): 85.6

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	433		25.5	7.65	mg/Kg	10	03/26/13 18:13
Surrogates							
4-Bromofluorobenzene	401	*	50-150		%	10	03/26/13 18:13

Batch Information

Analytical Batch: VFC11379
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 03/26/13 18:13
Container ID: 1131015009-B

Prep Batch: VXX24590
Prep Method: SW5035A
Prep Date/Time: 03/20/13 15:50
Prep Initial Wt./Vol.: 85.241 g
Prep Extract Vol: 37.2498 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	25.5	U	25.5	8.17	ug/Kg	2	04/09/13 23:33
Ethylbenzene	919		255	79.6	ug/Kg	10	03/26/13 18:13
o-Xylene	3880		255	79.6	ug/Kg	10	03/26/13 18:13
P & M -Xylene	2820		510	153	ug/Kg	10	03/26/13 18:13
Toluene	4980		255	79.6	ug/Kg	10	03/26/13 18:13
Surrogates							
1,4-Difluorobenzene	101		72-119		%	10	03/26/13 18:13

Batch Information

Analytical Batch: VFC11379
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 03/26/13 18:13
Container ID: 1131015009-B

Prep Batch: VXX24590
Prep Method: SW5035A
Prep Date/Time: 03/20/13 15:50
Prep Initial Wt./Vol.: 85.241 g
Prep Extract Vol: 37.2498 mL

Analytical Batch: VFC11387
Analytical Method: SW8021B
Analyst: EAB
Analytical Date/Time: 04/09/13 23:33
Container ID: 1131015009-B

Prep Batch: VXX24616
Prep Method: SW5035A
Prep Date/Time: 03/20/13 15:50
Prep Initial Wt./Vol.: 85.241 g
Prep Extract Vol: 37.2498 mL

Results of **SB9-4-0320**

Client Sample ID: **SB9-4-0320**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015010
Lab Project ID: 1131015

Collection Date: 03/20/13 17:10
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%): 91.3

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	21.6	U	21.6	6.70	mg/Kg	1	04/03/13 04:13
Surrogates							
5a Androstane	72		50-150		%	1	04/03/13 04:13

Batch Information

Analytical Batch: XFC10851
Analytical Method: AK102
Analyst: EAB
Analytical Date/Time: 04/03/13 04:13
Container ID: 1131015010-A

Prep Batch: XXX28840
Prep Method: SW3550C
Prep Date/Time: 04/02/13 10:00
Prep Initial Wt./Vol.: 30.401 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	21.6	U	21.6	6.70	mg/Kg	1	04/03/13 04:13
Surrogates							
n-Triacontane-d62	66.8		50-150		%	1	04/03/13 04:13

Batch Information

Analytical Batch: XFC10851
Analytical Method: AK103
Analyst: EAB
Analytical Date/Time: 04/03/13 04:13
Container ID: 1131015010-A

Prep Batch: XXX28840
Prep Method: SW3550C
Prep Date/Time: 04/02/13 10:00
Prep Initial Wt./Vol.: 30.401 g
Prep Extract Vol: 1 mL

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Results of **SB9-4-0320**

Client Sample ID: **SB9-4-0320**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015010
Lab Project ID: 1131015

Collection Date: 03/20/13 17:10
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%): 91.3

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	1.72	U	1.72	0.516	mg/Kg	1	03/26/13 20:36
Surrogates							
4-Bromofluorobenzene	91.5		50-150		%	1	03/26/13 20:36

Batch Information

Analytical Batch: VFC11379
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 03/26/13 20:36
Container ID: 1131015010-B

Prep Batch: VXX24590
Prep Method: SW5035A
Prep Date/Time: 03/20/13 17:10
Prep Initial Wt./Vol.: 110.035 g
Prep Extract Vol: 34.5433 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	8.59	U	8.59	2.75	ug/Kg	1	03/26/13 20:36
Ethylbenzene	17.2	U	17.2	5.36	ug/Kg	1	03/26/13 20:36
o-Xylene	17.2	U	17.2	5.36	ug/Kg	1	03/26/13 20:36
P & M -Xylene	34.4	U	34.4	10.3	ug/Kg	1	03/26/13 20:36
Toluene	17.2	U	17.2	5.36	ug/Kg	1	03/26/13 20:36
Surrogates							
1,4-Difluorobenzene	94.7		72-119		%	1	03/26/13 20:36

Batch Information

Analytical Batch: VFC11379
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 03/26/13 20:36
Container ID: 1131015010-B

Prep Batch: VXX24590
Prep Method: SW5035A
Prep Date/Time: 03/20/13 17:10
Prep Initial Wt./Vol.: 110.035 g
Prep Extract Vol: 34.5433 mL

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Talkeetna**
Lab Sample ID: 1131015011
Lab Project ID: 1131015

Collection Date: 03/19/13 11:30
Received Date: 03/21/13 09:20
Matrix: Soil/Solid (dry weight)
Solids (%):

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	2.55	U	2.55	0.765	mg/Kg	1	03/26/13 18:48
Surrogates							
4-Bromofluorobenzene	94.2		50-150		%	1	03/26/13 18:48

Batch Information

Analytical Batch: VFC11379
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 03/26/13 18:48
Container ID: 1131015011-A

Prep Batch: VXX24590
Prep Method: SW5035A
Prep Date/Time: 03/19/13 11:30
Prep Initial Wt./Vol.: 49.004 g
Prep Extract Vol: 25 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	12.8	U	12.8	4.08	ug/Kg	1	03/26/13 18:48
Ethylbenzene	25.5	U	25.5	7.96	ug/Kg	1	03/26/13 18:48
o-Xylene	25.5	U	25.5	7.96	ug/Kg	1	03/26/13 18:48
P & M -Xylene	51.0	U	51.0	15.3	ug/Kg	1	03/26/13 18:48
Toluene	25.5	U	25.5	7.96	ug/Kg	1	03/26/13 18:48
Surrogates							
1,4-Difluorobenzene	95.6		72-119		%	1	03/26/13 18:48

Batch Information

Analytical Batch: VFC11379
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 03/26/13 18:48
Container ID: 1131015011-A

Prep Batch: VXX24590
Prep Method: SW5035A
Prep Date/Time: 03/19/13 11:30
Prep Initial Wt./Vol.: 49.004 g
Prep Extract Vol: 25 mL

Method Blank

Blank ID: MB for HBN 1428760 [SPT/8964]
Blank Lab ID: 1142757

Matrix: Soil/Solid (dry weight)

QC for Samples:
1131015001, 1131015002, 1131015003, 1131015004, 1131015005, 1131015006, 1131015007, 1131015008, 1131015009, 1131015010

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT8964
Analytical Method: SM21 2540G
Instrument:
Analyst: ST
Analytical Date/Time: 4/1/2013 6:30:00PM

Duplicate Sample Summary

Original Sample ID: 1131015002
Duplicate Sample ID: 1142758

Analysis Date: 04/01/2013 18:30
Matrix: Soil/Solid (dry weight)

QC for Samples:

1131015001, 1131015002, 1131015003, 1131015004, 1131015005, 1131015006, 1131015007, 1131015008, 1131015009, 1131015010

Results by **SM21 2540G**

NAME	Original (15.00)	Duplicate (15.00)	RPD (%)	RPD CL
Total Solids	80.9	81.2	0.27	15.00

Batch Information

Analytical Batch: SPT8964
Analytical Method: SM21 2540G
Instrument:
Analyst: ST

Print Date: 07/11/2013 2:42:08PM

Method Blank

Blank ID: MB for HBN 1426765 [VXX/24590]
Blank Lab ID: 1142385

Matrix: Soil/Solid (dry weight)

QC for Samples:
1131015001, 1131015002, 1131015003, 1131015004, 1131015005, 1131015009, 1131015010, 1131015011

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.50U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene	85.4	50-150		%

Batch Information

Analytical Batch: VFC11379
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 3/26/2013 10:59:00AM

Prep Batch: VXX24590
Prep Method: SW5035A
Prep Date/Time: 3/26/2013 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1131015 [VXX24590]
Blank Spike Lab ID: 1142388
Date Analyzed: 03/26/2013 14:03

Spike Duplicate ID: LCSD for HBN 1131015 [VXX24590]
Spike Duplicate Lab ID: 1142389
Matrix: Soil/Solid (dry weight)

QC for Samples: 1131015001, 1131015002, 1131015003, 1131015004, 1131015005, 1131015009, 1131015010, 1131015011

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	10.0	10.2	102	10.0	10.1	101	(60-120)	0.41	(< 20)
Surrogates									
4-Bromofluorobenzene	1.25	82.6	83	1.25	84.5	85	(50-150)	2.30	

Batch Information

Analytical Batch: **VFC11379**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **ST**

Prep Batch: **VXX24590**
Prep Method: **SW5035A**
Prep Date/Time: **03/26/2013 08:00**
Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1426765 [VXX/24590]
Blank Lab ID: 1142385

Matrix: Soil/Solid (dry weight)

QC for Samples:
1131015001, 1131015002, 1131015003, 1131015004, 1131015005, 1131015009, 1131015010, 1131015011

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	8.00U	12.5	4.00	ug/Kg
Ethylbenzene	15.6U	25.0	7.80	ug/Kg
o-Xylene	15.6U	25.0	7.80	ug/Kg
P & M -Xylene	30.0U	50.0	15.0	ug/Kg
Toluene	15.6U	25.0	7.80	ug/Kg
Surrogates				
1,4-Difluorobenzene	95.4	72-119		%

Batch Information

Analytical Batch: VFC11379
Analytical Method: SW8021B
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 3/26/2013 10:59:00AM

Prep Batch: VXX24590
Prep Method: SW5035A
Prep Date/Time: 3/26/2013 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 07/11/2013 2:42:19PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1131015 [VXX24590]
Blank Spike Lab ID: 1142386
Date Analyzed: 03/26/2013 13:28

Spike Duplicate ID: LCSD for HBN 1131015 [VXX24590]
Spike Duplicate Lab ID: 1142387
Matrix: Soil/Solid (dry weight)

QC for Samples: 1131015001, 1131015002, 1131015003, 1131015004, 1131015005, 1131015009, 1131015010, 1131015011

Results by **SW8021B**

	Blank Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	1250	1440	115	1250	1450	116	(75-125)	0.19	(< 20)
Ethylbenzene	1250	1340	107	1250	1380	111	(75-125)	3.40	(< 20)
o-Xylene	1250	1310	105	1250	1350	108	(75-125)	3.10	(< 20)
P & M -Xylene	2500	2690	108	2500	2780	111	(80-125)	3.20	(< 20)
Toluene	1250	1370	110	1250	1410	112	(70-125)	2.40	(< 20)
Surrogates									
1,4-Difluorobenzene	1250	101	101	1250	98.8	99	(72-119)	2.00	

Batch Information

Analytical Batch: **VFC11379**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890 PID/FID**
Analyst: **ST**

Prep Batch: **VXX24590**
Prep Method: **SW5035A**
Prep Date/Time: **03/26/2013 08:00**
Spike Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL

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Matrix Spike Summary

Original Sample ID: 1131015010
MS Sample ID: 1142390 MS
MSD Sample ID: 1142391 MSD

Analysis Date: 03/26/2013 20:36
Analysis Date: 03/26/2013 20:54
Analysis Date: 03/26/2013 21:11
Matrix: Soil/Solid (dry weight)

QC for Samples: 1131015001, 1131015002, 1131015003, 1131015004, 1131015005, 1131015009, 1131015010, 1131015011

Results by **SW8021B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	8.59U	622	700	113	622	694	112	75-125	0.91	(< 20)
Ethylbenzene	17.2U	622	668	107	622	664	107	75-125	0.67	(< 20)
o-Xylene	17.2U	622	662	106	622	659	106	75-125	0.40	(< 20)
P & M -Xylene	34.4U	1249	1347	108	1249	1336	107	80-125	0.72	(< 20)
Toluene	17.2U	622	677	109	622	671	108	70-125	0.72	(< 20)
Surrogates										
1,4-Difluorobenzene		622	613	99	622	614	99	72-119	0.10	

Batch Information

Analytical Batch: VFC11379
Analytical Method: SW8021B
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 3/26/2013 8:54:00PM

Prep Batch: VXX24590
Prep Method: AK101 Extraction (S)
Prep Date/Time: 3/26/2013 8:00:00AM
Prep Initial Wt./Vol.: 110.04g
Prep Extract Vol: 25.00mL

Print Date: 07/11/2013 2:42:24PM

Method Blank

Blank ID: MB for HBN 1427061 [VXX/24594]
Blank Lab ID: 1142450

Matrix: Soil/Solid (dry weight)

QC for Samples:
1131015003

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.50U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene	94.8	50-150		%

Batch Information

Analytical Batch: VFC11380
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 3/29/2013 3:26:00AM

Prep Batch: VXX24594
Prep Method: SW5035A
Prep Date/Time: 3/28/2013 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1131015 [VXX24594]
Blank Spike Lab ID: 1142452
Date Analyzed: 03/29/2013 04:21

Spike Duplicate ID: LCSD for HBN 1131015 [VXX24594]
Spike Duplicate Lab ID: 1142454
Matrix: Soil/Solid (dry weight)

QC for Samples: 1131015003

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	10.0	10.3	103	10.0	9.51	95	(60-120)	7.80	(< 20)
Surrogates									
4-Bromofluorobenzene	1.25	96.7	97	1.25	94.5	95	(50-150)	2.30	

Batch Information

Analytical Batch: **VFC11380**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX24594**
Prep Method: **SW5035A**
Prep Date/Time: **03/28/2013 08:00**
Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1432358 [VXX/24616]
Blank Lab ID: 1144028

Matrix: Soil/Solid (dry weight)

QC for Samples:
1131015005, 1131015009

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	8.00U	12.5	4.00	ug/Kg
Surrogates				
1,4-Difluorobenzene	97.4	72-119		%

Batch Information

Analytical Batch: VFC11387
Analytical Method: SW8021B
Instrument: Agilent 7890 PID/FID
Analyst: EAB
Analytical Date/Time: 4/9/2013 3:08:00PM

Prep Batch: VXX24616
Prep Method: SW5035A
Prep Date/Time: 4/9/2013 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1131015 [VXX24616]
Blank Spike Lab ID: 1144029
Date Analyzed: 04/09/2013 15:26

Spike Duplicate ID: LCSD for HBN 1131015 [VXX24616]
Spike Duplicate Lab ID: 1144030
Matrix: Soil/Solid (dry weight)

QC for Samples: 1131015005, 1131015009

Results by **SW8021B**

	Blank Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	1250	1410	113	1250	1430	114	(75-125)	1.30	(< 20)
Surrogates									
1,4-Difluorobenzene	1250	98.8	99	1250	98.9	99	(72-119)	0.04	

Batch Information

Analytical Batch: **VFC11387**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890 PID/FID**
Analyst: **EAB**

Prep Batch: **VXX24616**
Prep Method: **SW5035A**
Prep Date/Time: **04/09/2013 08:00**
Spike Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL

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Matrix Spike Summary

Original Sample ID: 1144033
MS Sample ID: 1144034 MS
MSD Sample ID: 1144035 MSD

Analysis Date: 04/09/2013 21:28
Analysis Date: 04/09/2013 21:46
Analysis Date: 04/09/2013 22:04
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1131015005, 1131015009

Results by **SW8021B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	8.08U	1260	1280	101	1260	1270	100	75-125	0.58	(< 20)
Surrogates										
1,4-Difluorobenzene		1260	1230	98	1260	1240	98	72-119	0.50	

Batch Information

Analytical Batch: VFC11387
Analytical Method: SW8021B
Instrument: Agilent 7890 PID/FID
Analyst: EAB
Analytical Date/Time: 4/9/2013 9:46:00PM

Prep Batch: VXX24616
Prep Method: AK101 Extraction (S)
Prep Date/Time: 4/9/2013 8:00:00AM
Prep Initial Wt./Vol.: 98.92g
Prep Extract Vol: 25.00mL

Print Date: 07/11/2013 2:42:40PM

Method Blank

Blank ID: MB for HBN 1432364 [VXX/24618]
Blank Lab ID: 1144071

Matrix: Soil/Solid (dry weight)

QC for Samples:
1131015006, 1131015007, 1131015008

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.50U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene	80.9	50-150		%

Batch Information

Analytical Batch: VFC11388
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: EAB
Analytical Date/Time: 4/10/2013 12:55:00PM

Prep Batch: VXX24618
Prep Method: SW5035A
Prep Date/Time: 4/10/2013 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1131015 [VXX24618]
Blank Spike Lab ID: 1144074
Date Analyzed: 04/10/2013 16:29

Spike Duplicate ID: LCSD for HBN 1131015 [VXX24618]
Spike Duplicate Lab ID: 1144075
Matrix: Soil/Solid (dry weight)

QC for Samples: 1131015006, 1131015007, 1131015008

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	10.0	8.41	84	10.0	8.17	82	(60-120)	2.90	(< 20)
Surrogates									
4-Bromofluorobenzene	1.25	82.7	83	1.25	87.6	88	(50-150)	5.80	

Batch Information

Analytical Batch: **VFC11388**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **EAB**

Prep Batch: **VXX24618**
Prep Method: **SW5035A**
Prep Date/Time: **04/10/2013 08:00**
Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

Method Blank

Blank ID: MB for HBN 1432364 [VXX/24618]
Blank Lab ID: 1144071

Matrix: Soil/Solid (dry weight)

QC for Samples:
1131015006, 1131015007, 1131015008

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	8.00U	12.5	4.00	ug/Kg
Ethylbenzene	15.6U	25.0	7.80	ug/Kg
o-Xylene	15.6U	25.0	7.80	ug/Kg
P & M -Xylene	30.0U	50.0	15.0	ug/Kg
Toluene	15.6U	25.0	7.80	ug/Kg
Surrogates				
1,4-Difluorobenzene	95.8	72-119		%

Batch Information

Analytical Batch: VFC11388
Analytical Method: SW8021B
Instrument: Agilent 7890 PID/FID
Analyst: EAB
Analytical Date/Time: 4/10/2013 12:55:00PM

Prep Batch: VXX24618
Prep Method: SW5035A
Prep Date/Time: 4/10/2013 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 07/11/2013 2:42:47PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1131015 [VXX24618]
Blank Spike Lab ID: 1144072
Date Analyzed: 04/10/2013 15:53

Spike Duplicate ID: LCSD for HBN 1131015 [VXX24618]
Spike Duplicate Lab ID: 1144073
Matrix: Soil/Solid (dry weight)

QC for Samples: 1131015006, 1131015007, 1131015008

Results by **SW8021B**

	Blank Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	1250	1280	102	1250	1250	100	(75-125)	2.30	(< 20)
Ethylbenzene	1250	1210	97	1250	1190	95	(75-125)	2.00	(< 20)
o-Xylene	1250	1190	96	1250	1160	93	(75-125)	2.90	(< 20)
P & M -Xylene	2500	2420	97	2500	2370	95	(80-125)	2.20	(< 20)
Toluene	1250	1230	98	1250	1210	96	(70-125)	2.00	(< 20)
Surrogates									
1,4-Difluorobenzene	1250	99.2	99	1250	99.3	99	(72-119)	0.12	

Batch Information

Analytical Batch: **VFC11388**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890 PID/FID**
Analyst: **EAB**

Prep Batch: **VXX24618**
Prep Method: **SW5035A**
Prep Date/Time: **04/10/2013 08:00**
Spike Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL

Matrix Spike Summary

Original Sample ID: 1131015007
MS Sample ID: 1144076 MS
MSD Sample ID: 1144077 MSD

Analysis Date: 04/10/2013 13:13
Analysis Date: 04/10/2013 13:31
Analysis Date: 04/10/2013 13:48
Matrix: Soil/Solid (dry weight)

QC for Samples: 1131015006, 1131015007, 1131015008

Results by **SW8021B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	11.5U	737	726	98	737	799	108	75-125	9.70	(< 20)
Ethylbenzene	23.1U	737	691	94	737	765	104	75-125	10.10	(< 20)
o-Xylene	63.6	737	784	98	737	860	108	75-125	9.20	(< 20)
P & M -Xylene	46.1	1470	1435	94	1470	1587	105	80-125	10.10	(< 20)
Toluene	23.1U	737	715	97	737	788	107	70-125	9.70	(< 20)
Surrogates										
1,4-Difluorobenzene		737	723	98	737	723	98	72-119	0.02	

Batch Information

Analytical Batch: VFC11388
Analytical Method: SW8021B
Instrument: Agilent 7890 PID/FID
Analyst: EAB
Analytical Date/Time: 4/10/2013 1:31:00PM

Prep Batch: VXX24618
Prep Method: AK101 Extraction (S)
Prep Date/Time: 4/10/2013 8:00:00AM
Prep Initial Wt./Vol.: 98.92g
Prep Extract Vol: 25.00mL

Print Date: 07/11/2013 2:42:51PM

Method Blank

Blank ID: MB for HBN 1427958 [XXX/28840]
Blank Lab ID: 1142588

Matrix: Soil/Solid (dry weight)

QC for Samples:
1131015001, 1131015002, 1131015003, 1131015004, 1131015005, 1131015006, 1131015007, 1131015008, 1131015009, 1131015010

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	12.4U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane	88.9	60-120		%

Batch Information

Analytical Batch: XFC10851
Analytical Method: AK102
Instrument: HP 7890A FID SV E R
Analyst: EAB
Analytical Date/Time: 4/2/2013 11:44:00PM

Prep Batch: XXX28840
Prep Method: SW3550C
Prep Date/Time: 4/2/2013 10:00:00AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1131015 [XXX28840]
Blank Spike Lab ID: 1142589
Date Analyzed: 04/03/2013 00:05

Spike Duplicate ID: LCSD for HBN 1131015 [XXX28840]
Spike Duplicate Lab ID: 1142590
Matrix: Soil/Solid (dry weight)

QC for Samples: 1131015001, 1131015002, 1131015003, 1131015004, 1131015005, 1131015006, 1131015007, 1131015008, 1131015009, 1131015010

Results by **AK102**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	167	145	87	167	144	86	(75-125)	1.20	(< 20)
Surrogates									
5a Androstane	3.33	90.2	90	3.33	88.1	88	(60-120)	2.30	

Batch Information

Analytical Batch: **XFC10851**
Analytical Method: **AK102**
Instrument: **HP 7890A FID SV E R**
Analyst: **EAB**

Prep Batch: **XXX28840**
Prep Method: **SW3550C**
Prep Date/Time: **04/02/2013 10:00**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1427958 [XXX/28840]
Blank Lab ID: 1142588

Matrix: Soil/Solid (dry weight)

QC for Samples:
1131015001, 1131015002, 1131015003, 1131015004, 1131015005, 1131015006, 1131015007, 1131015008, 1131015009, 1131015010

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	12.4U	20.0	6.20	mg/Kg
Surrogates				
n-Triacontane-d62	87.7	60-120		%

Batch Information

Analytical Batch: XFC10851
Analytical Method: AK103
Instrument: HP 7890A FID SV E R
Analyst: EAB
Analytical Date/Time: 4/2/2013 11:44:00PM

Prep Batch: XXX28840
Prep Method: SW3550C
Prep Date/Time: 4/2/2013 10:00:00AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

Print Date: 07/11/2013 2:42:57PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1131015 [XXX28840]
Blank Spike Lab ID: 1142589
Date Analyzed: 04/03/2013 00:05

Spike Duplicate ID: LCSD for HBN 1131015 [XXX28840]
Spike Duplicate Lab ID: 1142590
Matrix: Soil/Solid (dry weight)

QC for Samples: 1131015001, 1131015002, 1131015003, 1131015004, 1131015005, 1131015006, 1131015007, 1131015008, 1131015009, 1131015010

Results by **AK103**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	167	161	97	167	156	94	(60-120)	3.50	(< 20)
Surrogates									
n-Triacontane-d62	3.33	86.2	86	3.33	83.4	83	(60-120)	3.30	

Batch Information

Analytical Batch: **XFC10851**
Analytical Method: **AK103**
Instrument: **HP 7890A FID SV E R**
Analyst: **EAB**

Prep Batch: **XXX28840**
Prep Method: **SW3550C**
Prep Date/Time: **04/02/2013 10:00**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1428658 [XXX/28845]
Blank Lab ID: 1142736

Matrix: Soil/Solid (dry weight)

QC for Samples:
1131015002, 1131015003

Results by **8270D SIMS (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	3.00U	5.00	1.50	ug/Kg
2-Methylnaphthalene	3.00U	5.00	1.50	ug/Kg
Acenaphthene	3.00U	5.00	1.50	ug/Kg
Acenaphthylene	3.00U	5.00	1.50	ug/Kg
Anthracene	3.00U	5.00	1.50	ug/Kg
Benzo(a)Anthracene	3.00U	5.00	1.50	ug/Kg
Benzo[a]pyrene	3.00U	5.00	1.50	ug/Kg
Benzo[b]Fluoranthene	3.00U	5.00	1.50	ug/Kg
Benzo[g,h,i]perylene	3.00U	5.00	1.50	ug/Kg
Benzo[k]fluoranthene	3.00U	5.00	1.50	ug/Kg
Chrysene	3.00U	5.00	1.50	ug/Kg
Dibenzo[a,h]anthracene	3.00U	5.00	1.50	ug/Kg
Fluoranthene	3.00U	5.00	1.50	ug/Kg
Fluorene	3.00U	5.00	1.50	ug/Kg
Indeno[1,2,3-c,d] pyrene	3.00U	5.00	1.50	ug/Kg
Naphthalene	3.00U	5.00	1.50	ug/Kg
Phenanthrene	3.00U	5.00	1.50	ug/Kg
Pyrene	3.00U	5.00	1.50	ug/Kg
Surrogates				
2-Fluorobiphenyl	73.5	45-105		%
Terphenyl-d14	118	30-125		%

Batch Information

Analytical Batch: XMS7257
Analytical Method: 8270D SIMS (PAH)
Instrument: HP 6890/5973 MS SVQA
Analyst: RTS
Analytical Date/Time: 4/2/2013 5:58:00PM

Prep Batch: XXX28845
Prep Method: SW3550C
Prep Date/Time: 4/2/2013 11:45:00AM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1131015 [XXX28845]
Blank Spike Lab ID: 1142737
Date Analyzed: 04/02/2013 18:16

Matrix: Soil/Solid (dry weight)

QC for Samples: 1131015002, 1131015003

Results by **8270D SIMS (PAH)**

	Blank Spike (ug/Kg)				
Parameter	Spike	Result	Rec (%)		CL
1-Methylnaphthalene	22.2	16.7	75		(44-107)
2-Methylnaphthalene	22.2	16.2	73		(45-105)
Acenaphthene	22.2	17.9	80		(45-110)
Acenaphthylene	22.2	17.3	78		(45-105)
Anthracene	22.2	17.8	80		(55-105)
Benzo(a)Anthracene	22.2	22.1	100		(50-110)
Benzo[a]pyrene	22.2	14.0	63		(50-110)
Benzo[b]Fluoranthene	22.2	21.4	96		(45-115)
Benzo[g,h,i]perylene	22.2	20.3	91		(40-125)
Benzo[k]fluoranthene	22.2	22.6	102		(45-125)
Chrysene	22.2	25.3	114	*	(55-110)
Dibenzo[a,h]anthracene	22.2	20.3	91		(40-125)
Fluoranthene	22.2	26.9	121	*	(55-115)
Fluorene	22.2	19.4	87		(50-110)
Indeno[1,2,3-c,d] pyrene	22.2	21.4	96		(40-120)
Naphthalene	22.2	16.3	73		(40-105)
Phenanthrene	22.2	22.3	101		(50-110)
Pyrene	22.2	26.1	118		(45-125)
Surrogates					
2-Fluorobiphenyl	22.2	70.3	70		(45-105)
Terphenyl-d14	22.2	114	114		(30-125)

Batch Information

Analytical Batch: **XMS7257**
Analytical Method: **8270D SIMS (PAH)**
Instrument: **HP 6890/5973 MS SVQA**
Analyst: **RTS**

Prep Batch: **XXX28845**
Prep Method: **SW3550C**
Prep Date/Time: **04/02/2013 11:45**
Spike Init Wt./Vol.: 22.2 ug/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1131015002
MS Sample ID: 1142738 MS
MSD Sample ID: 1142739 MSD

Analysis Date: 04/03/2013 19:51
Analysis Date: 04/03/2013 20:08
Analysis Date: 04/03/2013 20:26
Matrix: Soil/Solid (dry weight)

QC for Samples: 1131015002, 1131015003

Results by **8270D SIMS (PAH)**

		Matrix Spike (ug/Kg)				Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
1-Methylnaphthalene	33.9	27.4	62.7	105		27.4	71.8	138	*	44-107	13.70	(< 30)
2-Methylnaphthalene	25.7	27.4	55.6	109	*	27.4	62.8	135	*	45-105	12.20	(< 30)
Acenaphthene	12.2U	27.4	40.3	125	*	27.4	41.7	130	*	45-110	3.40	(< 30)
Acenaphthylene	12.2U	27.4	24.5	89		27.4	24.6	89		45-105	0.42	(< 30)
Anthracene	12.2U	27.4	24.5	89		27.4	23.6	86		55-105	3.50	(< 30)
Benzo(a)Anthracene	12.2U	27.4	26.1	95		27.4	28.2	103		50-110	7.90	(< 30)
Benzo[a]pyrene	12.2U	27.4	21.8	79		27.4	22.9	84		50-110	5.40	(< 30)
Benzo[b]Fluoranthene	12.2U	27.4	21.6	79		27.4	25.2	92		45-115	15.50	(< 30)
Benzo[g,h,i]perylene	12.2U	27.4	22.2	81		27.4	24.0	88		40-125	7.50	(< 30)
Benzo[k]fluoranthene	12.2U	27.4	26.3	96		27.4	28.6	104		45-125	8.00	(< 30)
Chrysene	12.2U	27.4	27.2	100		27.4	30.0	110		55-110	9.90	(< 30)
Dibenzo[a,h]anthracene	12.2U	27.4	22.9	83		27.4	23.2	85		40-125	1.80	(< 30)
Fluoranthene	12.2U	27.4	35.4	101		27.4	37.7	110		55-115	6.70	(< 30)
Fluorene	12.2U	27.4	30.0	88		27.4	30.0	88		50-110	0.23	(< 30)
Indeno[1,2,3-c,d] pyrene	12.2U	27.4	22.7	83		27.4	25.3	92		40-120	10.70	(< 30)
Naphthalene	12.2U	27.4	36.7	134	*	27.4	37.5	136	*	40-105	1.80	(< 30)
Phenanthrene	12.2U	27.4	31.6	81		27.4	34.6	91		50-110	9.00	(< 30)
Pyrene	12.2U	27.4	33.1	102		27.4	35.2	110		45-125	6.30	(< 30)
Surrogates												
2-Fluorobiphenyl		27.4	23.7	87		27.4	23.4	85		45-105	1.60	
Terphenyl-d14		27.4	28.2	103		27.4	28.4	104		30-125	0.87	

Batch Information

Analytical Batch: XMS7258
Analytical Method: 8270D SIMS (PAH)
Instrument: HP 6890/5973 MS SVQA
Analyst: RTS
Analytical Date/Time: 4/3/2013 8:08:00PM

Prep Batch: XXX28845
Prep Method: Sonication Extraction Soil 8270 PAH SIM
Prep Date/Time: 4/2/2013 11:45:00AM
Prep Initial Wt./Vol.: 22.57g
Prep Extract Vol: 1.00mL

Print Date: 07/11/2013 2:43:06PM

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CHAIN OF CUSTODY RECORD

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

Page 1 of 2

1

CLIENT: BGES

CONTACT: Joshua Bass PHONE NO: (907) 644-2900

PROJECT NAME: Talkeetna PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Jayne Morton E-MAIL: josh@bgesinc.com

INVOICE TO: BGES QUOTE #: P.O. #:

2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Preservative Used: 3 TYPE C = COMP G = GRAB MI = Multi Incremental Soils			MeOH	-	-						REMARKS/ LOC ID
									GRO/DRO/BTEX AK101/8021B	DRO/RRO AK102/AK103	PAHs 8270 SIM						
1 A-B	SB1-4-0319	3/19/13	1130	S	2	G			X	X							
2 A-C	SB2-4-0319	3/19/13	1310	S	3	G			X	X	X						
3 A-C	SB2-11-0319	3/19/13	1310	S	3	G			X	X	X						
4 A-B	SB3-4-0319	3/19/13	1505	S	2	G			X	X							
5 A-B	SB4-4-0319	3/19/13	1700	S	2	G			X	X							
6 A-B	SB5-4-0320	3/20/13	1045	S	2	G			X	X							
7 A-B	SB6-4-0320	3/20/13	1230	S	2	G			X	X							
8 A-B	SB7-5-0320	3/20/13	1410	S	2	G			X	X							
9 A-B	~~SB8~~ SB8-4-0320	3/20/13	1550	S	2	G			X	X							
10 A-B	SB9-4-0320	3/20/13	1710	S	2	G			X	X							

5

Relinquished By:	Date	Time	Received By:
(1)	3/21	9:20	
(2)			
(3)			
(4)	3/21/13	0920	Received For Laboratory By:

4

DOD Project? YES (NO)

Cooler ID:

Data Deliverable Requirements: Level 2

Requested Turnaround Time and-or Special Instructions:
Standard [Please dispose of all methanol jars not on coc.]

Temp Blank °C: 5.7 # 35
or Ambient [ ]
(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)
INTACT BROKEN (ABSENT)
(See attached Sample Receipt Form)

SGS-00082 (6/12)

[ ] 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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CHAIN OF CUSTODY RECORD

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

Page 2 of 2

(1)
CLIENT: BGES
CONTACT: Joshua Barss PHONE NO: (907)644-2900
PROJECT NAME: Talkeetna PROJECT/PWSID/PERMIT#:
REPORTS TO: Jayne Martin E-MAIL: josh@bgesinc.com
INVOICE TO: BGES QUOTE #:
P.O. #:

(2) (3)

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Preservative Used: TYPE C = COMP G = GRAB MI = Multi Incre-mental Soils		GRO/BTEX AK101/8021B MeOH								REMARKS/ LOC ID
(11) A	Trip Blank	-	-	S	1	-		X								

(5)

Relinquished By: (1)	Date 3/21	Time 920	Received By:
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date 3/21/13	Time 0920	Received For Laboratory By:

(4) DOD Project? YES (NO)
Cooler ID:

Data Deliverable Requirements: level 2

Requested Turnaround Time and-or Special Instructions:
Standard: Dispose of jars not on COC.

Temp Blank °C: 5.7 #35
or Ambient [ ]
(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)
INTACT BROKEN (ABSENT)
(See attached Sample Receipt Form)

SGS-00082 (6/12)

[ ] 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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F083-Kit_Request_and_COC_Templates-Blank
Revised 04-04-2012

SGS

1131015

SAMPLE RECEIPT FORM

Review Criteria:	Condition:	Comments/Action Taken:
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	~~Yes~~ No (N/A) (Yes) No N/A	
Temperature blank compliant* (i.e., 0-6°C after CF)? ** Note: Exemption permitted for chilled samples collected less than 8 hours ago.* Cooler ID: 1 @ 5.7 w/ Therm.ID: 35 Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ *Note: If non-compliant, use form FS-0029 to document affected samples/analyses.* If samples are received without 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." **If temperature(s) <0°C, were all sample containers ice free?**	(Yes) No N/A Yes No (N/A)	
Delivery method (specify all that apply): (Client) USPS Alert Courier C&D Delivery ~~AK Air~~ Lynden Carlile ERA PenAir FedEx UPS NAC Other: → *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?*	Note ABN/ tracking # See Attached or (N/A) Yes No (N/A)	
→ For samples received with payment, note amount ($) and cash / check / CC **(circle one)** or note: (N/A) → For samples **received in FBKS**, ANCH staff will verify all criteria are reviewed.	SRF Initiated by: N/A	
Were samples received within hold time? *Note: Refer to form F-083 "Sample Guide" for hold time information.* Do samples **match COC*** (i.e., sample IDs, dates/times collected)? ** Note: Exemption permitted if times differ <1hr; in that case, use times on COC.* Were analyses requested unambiguous?	(Yes) No N/A (Yes) No N/A (Yes) No N/A	
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): Bubble Wrap Separate plastic bags Vermiculite Other:	(Yes) No N/A	
Were all VOA vials **free of headspace** (i.e., bubbles ≤6 mm)? Were all soil VOAs **field extracted** with MeOH+BFB?	Yes No (N/A) (Yes) No N/A	
Were **proper containers** (type/mass/volume/preservative*) used? ** Note: Exemption permitted for waters to be analyzed for metals.* Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	(Yes) No N/A (Yes) No N/A	
For **special handling** (e.g., "MI" or foreign soils, lab filter, limited volume, Ref Lab), were bottles/paperwork flagged (e.g., sticker)?	Yes No (N/A)	
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was **pH verified and compliant**? If pH was adjusted, were bottles flagged (i.e., stickers)?	Yes No (N/A) Yes No (N/A)	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	Yes No (N/A)	
For **SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP**, were containers / paperwork flagged accordingly?	Yes No (N/A)	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	Yes No (N/A)	SRF Completed by: PM = N/A
Was **PEER REVIEW** of ***sample numbering/labeling completed?***	Yes No (N/A)	Peer Reviewed by: N/A
Additional notes (if applicable):		

Note to Client: Any "no" circled above indicates non-compliance with standard procedures and may impact data quality.

Returned Bottles Inventory

Name of individual returning bottles: Joshua Barsis

Date Received: 3/21/13

Client Name: BGES

Received by: SAM

Project Name:

SGS PM: Heather

Preservative:	unpres.	H2SO4	HCl	HNO3	NaOH	other	vials of MeOH
HDPE/Nalgene:							
1-L							
500-ml							
250-ml							
125-ml							
other							
Amber Glass:							
1-L BR							
500-ml BR							
250-ml BR							
125-ml BR							
8-oz SS							
4-oz SS							
4-oz w/ septa						31 w/ MeOH	
40-ml VOA vial							
other							
Subtotal:						31	

~~~ The bottom of this form should be completed by the Project Manager, who will determine how apply charges. ~~~

Note: Returned bottles (regardless of size/pres.) are billed back at $4/bottle ***unless otherwise quoted.***
These prices are only for bottles returned to the lab for disposal.
Unused/unreturned bottles are billed separately. Please see Accounting for current price list.

Amount to Invoice Client: $ 124.00

WO#: WO# 131015

Laboratory Report of Analysis

To: BGES Inc.
1042 E 6th Ave
Anchorage, AK 99501
(907)644-2900

Report Number: **1132382**

Client Project: **Talkeetna**

Dear Jayne Martin,

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 five 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 Heather 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.

Heather L. Hall
2013.06.28 13:41:51 -08'00'

SGS North America Inc.
Environmental Services – Alaska Division
Quality Service Manager

Heather Hall Date
Project Manager
Heather.Hall@sgs.com

Print Date: 06/28/2013 12:56:26PM

Case Narrative

SGS Client: **BGES Inc.**
SGS Project: **1132382**
Project Name/Site: **Talkeetna**
Project Contact: **Jayne Martin**

Refer to sample receipt form for information on sample condition.

MW8-0613 (1132382001) PS

AK102 - The pattern is consistent with a weathered gasoline.
AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.
8021B - 1,4-difluorobenzene (surrogate) recoveries do not meet QC criteria (biased high) due to matrix interference.
AK101/8021B - BFB and 1,4-difluorobenzene (surrogate) recoveries do not meet QC criteria (biased high) due to matrix interference.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

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

Report of Manual Integrations

Laboratory ID	Client Sample ID	Analytical Batch	Analyte	Reason
SW8260B				
1132382003	MW22-0613	VMS13559	4-Isopropyltoluene	SP
1132382004	MW23-0613	VMS13559	4-Isopropyltoluene	SP

Manual Integration Reason Code Descriptions

Code	Description
O	Original Chromatogram
M	Modified Chromatogram
SS	Skimmed surrogate
BLG	Closed baseline gap
RP	Reassign peak name
PIR	Pattern integration required
IT	Included tail
SP	Split peak
RSP	Removed split peak
FPS	Forced peak start/stop
BLC	Baseline correction
PNF	Peak not found by software

All DRO/RRO analysis are integrated per SOP.

Print Date: 06/28/2013 12:56:28PM

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. If you have any questions regarding this report, or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343. All work is provided under SGS general terms and conditions (<http://www.sgs.com/terms_and_conditions.htm>), unless other written agreements have been accepted by both parties.

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: 1020A, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035B, 6020, 7470A, 7471B, 8021B, 8082A, 8260B, 8270D, 8270D-SIM, 9040B, 9045C, 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	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., 2xDL)
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.

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
MW8-0613	1132382001	06/13/2013	06/14/2013	Water (Surface, Eff., Ground)
MW10-0613	1132382002	06/13/2013	06/14/2013	Water (Surface, Eff., Ground)
MW22-0613	1132382003	06/13/2013	06/14/2013	Water (Surface, Eff., Ground)
MW23-0613	1132382004	06/13/2013	06/14/2013	Water (Surface, Eff., Ground)
Trip Blank	1132382005	06/13/2013	06/14/2013	Water (Surface, Eff., Ground)

Method	Method Description
8270D SIMS (PAH)	8270 PAH SIM Semi-Vol GC/MS Liq/Liq ext.
AK101	AK101/8021 Combo.
SW8021B	AK101/8021 Combo.
AK102	Diesel/Residual Range Organics Water
AK103	Diesel/Residual Range Organics Water
AK101	Gasoline Range Organics (W)
SW8260B	Volatile Organic Compounds (W) FULL

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Detectable Results Summary

Client Sample ID: **MW8-0613**
Lab Sample ID: 1132382001
Semivolatile Organic Fuels
Volatile Fuels

Parameter	Result	Units
Diesel Range Organics	1.92	mg/L
Benzene	3.83	ug/L
Ethylbenzene	5.54	ug/L
Gasoline Range Organics	2.89	mg/L
o-Xylene	7.77	ug/L
P & M -Xylene	5.07	ug/L
Toluene	3.06	ug/L

Client Sample ID: **MW10-0613**
Lab Sample ID: 1132382002
Volatile Fuels

Parameter	Result	Units
Benzene	1.29	ug/L
Ethylbenzene	3.02	ug/L
Gasoline Range Organics	1.26	mg/L
o-Xylene	6.23	ug/L
P & M -Xylene	3.63	ug/L
Toluene	2.05	ug/L

Client Sample ID: **MW22-0613**
Lab Sample ID: 1132382003
Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
Gasoline Range Organics	0.757	mg/L
4-Isopropyltoluene	1.22	ug/L
Chloromethane	2.51	ug/L

Client Sample ID: **MW23-0613**
Lab Sample ID: 1132382004
Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
Gasoline Range Organics	0.737	mg/L
4-Isopropyltoluene	1.24	ug/L
Chloromethane	1.32	ug/L

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Results of **MW8-0613**

Client Sample ID: **MW8-0613**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132382001
Lab Project ID: 1132382

Collection Date: 06/13/13 17:30
Received Date: 06/14/13 08:54
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	1.92		0.600	0.180	mg/L	1	06/18/13 13:48
Surrogates							
5a Androstane	99.5		50-150		%	1	06/18/13 13:48

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/18/13 13:48
Container ID: 1132382001-E

Prep Batch: XXX29178
Prep Method: SW3520C
Prep Date/Time: 06/17/13 10:00
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	0.500	U	0.500	0.150	mg/L	1	06/18/13 13:48
Surrogates							
n-Triacontane-d62	110		50-150		%	1	06/18/13 13:48

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK103
Analyst: HM
Analytical Date/Time: 06/18/13 13:48
Container ID: 1132382001-E

Prep Batch: XXX29178
Prep Method: SW3520C
Prep Date/Time: 06/17/13 10:00
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 12:56:32PM

Results of **MW8-0613**

Client Sample ID: **MW8-0613**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132382001
Lab Project ID: 1132382

Collection Date: 06/13/13 17:30
Received Date: 06/14/13 08:54
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	2.89		0.100	0.0310	mg/L	1	06/20/13 13:48
Surrogates							
4-Bromofluorobenzene	169	*	50-150		%	1	06/20/13 13:48

Batch Information

Analytical Batch: VFC11474
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/20/13 13:48
Container ID: 1132382001-C

Prep Batch: VXX24831
Prep Method: SW5030B
Prep Date/Time: 06/20/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	3.83		0.500	0.150	ug/L	1	06/20/13 13:48
Ethylbenzene	5.54		1.00	0.310	ug/L	1	06/20/13 13:48
o-Xylene	7.77		1.00	0.310	ug/L	1	06/20/13 13:48
P & M -Xylene	5.07		2.00	0.620	ug/L	1	06/20/13 13:48
Toluene	3.06		1.00	0.310	ug/L	1	06/20/13 13:48
Surrogates							
1,4-Difluorobenzene	124	*	77-115		%	1	06/20/13 13:48

Batch Information

Analytical Batch: VFC11474
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 06/20/13 13:48
Container ID: 1132382001-C

Prep Batch: VXX24831
Prep Method: SW5030B
Prep Date/Time: 06/20/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/28/2013 12:56:32PM

Results of **MW10-0613**

Client Sample ID: **MW10-0613**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132382002
Lab Project ID: 1132382

Collection Date: 06/13/13 15:30
Received Date: 06/14/13 08:54
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	0.600	U	0.600	0.180	mg/L	1	06/18/13 14:08
Surrogates							
5a Androstane	84.7		50-150		%	1	06/18/13 14:08

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/18/13 14:08
Container ID: 1132382002-E

Prep Batch: XXX29178
Prep Method: SW3520C
Prep Date/Time: 06/17/13 10:00
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	0.500	U	0.500	0.150	mg/L	1	06/18/13 14:08
Surrogates							
n-Triacontane-d62	90.2		50-150		%	1	06/18/13 14:08

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK103
Analyst: HM
Analytical Date/Time: 06/18/13 14:08
Container ID: 1132382002-E

Prep Batch: XXX29178
Prep Method: SW3520C
Prep Date/Time: 06/17/13 10:00
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 12:56:32PM

Results of **MW10-0613**

Client Sample ID: **MW10-0613**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132382002
Lab Project ID: 1132382

Collection Date: 06/13/13 15:30
Received Date: 06/14/13 08:54
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	1.26		0.100	0.0310	mg/L	1	06/18/13 21:04
Surrogates							
4-Bromofluorobenzene	137		50-150		%	1	06/18/13 21:04

Batch Information

Analytical Batch: VFC11468
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/18/13 21:04
Container ID: 1132382002-A

Prep Batch: VXX24821
Prep Method: SW5030B
Prep Date/Time: 06/18/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	1.29		0.500	0.150	ug/L	1	06/18/13 21:04
Ethylbenzene	3.02		1.00	0.310	ug/L	1	06/18/13 21:04
o-Xylene	6.23		1.00	0.310	ug/L	1	06/18/13 21:04
P & M -Xylene	3.63		2.00	0.620	ug/L	1	06/18/13 21:04
Toluene	2.05		1.00	0.310	ug/L	1	06/18/13 21:04
Surrogates							
1,4-Difluorobenzene	102		77-115		%	1	06/18/13 21:04

Batch Information

Analytical Batch: VFC11468
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 06/18/13 21:04
Container ID: 1132382002-A

Prep Batch: VXX24821
Prep Method: SW5030B
Prep Date/Time: 06/18/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/28/2013 12:56:32PM

Results of **MW22-0613**

Client Sample ID: **MW22-0613**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132382003
Lab Project ID: 1132382

Collection Date: 06/13/13 12:30
Received Date: 06/14/13 08:54
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
1-Methylnaphthalene	0.0521	U	0.0521	0.0156	ug/L	1	06/18/13 20:32
2-Methylnaphthalene	0.0521	U	0.0521	0.0156	ug/L	1	06/18/13 20:32
Acenaphthene	0.0521	U	0.0521	0.0156	ug/L	1	06/18/13 20:32
Acenaphthylene	0.0521	U	0.0521	0.0156	ug/L	1	06/18/13 20:32
Anthracene	0.0521	U	0.0521	0.0156	ug/L	1	06/18/13 20:32
Benzo(a)Anthracene	0.0521	U	0.0521	0.0156	ug/L	1	06/18/13 20:32
Benzo[a]pyrene	0.0521	U	0.0521	0.0156	ug/L	1	06/18/13 20:32
Benzo[b]Fluoranthene	0.0521	U	0.0521	0.0156	ug/L	1	06/18/13 20:32
Benzo[g,h,i]perylene	0.0521	U	0.0521	0.0156	ug/L	1	06/18/13 20:32
Benzo[k]fluoranthene	0.0521	U	0.0521	0.0156	ug/L	1	06/18/13 20:32
Chrysene	0.0521	U	0.0521	0.0156	ug/L	1	06/18/13 20:32
Dibenzo[a,h]anthracene	0.0521	U	0.0521	0.0156	ug/L	1	06/18/13 20:32
Fluoranthene	0.0521	U	0.0521	0.0156	ug/L	1	06/18/13 20:32
Fluorene	0.0521	U	0.0521	0.0156	ug/L	1	06/18/13 20:32
Indeno[1,2,3-c,d] pyrene	0.0521	U	0.0521	0.0156	ug/L	1	06/18/13 20:32
Naphthalene	0.104	U	0.104	0.0323	ug/L	1	06/18/13 20:32
Phenanthrene	0.0521	U	0.0521	0.0156	ug/L	1	06/18/13 20:32
Pyrene	0.0521	U	0.0521	0.0156	ug/L	1	06/18/13 20:32
Surrogates							
2-Fluorobiphenyl	74.8		50-110		%	1	06/18/13 20:32
Terphenyl-d14	93		50-135		%	1	06/18/13 20:32

Batch Information

Analytical Batch: XMS7378
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 06/18/13 20:32
Container ID: 1132382003-I

Prep Batch: XXX29186
Prep Method: SW3520C
Prep Date/Time: 06/18/13 09:35
Prep Initial Wt./Vol.: 960 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 12:56:32PM

Results of **MW22-0613**

Client Sample ID: **MW22-0613**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132382003
Lab Project ID: 1132382

Collection Date: 06/13/13 12:30
Received Date: 06/14/13 08:54
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	0.600	U	0.600	0.180	mg/L	1	06/18/13 14:29
Surrogates							
5a Androstane	83.8		50-150		%	1	06/18/13 14:29

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/18/13 14:29
Container ID: 1132382003-G

Prep Batch: XXX29178
Prep Method: SW3520C
Prep Date/Time: 06/17/13 10:00
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	0.500	U	0.500	0.150	mg/L	1	06/18/13 14:29
Surrogates							
n-Triacontane-d62	90.4		50-150		%	1	06/18/13 14:29

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK103
Analyst: HM
Analytical Date/Time: 06/18/13 14:29
Container ID: 1132382003-G

Prep Batch: XXX29178
Prep Method: SW3520C
Prep Date/Time: 06/17/13 10:00
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 12:56:32PM

Results of **MW22-0613**

Client Sample ID: **MW22-0613**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132382003
Lab Project ID: 1132382

Collection Date: 06/13/13 12:30
Received Date: 06/14/13 08:54
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	0.757		0.100	0.0310	mg/L	1	06/20/13 14:07
Surrogates							
4-Bromofluorobenzene	123		50-150		%	1	06/20/13 14:07

Batch Information

Analytical Batch: VFC11474
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/20/13 14:07
Container ID: 1132382003-E

Prep Batch: VXX24831
Prep Method: SW5030B
Prep Date/Time: 06/20/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MW22-0613**

Client Sample ID: **MW22-0613**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132382003
Lab Project ID: 1132382

Collection Date: 06/13/13 12:30
Received Date: 06/14/13 08:54
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1	06/18/13 18:14
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1	06/18/13 18:14
1,1,2-Trichloroethane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
1,2-Dibromo-3-chloropropane	2.00	U	2.00	0.620	ug/L	1	06/18/13 18:14
1,2-Dibromoethane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1	06/18/13 18:14
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
1,3-Dichloropropane	0.400	U	0.400	0.120	ug/L	1	06/18/13 18:14
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1	06/18/13 18:14
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1	06/18/13 18:14
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
2-Hexanone	10.0	U	10.0	3.10	ug/L	1	06/18/13 18:14
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
4-Isopropyltoluene	1.22		1.00	0.310	ug/L	1	06/18/13 18:14
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1	06/18/13 18:14
Benzene	0.400	U	0.400	0.120	ug/L	1	06/18/13 18:14
Bromobenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1	06/18/13 18:14
Bromoform	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
Bromomethane	3.00	U	3.00	0.940	ug/L	1	06/18/13 18:14
Carbon disulfide	2.00	U	2.00	0.620	ug/L	1	06/18/13 18:14
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1	06/18/13 18:14
Chloroethane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
Chloroform	1.00	U	1.00	0.300	ug/L	1	06/18/13 18:14
Chloromethane	2.51		1.00	0.310	ug/L	1	06/18/13 18:14
cis-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1	06/18/13 18:14
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1	06/18/13 18:14
Dibromomethane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14

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Results of **MW22-0613**

Client Sample ID: **MW22-0613**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132382003
Lab Project ID: 1132382

Collection Date: 06/13/13 12:30
Received Date: 06/14/13 08:54
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
Methyl-t-butyl ether	5.00	U	5.00	1.50	ug/L	1	06/18/13 18:14
Methylene chloride	5.00	U	5.00	1.00	ug/L	1	06/18/13 18:14
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
Naphthalene	2.00	U	2.00	0.620	ug/L	1	06/18/13 18:14
o-Xylene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1	06/18/13 18:14
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
Styrene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
Toluene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
Trichloroethene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
Vinyl chloride	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:14
Xylenes (total)	3.00	U	3.00	0.940	ug/L	1	06/18/13 18:14
Surrogates							
1,2-Dichloroethane-D4	104		70-120		%	1	06/18/13 18:14
4-Bromofluorobenzene	102		75-120		%	1	06/18/13 18:14
Toluene-d8	101		85-120		%	1	06/18/13 18:14

Batch Information

Analytical Batch: VMS13559
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 06/18/13 18:14
Container ID: 1132382003-C

Prep Batch: VXX24819
Prep Method: SW5030B
Prep Date/Time: 06/18/13 11:52
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/28/2013 12:56:32PM

Results of **MW23-0613**

Client Sample ID: **MW23-0613**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132382004
Lab Project ID: 1132382

Collection Date: 06/13/13 12:30
Received Date: 06/14/13 08:54
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
1-Methylnaphthalene	0.0500	U	0.0500	0.0150	ug/L	1	06/18/13 20:48
2-Methylnaphthalene	0.0500	U	0.0500	0.0150	ug/L	1	06/18/13 20:48
Acenaphthene	0.0500	U	0.0500	0.0150	ug/L	1	06/18/13 20:48
Acenaphthylene	0.0500	U	0.0500	0.0150	ug/L	1	06/18/13 20:48
Anthracene	0.0500	U	0.0500	0.0150	ug/L	1	06/18/13 20:48
Benzo(a)Anthracene	0.0500	U	0.0500	0.0150	ug/L	1	06/18/13 20:48
Benzo[a]pyrene	0.0500	U	0.0500	0.0150	ug/L	1	06/18/13 20:48
Benzo[b]Fluoranthene	0.0500	U	0.0500	0.0150	ug/L	1	06/18/13 20:48
Benzo[g,h,i]perylene	0.0500	U	0.0500	0.0150	ug/L	1	06/18/13 20:48
Benzo[k]fluoranthene	0.0500	U	0.0500	0.0150	ug/L	1	06/18/13 20:48
Chrysene	0.0500	U	0.0500	0.0150	ug/L	1	06/18/13 20:48
Dibenzo[a,h]anthracene	0.0500	U	0.0500	0.0150	ug/L	1	06/18/13 20:48
Fluoranthene	0.0500	U	0.0500	0.0150	ug/L	1	06/18/13 20:48
Fluorene	0.0500	U	0.0500	0.0150	ug/L	1	06/18/13 20:48
Indeno[1,2,3-c,d] pyrene	0.0500	U	0.0500	0.0150	ug/L	1	06/18/13 20:48
Naphthalene	0.100	U	0.100	0.0310	ug/L	1	06/18/13 20:48
Phenanthrene	0.0500	U	0.0500	0.0150	ug/L	1	06/18/13 20:48
Pyrene	0.0500	U	0.0500	0.0150	ug/L	1	06/18/13 20:48
Surrogates							
2-Fluorobiphenyl	67.4		50-110		%	1	06/18/13 20:48
Terphenyl-d14	93.7		50-135		%	1	06/18/13 20:48

Batch Information

Analytical Batch: XMS7378
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 06/18/13 20:48
Container ID: 1132382004-I

Prep Batch: XXX29186
Prep Method: SW3520C
Prep Date/Time: 06/18/13 09:35
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 12:56:32PM

Results of **MW23-0613**

Client Sample ID: **MW23-0613**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132382004
Lab Project ID: 1132382

Collection Date: 06/13/13 12:30
Received Date: 06/14/13 08:54
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	0.600	U	0.600	0.180	mg/L	1	06/18/13 14:49
Surrogates							
5a Androstane	83.5		50-150		%	1	06/18/13 14:49

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/18/13 14:49
Container ID: 1132382004-G

Prep Batch: XXX29178
Prep Method: SW3520C
Prep Date/Time: 06/17/13 10:00
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	0.500	U	0.500	0.150	mg/L	1	06/18/13 14:49
Surrogates							
n-Triacontane-d62	87		50-150		%	1	06/18/13 14:49

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK103
Analyst: HM
Analytical Date/Time: 06/18/13 14:49
Container ID: 1132382004-G

Prep Batch: XXX29178
Prep Method: SW3520C
Prep Date/Time: 06/17/13 10:00
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 12:56:32PM

Results of **MW23-0613**

Client Sample ID: **MW23-0613**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132382004
Lab Project ID: 1132382

Collection Date: 06/13/13 12:30
Received Date: 06/14/13 08:54
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	0.737		0.100	0.0310	mg/L	1	06/20/13 15:03
Surrogates							
4-Bromofluorobenzene	119		50-150		%	1	06/20/13 15:03

Batch Information

Analytical Batch: VFC11474
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/20/13 15:03
Container ID: 1132382004-E

Prep Batch: VXX24831
Prep Method: SW5030B
Prep Date/Time: 06/20/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/28/2013 12:56:32PM

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Results of **MW23-0613**

Client Sample ID: **MW23-0613**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132382004
Lab Project ID: 1132382

Collection Date: 06/13/13 12:30
Received Date: 06/14/13 08:54
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1	06/18/13 18:31
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1	06/18/13 18:31
1,1,2-Trichloroethane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
1,2-Dibromo-3-chloropropane	2.00	U	2.00	0.620	ug/L	1	06/18/13 18:31
1,2-Dibromoethane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1	06/18/13 18:31
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
1,3-Dichloropropane	0.400	U	0.400	0.120	ug/L	1	06/18/13 18:31
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1	06/18/13 18:31
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1	06/18/13 18:31
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
2-Hexanone	10.0	U	10.0	3.10	ug/L	1	06/18/13 18:31
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
4-Isopropyltoluene	1.24		1.00	0.310	ug/L	1	06/18/13 18:31
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1	06/18/13 18:31
Benzene	0.400	U	0.400	0.120	ug/L	1	06/18/13 18:31
Bromobenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1	06/18/13 18:31
Bromoform	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
Bromomethane	3.00	U	3.00	0.940	ug/L	1	06/18/13 18:31
Carbon disulfide	2.00	U	2.00	0.620	ug/L	1	06/18/13 18:31
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1	06/18/13 18:31
Chloroethane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
Chloroform	1.00	U	1.00	0.300	ug/L	1	06/18/13 18:31
Chloromethane	1.32		1.00	0.310	ug/L	1	06/18/13 18:31
cis-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1	06/18/13 18:31
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1	06/18/13 18:31
Dibromomethane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31

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Results of **MW23-0613**

Client Sample ID: **MW23-0613**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132382004
Lab Project ID: 1132382

Collection Date: 06/13/13 12:30
Received Date: 06/14/13 08:54
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
Methyl-t-butyl ether	5.00	U	5.00	1.50	ug/L	1	06/18/13 18:31
Methylene chloride	5.00	U	5.00	1.00	ug/L	1	06/18/13 18:31
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
Naphthalene	2.00	U	2.00	0.620	ug/L	1	06/18/13 18:31
o-Xylene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1	06/18/13 18:31
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
Styrene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
Toluene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
Trichloroethene	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
Vinyl chloride	1.00	U	1.00	0.310	ug/L	1	06/18/13 18:31
Xylenes (total)	3.00	U	3.00	0.940	ug/L	1	06/18/13 18:31
Surrogates							
1,2-Dichloroethane-D4	104		70-120		%	1	06/18/13 18:31
4-Bromofluorobenzene	102		75-120		%	1	06/18/13 18:31
Toluene-d8	101		85-120		%	1	06/18/13 18:31

Batch Information

Analytical Batch: VMS13559
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 06/18/13 18:31
Container ID: 1132382004-C

Prep Batch: VXX24819
Prep Method: SW5030B
Prep Date/Time: 06/18/13 11:52
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/28/2013 12:56:32PM

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132382005
Lab Project ID: 1132382

Collection Date: 06/13/13 12:30
Received Date: 06/14/13 08:54
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	0.100	U	0.100	0.0310	mg/L	1	06/18/13 17:55
Surrogates							
4-Bromofluorobenzene	99.1		50-150		%	1	06/18/13 17:55

Batch Information

Analytical Batch: VFC11468
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/18/13 17:55
Container ID: 1132382005-B

Prep Batch: VXX24820
Prep Method: SW5030B
Prep Date/Time: 06/18/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132382005
Lab Project ID: 1132382

Collection Date: 06/13/13 12:30
Received Date: 06/14/13 08:54
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1	06/17/13 18:04
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1	06/17/13 18:04
1,1,2-Trichloroethane	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
1,2-Dibromo-3-chloropropane	2.00	U	2.00	0.620	ug/L	1	06/17/13 18:04
1,2-Dibromoethane	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1	06/17/13 18:04
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
1,3-Dichloropropane	0.400	U	0.400	0.120	ug/L	1	06/17/13 18:04
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1	06/17/13 18:04
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1	06/17/13 18:04
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
2-Hexanone	10.0	U	10.0	3.10	ug/L	1	06/17/13 18:04
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1	06/17/13 18:04
Benzene	0.400	U	0.400	0.120	ug/L	1	06/17/13 18:04
Bromobenzene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1	06/17/13 18:04
Bromoform	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
Bromomethane	3.00	U	3.00	0.940	ug/L	1	06/17/13 18:04
Carbon disulfide	2.00	U	2.00	0.620	ug/L	1	06/17/13 18:04
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1	06/17/13 18:04
Chloroethane	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
Chloroform	1.00	U	1.00	0.300	ug/L	1	06/17/13 18:04
Chloromethane	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
cis-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1	06/17/13 18:04
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1	06/17/13 18:04
Dibromomethane	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132382005
Lab Project ID: 1132382

Collection Date: 06/13/13 12:30
Received Date: 06/14/13 08:54
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
Methyl-t-butyl ether	5.00	U	5.00	1.50	ug/L	1	06/17/13 18:04
Methylene chloride	5.00	U	5.00	1.00	ug/L	1	06/17/13 18:04
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
Naphthalene	2.00	U	2.00	0.620	ug/L	1	06/17/13 18:04
o-Xylene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1	06/17/13 18:04
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
Styrene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
Toluene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
Trichloroethene	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
Vinyl chloride	1.00	U	1.00	0.310	ug/L	1	06/17/13 18:04
Xylenes (total)	3.00	U	3.00	0.940	ug/L	1	06/17/13 18:04
Surrogates							
1,2-Dichloroethane-D4	107		70-120		%	1	06/17/13 18:04
4-Bromofluorobenzene	103		75-120		%	1	06/17/13 18:04
Toluene-d8	98.4		85-120		%	1	06/17/13 18:04

Batch Information

Analytical Batch: VMS13558
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 06/17/13 18:04
Container ID: 1132382005-C

Prep Batch: VXX24816
Prep Method: SW5030B
Prep Date/Time: 06/17/13 15:29
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/28/2013 12:56:32PM

Method Blank

Blank ID: MB for HBN 1455296 [VXX/24816]
Blank Lab ID: 1153408

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1132382005

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.300U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.620U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.300U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.620U	1.00	0.310	ug/L
1,1-Dichloroethane	0.620U	1.00	0.310	ug/L
1,1-Dichloroethene	0.620U	1.00	0.310	ug/L
1,1-Dichloropropene	0.620U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.620U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.620U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.620U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.620U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	1.24U	2.00	0.620	ug/L
1,2-Dibromoethane	0.620U	1.00	0.310	ug/L
1,2-Dichlorobenzene	0.620U	1.00	0.310	ug/L
1,2-Dichloroethane	0.300U	0.500	0.150	ug/L
1,2-Dichloropropane	0.620U	1.00	0.310	ug/L
1,3,5-Trimethylbenzene	0.620U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.620U	1.00	0.310	ug/L
1,3-Dichloropropane	0.240U	0.400	0.120	ug/L
1,4-Dichlorobenzene	0.300U	0.500	0.150	ug/L
2,2-Dichloropropane	0.620U	1.00	0.310	ug/L
2-Butanone (MEK)	6.20U	10.0	3.10	ug/L
2-Chlorotoluene	0.620U	1.00	0.310	ug/L
2-Hexanone	6.20U	10.0	3.10	ug/L
4-Chlorotoluene	0.620U	1.00	0.310	ug/L
4-Isopropyltoluene	0.620U	1.00	0.310	ug/L
4-Methyl-2-pentanone (MIBK)	6.20U	10.0	3.10	ug/L
Benzene	0.240U	0.400	0.120	ug/L
Bromobenzene	0.620U	1.00	0.310	ug/L
Bromochloromethane	0.620U	1.00	0.310	ug/L
Bromodichloromethane	0.300U	0.500	0.150	ug/L
Bromoform	0.620U	1.00	0.310	ug/L
Bromomethane	1.88U	3.00	0.940	ug/L
Carbon disulfide	1.24U	2.00	0.620	ug/L
Carbon tetrachloride	0.620U	1.00	0.310	ug/L
Chlorobenzene	0.300U	0.500	0.150	ug/L
Chloroethane	0.620U	1.00	0.310	ug/L
Chloroform	0.600U	1.00	0.300	ug/L

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Blank ID: MB for HBN 1455296 [VXX/24816]
Blank Lab ID: 1153408

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1132382005

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.690J	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.620U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.300U	0.500	0.150	ug/L
Dibromochloromethane	0.300U	0.500	0.150	ug/L
Dibromomethane	0.620U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.620U	1.00	0.310	ug/L
Ethylbenzene	0.620U	1.00	0.310	ug/L
Hexachlorobutadiene	0.320J	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.620U	1.00	0.310	ug/L
Methylene chloride	2.00U	5.00	1.00	ug/L
Methyl-t-butyl ether	3.00U	5.00	1.50	ug/L
Naphthalene	1.24U	2.00	0.620	ug/L
n-Butylbenzene	0.620U	1.00	0.310	ug/L
n-Propylbenzene	0.620U	1.00	0.310	ug/L
o-Xylene	0.620U	1.00	0.310	ug/L
P & M -Xylene	1.24U	2.00	0.620	ug/L
sec-Butylbenzene	0.620U	1.00	0.310	ug/L
Styrene	0.620U	1.00	0.310	ug/L
tert-Butylbenzene	0.620U	1.00	0.310	ug/L
Tetrachloroethene	0.620U	1.00	0.310	ug/L
Toluene	0.620U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.620U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.620U	1.00	0.310	ug/L
Trichloroethene	0.620U	1.00	0.310	ug/L
Trichlorofluoromethane	0.620U	1.00	0.310	ug/L
Vinyl chloride	0.620U	1.00	0.310	ug/L
Xylenes (total)	1.88U	3.00	0.940	ug/L
Surrogates				
1,2-Dichloroethane-D4	105	70-120		%
4-Bromofluorobenzene	104	75-120		%
Toluene-d8	98.2	85-120		%

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Method Blank

Blank ID: MB for HBN 1455296 [VXX/24816]
Blank Lab ID: 1153408

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1132382005

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS13558
Analytical Method: SW8260B
Instrument: VPA 780/5975 GC/MS
Analyst: NRB
Analytical Date/Time: 6/17/2013 4:04:00PM

Prep Batch: VXX24816
Prep Method: SW5030B
Prep Date/Time: 6/17/2013 3:29:00PM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/28/2013 12:56:35PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1132382 [VXX24816]
Blank Spike Lab ID: 1153409
Date Analyzed: 06/17/2013 16:21

Spike Duplicate ID: LCSD for HBN 1132382 [VXX24816]
Spike Duplicate Lab ID: 1153410
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1132382005

Results by **SW8260B**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	33.5	112	30	34.7	116	(80-130)	3.50	(< 20)
1,1,1-Trichloroethane	30	31.2	104	30	32.1	107	(65-130)	2.80	(< 20)
1,1,2,2-Tetrachloroethane	30	33.7	112	30	34.1	114	(65-130)	1.20	(< 20)
1,1,2-Trichloroethane	30	33.1	110	30	33.6	112	(75-125)	1.60	(< 20)
1,1-Dichloroethane	30	32.4	108	30	32.8	109	(70-135)	1.20	(< 20)
1,1-Dichloroethene	30	30.6	102	30	31.7	106	(70-130)	3.40	(< 20)
1,1-Dichloropropene	30	31.1	104	30	31.9	106	(75-130)	2.60	(< 20)
1,2,3-Trichlorobenzene	30	32.1	107	30	33.6	112	(55-140)	4.50	(< 20)
1,2,3-Trichloropropane	30	33.3	111	30	33.8	113	(75-125)	1.50	(< 20)
1,2,4-Trichlorobenzene	30	31.6	105	30	32.9	110	(65-135)	4.10	(< 20)
1,2,4-Trimethylbenzene	30	30.4	101	30	31.4	105	(75-130)	3.20	(< 20)
1,2-Dibromo-3-chloropropane	30	33.5	112	30	34.7	116	(50-130)	3.50	(< 20)
1,2-Dibromoethane	30	33.3	111	30	33.9	113	(80-120)	1.90	(< 20)
1,2-Dichlorobenzene	30	31.1	104	30	32.1	107	(70-120)	3.40	(< 20)
1,2-Dichloroethane	30	32.3	108	30	32.7	109	(70-130)	1.40	(< 20)
1,2-Dichloropropane	30	33.5	112	30	34.4	115	(75-125)	2.40	(< 20)
1,3,5-Trimethylbenzene	30	30.5	102	30	31.6	105	(75-130)	3.30	(< 20)
1,3-Dichlorobenzene	30	31.3	104	30	32.4	108	(75-125)	3.60	(< 20)
1,3-Dichloropropane	30	33.3	111	30	34.0	113	(75-125)	2.20	(< 20)
1,4-Dichlorobenzene	30	31.8	106	30	32.5	108	(75-125)	2.20	(< 20)
2,2-Dichloropropane	30	31.8	106	30	32.6	109	(70-135)	2.20	(< 20)
2-Butanone (MEK)	90	105	117	90	109	121	(30-150)	3.60	(< 20)
2-Chlorotoluene	30	33.2	111	30	34.3	114	(75-125)	3.40	(< 20)
2-Hexanone	90	105	116	90	109	121	(55-130)	3.60	(< 20)
4-Chlorotoluene	30	34.3	114	30	34.0	113	(75-130)	0.79	(< 20)
4-Isopropyltoluene	30	29.6	99	30	30.9	103	(75-130)	4.30	(< 20)
4-Methyl-2-pentanone (MIBK)	90	102	114	90	106	118	(60-135)	3.20	(< 20)
Benzene	30	33.5	112	30	34.4	115	(80-120)	2.40	(< 20)
Bromobenzene	30	32.2	107	30	32.7	109	(75-125)	1.50	(< 20)
Bromochloromethane	30	31.8	106	30	32.7	109	(65-130)	2.90	(< 20)
Bromodichloromethane	30	32.1	107	30	32.9	110	(75-120)	2.40	(< 20)
Bromoform	30	32.0	107	30	33.1	110	(70-130)	3.20	(< 20)
Bromomethane	30	29.7	99	30	30.9	103	(30-145)	4.00	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1132382 [VXX24816]
Blank Spike Lab ID: 1153409
Date Analyzed: 06/17/2013 16:21

Spike Duplicate ID: LCSD for HBN 1132382 [VXX24816]
Spike Duplicate Lab ID: 1153410
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1132382005

Results by **SW8260B**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon disulfide	45	44.9	100	45	46.7	104	(35-160)	4.10	(< 20)
Carbon tetrachloride	30	30.6	102	30	31.6	105	(65-140)	3.20	(< 20)
Chlorobenzene	30	32.9	110	30	33.9	113	(80-120)	3.00	(< 20)
Chloroethane	30	25.7	86	30	26.8	89	(60-135)	4.10	(< 20)
Chloroform	30	30.4	101	30	31.2	104	(65-135)	2.50	(< 20)
Chloromethane	30	29.3	98	30	30.1	100	(40-125)	2.80	(< 20)
cis-1,2-Dichloroethene	30	31.7	106	30	32.6	109	(70-125)	2.70	(< 20)
cis-1,3-Dichloropropene	30	33.5	112	30	34.3	114	(70-130)	2.30	(< 20)
Dibromochloromethane	30	32.2	107	30	33.2	111	(60-135)	3.10	(< 20)
Dibromomethane	30	30.3	101	30	30.9	103	(75-125)	1.90	(< 20)
Dichlorodifluoromethane	30	27.2	91	30	28.4	95	(30-155)	4.20	(< 20)
Ethylbenzene	30	30.8	103	30	31.7	106	(75-125)	2.80	(< 20)
Hexachlorobutadiene	30	28.1	94	30	30.2	101	(50-140)	7.00	(< 20)
Isopropylbenzene (Cumene)	30	30.5	102	30	31.6	105	(75-125)	3.40	(< 20)
Methyl-t-butyl ether	45	51.3	114	45	52.1	116	(65-125)	1.70	(< 20)
Methylene chloride	30	32.5	108	30	33.5	112	(55-140)	3.00	(< 20)
n-Butylbenzene	30	29.5	98	30	30.8	103	(70-135)	4.50	(< 20)
n-Propylbenzene	30	30.4	101	30	31.7	106	(70-130)	4.20	(< 20)
Naphthalene	30	34.5	115	30	35.3	118	(55-140)	2.40	(< 20)
o-Xylene	30	33.7	112	30	34.6	115	(80-120)	2.50	(< 20)
P & M -Xylene	60	61.6	103	60	63.1	105	(75-130)	2.40	(< 20)
sec-Butylbenzene	30	29.8	99	30	31.1	104	(70-125)	4.50	(< 20)
Styrene	30	31.0	103	30	31.9	106	(65-135)	2.80	(< 20)
tert-Butylbenzene	30	30.0	100	30	31.2	104	(70-130)	4.00	(< 20)
Tetrachloroethene	30	32.9	110	30	33.9	113	(45-150)	3.00	(< 20)
Toluene	30	33.6	112	30	34.6	115	(75-120)	2.80	(< 20)
trans-1,2-Dichloroethene	30	32.8	109	30	33.8	113	(60-140)	3.20	(< 20)
trans-1,3-Dichloropropene	30	33.6	112	30	34.4	115	(55-140)	2.50	(< 20)
Trichloroethene	30	33.5	112	30	34.4	115	(70-125)	2.70	(< 20)
Trichlorofluoromethane	30	30.0	100	30	30.9	103	(60-145)	3.10	(< 20)
Vinyl chloride	30	28.4	95	30	29.5	98	(50-145)	3.90	(< 20)
Xylenes (total)	90	95.3	106	90	97.6	108	(80-120)	2.40	(< 20)

Surrogates

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1132382 [VXX24816]
Blank Spike Lab ID: 1153409
Date Analyzed: 06/17/2013 16:21

Spike Duplicate ID: LCSD for HBN 1132382 [VXX24816]
Spike Duplicate Lab ID: 1153410
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1132382005

Results by **SW8260B**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,2-Dichloroethane-D4	30	95.9	96	30	96	96	(70-120)	0.17	
4-Bromofluorobenzene	30	100	100	30	100	100	(75-120)	0.13	
Toluene-d8	30	100	100	30	101	101	(85-120)	0.43	

Batch Information

Analytical Batch: **VMS13558**
Analytical Method: **SW8260B**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **NRB**

Prep Batch: **VXX24816**
Prep Method: **SW5030B**
Prep Date/Time: **06/17/2013 15:29**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1455668 [VXX/24819]
Blank Lab ID: 1153617

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1132382003, 1132382004

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.300U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.620U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.300U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.620U	1.00	0.310	ug/L
1,1-Dichloroethane	0.620U	1.00	0.310	ug/L
1,1-Dichloroethene	0.620U	1.00	0.310	ug/L
1,1-Dichloropropene	0.620U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.620U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.620U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.620U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.620U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	1.24U	2.00	0.620	ug/L
1,2-Dibromoethane	0.620U	1.00	0.310	ug/L
1,2-Dichlorobenzene	0.620U	1.00	0.310	ug/L
1,2-Dichloroethane	0.300U	0.500	0.150	ug/L
1,2-Dichloropropane	0.620U	1.00	0.310	ug/L
1,3,5-Trimethylbenzene	0.620U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.620U	1.00	0.310	ug/L
1,3-Dichloropropane	0.240U	0.400	0.120	ug/L
1,4-Dichlorobenzene	0.300U	0.500	0.150	ug/L
2,2-Dichloropropane	0.620U	1.00	0.310	ug/L
2-Butanone (MEK)	6.20U	10.0	3.10	ug/L
2-Chlorotoluene	0.620U	1.00	0.310	ug/L
2-Hexanone	6.20U	10.0	3.10	ug/L
4-Chlorotoluene	0.620U	1.00	0.310	ug/L
4-Isopropyltoluene	0.620U	1.00	0.310	ug/L
4-Methyl-2-pentanone (MIBK)	6.20U	10.0	3.10	ug/L
Benzene	0.240U	0.400	0.120	ug/L
Bromobenzene	0.620U	1.00	0.310	ug/L
Bromochloromethane	0.620U	1.00	0.310	ug/L
Bromodichloromethane	0.300U	0.500	0.150	ug/L
Bromoform	0.620U	1.00	0.310	ug/L
Bromomethane	1.88U	3.00	0.940	ug/L
Carbon disulfide	1.24U	2.00	0.620	ug/L
Carbon tetrachloride	0.620U	1.00	0.310	ug/L
Chlorobenzene	0.300U	0.500	0.150	ug/L
Chloroethane	0.620U	1.00	0.310	ug/L
Chloroform	0.600U	1.00	0.300	ug/L

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Method Blank

Blank ID: MB for HBN 1455668 [VXX/24819]
Blank Lab ID: 1153617

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1132382003, 1132382004

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.620U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.620U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.300U	0.500	0.150	ug/L
Dibromochloromethane	0.300U	0.500	0.150	ug/L
Dibromomethane	0.620U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.620U	1.00	0.310	ug/L
Ethylbenzene	0.620U	1.00	0.310	ug/L
Hexachlorobutadiene	0.620U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.620U	1.00	0.310	ug/L
Methylene chloride	2.00U	5.00	1.00	ug/L
Methyl-t-butyl ether	3.00U	5.00	1.50	ug/L
Naphthalene	1.24U	2.00	0.620	ug/L
n-Butylbenzene	0.620U	1.00	0.310	ug/L
n-Propylbenzene	0.620U	1.00	0.310	ug/L
o-Xylene	0.620U	1.00	0.310	ug/L
P & M -Xylene	1.24U	2.00	0.620	ug/L
sec-Butylbenzene	0.620U	1.00	0.310	ug/L
Styrene	0.620U	1.00	0.310	ug/L
tert-Butylbenzene	0.620U	1.00	0.310	ug/L
Tetrachloroethene	0.620U	1.00	0.310	ug/L
Toluene	0.620U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.620U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.620U	1.00	0.310	ug/L
Trichloroethene	0.620U	1.00	0.310	ug/L
Trichlorofluoromethane	0.620U	1.00	0.310	ug/L
Vinyl chloride	0.620U	1.00	0.310	ug/L
Xylenes (total)	1.88U	3.00	0.940	ug/L
Surrogates				
1,2-Dichloroethane-D4	108	70-120		%
4-Bromofluorobenzene	103	75-120		%
Toluene-d8	97.9	85-120		%

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Method Blank

Blank ID: MB for HBN 1455668 [VXX/24819]
Blank Lab ID: 1153617

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1132382003, 1132382004

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS13559
Analytical Method: SW8260B
Instrument: VPA 780/5975 GC/MS
Analyst: NRB
Analytical Date/Time: 6/18/2013 12:43:00PM

Prep Batch: VXX24819
Prep Method: SW5030B
Prep Date/Time: 6/18/2013 11:52:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1132382 [VXX24819]
Blank Spike Lab ID: 1153618
Date Analyzed: 06/18/2013 13:01

Spike Duplicate ID: LCSD for HBN 1132382 [VXX24819]
Spike Duplicate Lab ID: 1153619
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1132382003, 1132382004

Results by **SW8260B**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	30.4	101	30	31.5	105	(80-130)	3.80	(< 20)
1,1,1-Trichloroethane	30	29.4	98	30	30.4	101	(65-130)	3.30	(< 20)
1,1,2,2-Tetrachloroethane	30	29.3	98	30	30.2	101	(65-130)	3.20	(< 20)
1,1,2-Trichloroethane	30	29.4	98	30	30.6	102	(75-125)	4.10	(< 20)
1,1-Dichloroethane	30	30.3	101	30	31.0	103	(70-135)	2.40	(< 20)
1,1-Dichloroethene	30	30.4	101	30	31.6	105	(70-130)	3.70	(< 20)
1,1-Dichloropropene	30	29.4	98	30	30.3	101	(75-130)	3.00	(< 20)
1,2,3-Trichlorobenzene	30	29.9	100	30	30.7	102	(55-140)	2.60	(< 20)
1,2,3-Trichloropropane	30	28.7	96	30	29.7	99	(75-125)	3.40	(< 20)
1,2,4-Trichlorobenzene	30	29.7	99	30	30.8	103	(65-135)	3.70	(< 20)
1,2,4-Trimethylbenzene	30	28.2	94	30	29.1	97	(75-130)	3.10	(< 20)
1,2-Dibromo-3-chloropropane	30	28.9	96	30	30.1	100	(50-130)	3.80	(< 20)
1,2-Dibromoethane	30	29.5	98	30	30.9	103	(80-120)	4.60	(< 20)
1,2-Dichlorobenzene	30	29.3	98	30	30.2	101	(70-120)	2.90	(< 20)
1,2-Dichloroethane	30	30.2	101	30	31.0	103	(70-130)	2.50	(< 20)
1,2-Dichloropropane	30	30.7	102	30	31.8	106	(75-125)	3.40	(< 20)
1,3,5-Trimethylbenzene	30	28.1	94	30	28.9	96	(75-130)	2.80	(< 20)
1,3-Dichlorobenzene	30	29.4	98	30	30.4	101	(75-125)	3.40	(< 20)
1,3-Dichloropropane	30	29.3	98	30	30.7	102	(75-125)	4.70	(< 20)
1,4-Dichlorobenzene	30	29.5	98	30	30.5	102	(75-125)	3.30	(< 20)
2,2-Dichloropropane	30	30.2	101	30	31.0	103	(70-135)	2.60	(< 20)
2-Butanone (MEK)	90	96.1	107	90	97.6	108	(30-150)	1.50	(< 20)
2-Chlorotoluene	30	30.0	100	30	31.1	104	(75-125)	3.40	(< 20)
2-Hexanone	90	92.5	103	90	95.5	106	(55-130)	3.20	(< 20)
4-Chlorotoluene	30	30.0	100	30	32.1	107	(75-130)	6.60	(< 20)
4-Isopropyltoluene	30	28.1	94	30	29.1	97	(75-130)	3.50	(< 20)
4-Methyl-2-pentanone (MIBK)	90	93.7	104	90	96.1	107	(60-135)	2.50	(< 20)
Benzene	30	31.1	104	30	32.1	107	(80-120)	3.00	(< 20)
Bromobenzene	30	28.7	96	30	29.4	98	(75-125)	2.50	(< 20)
Bromochloromethane	30	30.2	101	30	31.1	104	(65-130)	2.90	(< 20)
Bromodichloromethane	30	30.0	100	30	30.9	103	(75-120)	2.80	(< 20)
Bromoform	30	27.7	92	30	29.6	99	(70-130)	6.50	(< 20)
Bromomethane	30	29.2	98	30	32.6	109	(30-145)	10.90	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1132382 [VXX24819]
Blank Spike Lab ID: 1153618
Date Analyzed: 06/18/2013 13:01

Spike Duplicate ID: LCSD for HBN 1132382 [VXX24819]
Spike Duplicate Lab ID: 1153619
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1132382003, 1132382004

Results by **SW8260B**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon disulfide	45	47.5	105	45	49.3	109	(35-160)	3.70	(< 20)
Carbon tetrachloride	30	29.9	100	30	31.0	103	(65-140)	3.60	(< 20)
Chlorobenzene	30	29.5	98	30	30.7	102	(80-120)	3.80	(< 20)
Chloroethane	30	31.2	104	30	32.1	107	(60-135)	2.80	(< 20)
Chloroform	30	28.4	95	30	29.3	98	(65-135)	3.00	(< 20)
Chloromethane	30	32.8	109	30	37.1	124	(40-125)	12.30	(< 20)
cis-1,2-Dichloroethene	30	29.7	99	30	30.7	102	(70-125)	3.60	(< 20)
cis-1,3-Dichloropropene	30	31.0	103	30	31.9	106	(70-130)	2.80	(< 20)
Dibromochloromethane	30	28.6	95	30	30.2	101	(60-135)	5.50	(< 20)
Dibromomethane	30	28.6	95	30	29.4	98	(75-125)	2.70	(< 20)
Dichlorodifluoromethane	30	31.8	106	30	33.6	112	(30-155)	5.50	(< 20)
Ethylbenzene	30	28.2	94	30	29.2	98	(75-125)	3.70	(< 20)
Hexachlorobutadiene	30	27.7	92	30	28.5	95	(50-140)	2.90	(< 20)
Isopropylbenzene (Cumene)	30	28.4	95	30	29.5	98	(75-125)	3.90	(< 20)
Methyl-t-butyl ether	45	46.8	104	45	48.5	108	(65-125)	3.50	(< 20)
Methylene chloride	30	30.1	100	30	31.1	104	(55-140)	3.20	(< 20)
n-Butylbenzene	30	28.3	94	30	29.2	97	(70-135)	3.40	(< 20)
n-Propylbenzene	30	27.9	93	30	28.8	96	(70-130)	3.20	(< 20)
Naphthalene	30	30.5	102	30	31.4	105	(55-140)	2.70	(< 20)
o-Xylene	30	30.6	102	30	31.9	106	(80-120)	4.30	(< 20)
P & M -Xylene	60	56.0	93	60	58.3	97	(75-130)	4.10	(< 20)
sec-Butylbenzene	30	28.0	93	30	28.9	96	(70-125)	3.10	(< 20)
Styrene	30	28.5	95	30	29.4	98	(65-135)	2.80	(< 20)
tert-Butylbenzene	30	27.9	93	30	28.8	96	(70-130)	3.00	(< 20)
Tetrachloroethene	30	29.3	98	30	30.5	102	(45-150)	3.80	(< 20)
Toluene	30	29.9	100	30	31.2	104	(75-120)	4.40	(< 20)
trans-1,2-Dichloroethene	30	31.5	105	30	32.6	109	(60-140)	3.60	(< 20)
trans-1,3-Dichloropropene	30	30.2	101	30	30.7	102	(55-140)	1.40	(< 20)
Trichloroethene	30	31.4	105	30	32.4	108	(70-125)	3.30	(< 20)
Trichlorofluoromethane	30	33.1	110	30	34.9	116	(60-145)	5.10	(< 20)
Vinyl chloride	30	34.1	114	30	36.4	121	(50-145)	6.40	(< 20)
Xylenes (total)	90	86.6	96	90	90.3	100	(80-120)	4.10	(< 20)

Surrogates

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1132382 [VXX24819]
Blank Spike Lab ID: 1153618
Date Analyzed: 06/18/2013 13:01

Spike Duplicate ID: LCSD for HBN 1132382 [VXX24819]
Spike Duplicate Lab ID: 1153619
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1132382003, 1132382004

Results by **SW8260B**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,2-Dichloroethane-D4	30	98.6	99	30	97.8	98	(70-120)	0.81	
4-Bromofluorobenzene	30	97.9	98	30	97.7	98	(75-120)	0.14	
Toluene-d8	30	98.1	98	30	98.6	99	(85-120)	0.47	

Batch Information

Analytical Batch: **VMS13559**
Analytical Method: **SW8260B**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **NRB**

Prep Batch: **VXX24819**
Prep Method: **SW5030B**
Prep Date/Time: **06/18/2013 11:52**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1455680 [VXX/24820]
Blank Lab ID: 1153655

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1132382005

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0310J	0.100	0.0310	mg/L
Surrogates				
1,4-Difluorobenzene	94.4	77-115		%
4-Bromofluorobenzene	93.7	50-150		%

Batch Information

Analytical Batch: VFC11468
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 6/18/2013 9:02:00AM

Prep Batch: VXX24820
Prep Method: SW5030B
Prep Date/Time: 6/18/2013 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/28/2013 12:56:42PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1132382 [VXX24820]
Blank Spike Lab ID: 1153658
Date Analyzed: 06/18/2013 09:58

Spike Duplicate ID: LCSD for HBN 1132382 [VXX24820]
Spike Duplicate Lab ID: 1153659
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1132382005

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.922	92	1.00	0.972	97	(60-120)	5.20	(< 20)
Surrogates									
4-Bromofluorobenzene	0.0500	105	105	0.0500	105	105	(50-150)	0.02	

Batch Information

Analytical Batch: **VFC11468**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX24820**
Prep Method: **SW5030B**
Prep Date/Time: **06/18/2013 08:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1455682 [VXX/24821]
Blank Lab ID: 1153662

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1132382002

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0320J	0.100	0.0310	mg/L
Surrogates				
4-Bromofluorobenzene	99.4	50-150		%

Batch Information

Analytical Batch: VFC11468
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 6/18/2013 6:52:00PM

Prep Batch: VXX24821
Prep Method: SW5030B
Prep Date/Time: 6/18/2013 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1132382 [VXX24821]
Blank Spike Lab ID: 1153665
Date Analyzed: 06/18/2013 23:52

Spike Duplicate ID: LCSD for HBN 1132382 [VXX24821]
Spike Duplicate Lab ID: 1153666
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1132382002

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.901	90	1.00	0.900	90	(60-120)	0.05	(< 20)
Surrogates									
4-Bromofluorobenzene	0.0500	110	110	0.0500	97.8	98	(50-150)	11.80	

Batch Information

Analytical Batch: **VFC11468**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX24821**
Prep Method: **SW5030B**
Prep Date/Time: **06/18/2013 08:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1455682 [VXX/24821]
Blank Lab ID: 1153662

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1132382002

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.300U	0.500	0.150	ug/L
Ethylbenzene	0.620U	1.00	0.310	ug/L
o-Xylene	0.620U	1.00	0.310	ug/L
P & M -Xylene	1.24U	2.00	0.620	ug/L
Toluene	0.620U	1.00	0.310	ug/L
Surrogates				
1,4-Difluorobenzene	92.4	77-115		%

Batch Information

Analytical Batch: VFC11468
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 6/18/2013 6:52:00PM

Prep Batch: VXX24821
Prep Method: SW5030B
Prep Date/Time: 6/18/2013 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1132382 [VXX24821]
Blank Spike Lab ID: 1153663
Date Analyzed: 06/18/2013 23:33

Spike Duplicate ID: LCSD for HBN 1132382 [VXX24821]
Spike Duplicate Lab ID: 1153664
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1132382002

Results by **SW8021B**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	100	102	102	100	96.8	97	(80-120)	5.20	(< 20)
Ethylbenzene	100	110	110	100	106	106	(75-125)	3.90	(< 20)
o-Xylene	100	104	104	100	99.4	99	(80-120)	4.50	(< 20)
P & M -Xylene	200	219	109	200	210	105	(75-130)	4.20	(< 20)
Toluene	100	109	109	100	106	106	(75-120)	3.30	(< 20)
Surrogates									
1,4-Difluorobenzene	50	96.3	96	50	94.8	95	(77-115)	1.60	

Batch Information

Analytical Batch: **VFC11468**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX24821**
Prep Method: **SW5030B**
Prep Date/Time: **06/18/2013 08:00**
Spike Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1455982 [VXX/24831]
Blank Lab ID: 1154232

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1132382001, 1132382003, 1132382004

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.000300U	0.000500	0.000150	mg/L
Ethylbenzene	0.000620U	0.00100	0.000310	mg/L
Gasoline Range Organics	0.0376J	0.100	0.0310	mg/L
o-Xylene	0.000620U	0.00100	0.000310	mg/L
P & M -Xylene	0.00124U	0.00200	0.000620	mg/L
Toluene	0.000620U	0.00100	0.000310	mg/L
Surrogates				
1,4-Difluorobenzene	91.5	77-115		%
4-Bromofluorobenzene	91.9	50-150		%

Batch Information

Analytical Batch: VFC11474
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 6/20/2013 9:58:00AM

Prep Batch: VXX24831
Prep Method: SW5030B
Prep Date/Time: 6/20/2013 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/28/2013 12:56:46PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1132382 [VXX24831]
Blank Spike Lab ID: 1154233
Date Analyzed: 06/20/2013 10:35

Spike Duplicate ID: LCSD for HBN 1132382 [VXX24831]
Spike Duplicate Lab ID: 1154234
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1132382001, 1132382003, 1132382004

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	0.100	0.0917	92	0.100	0.103	103	(80-120)	12.10	(< 20)
Ethylbenzene	0.100	0.0998	100	0.100	0.111	111	(75-125)	10.40	(< 20)
o-Xylene	0.100	0.0914	91	0.100	0.101	101	(80-120)	10.40	(< 20)
P & M -Xylene	0.200	0.194	97	0.200	0.217	109	(75-130)	11.50	(< 20)
Toluene	0.100	0.101	101	0.100	0.110	110	(75-120)	8.30	(< 20)
Surrogates									
1,4-Difluorobenzene	0.0500	92.5	93	0.0500	95.9	96	(77-115)	3.50	

Batch Information

Analytical Batch: **VFC11474**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX24831**
Prep Method: **SW5030B**
Prep Date/Time: **06/20/2013 08:00**
Spike Init Wt./Vol.: 0.100 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 0.100 mg/L Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1132382 [VXX24831]
Blank Spike Lab ID: 1154235
Date Analyzed: 06/20/2013 10:54

Spike Duplicate ID: LCSD for HBN 1132382 [VXX24831]
Spike Duplicate Lab ID: 1154236
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1132382001, 1132382003, 1132382004

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.890	89	1.00	0.896	90	(60-120)	0.75	(< 20)
Surrogates									
4-Bromofluorobenzene	0.0500	107	107	0.0500	96.7	97	(50-150)	10.40	

Batch Information

Analytical Batch: **VFC11474**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX24831**
Prep Method: **SW5030B**
Prep Date/Time: **06/20/2013 08:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1455982 [VXX/24831]
Blank Lab ID: 1154232

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1132382001, 1132382003, 1132382004

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.300U	0.500	0.150	ug/L
Ethylbenzene	0.620U	1.00	0.310	ug/L
o-Xylene	0.620U	1.00	0.310	ug/L
P & M -Xylene	1.24U	2.00	0.620	ug/L
Toluene	0.620U	1.00	0.310	ug/L
Surrogates				
1,4-Difluorobenzene	91.5	77-115		%

Batch Information

Analytical Batch: VFC11474
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 6/20/2013 9:58:00AM

Prep Batch: VXX24831
Prep Method: SW5030B
Prep Date/Time: 6/20/2013 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1132382 [VXX24831]
Blank Spike Lab ID: 1154233
Date Analyzed: 06/20/2013 10:35

Spike Duplicate ID: LCSD for HBN 1132382 [VXX24831]
Spike Duplicate Lab ID: 1154234
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1132382001, 1132382003, 1132382004

Results by **SW8021B**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	100	91.7	92	100	103	103	(80-120)	12.10	(< 20)
Ethylbenzene	100	99.8	100	100	111	111	(75-125)	10.40	(< 20)
o-Xylene	100	91.4	91	100	101	101	(80-120)	10.40	(< 20)
P & M -Xylene	200	194	97	200	217	109	(75-130)	11.50	(< 20)
Toluene	100	101	101	100	110	110	(75-120)	8.30	(< 20)
Surrogates									
1,4-Difluorobenzene	50	92.5	93	50	95.9	96	(77-115)	3.50	

Batch Information

Analytical Batch: **VFC11474**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX24831**
Prep Method: **SW5030B**
Prep Date/Time: **06/20/2013 08:00**
Spike Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1455163 [XXX/29178]
Blank Lab ID: 1153087

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1132382001, 1132382002, 1132382003, 1132382004

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.360U	0.600	0.180	mg/L
Surrogates				
5a Androstane	88.9	60-120		%

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK102
Instrument: HP 7890A FID SV E R
Analyst: HM
Analytical Date/Time: 6/18/2013 11:05:00AM

Prep Batch: XXX29178
Prep Method: SW3520C
Prep Date/Time: 6/17/2013 10:00:00AM
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1132382 [XXX29178]
Blank Spike Lab ID: 1153088
Date Analyzed: 06/18/2013 11:25

Spike Duplicate ID: LCSD for HBN 1132382 [XXX29178]
Spike Duplicate Lab ID: 1153089
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1132382001, 1132382002, 1132382003, 1132382004

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	5	4.45	89	5	4.29	86	(75-125)	3.60	(< 20)
Surrogates									
5a Androstane	0.1	94.3	94	0.1	94.4	94	(60-120)	0.13	

Batch Information

Analytical Batch: **XFC10929**
Analytical Method: **AK102**
Instrument: **HP 7890A FID SV E R**
Analyst: **HM**

Prep Batch: **XXX29178**
Prep Method: **SW3520C**
Prep Date/Time: **06/17/2013 10:00**
Spike Init Wt./Vol.: 5 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 5 mg/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1455163 [XXX/29178]
Blank Lab ID: 1153087

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1132382001, 1132382002, 1132382003, 1132382004

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	0.300U	0.500	0.150	mg/L
Surrogates				
n-Triacontane-d62	94	60-120		%

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK103
Instrument: HP 7890A FID SV E R
Analyst: HM
Analytical Date/Time: 6/18/2013 11:05:00AM

Prep Batch: XXX29178
Prep Method: SW3520C
Prep Date/Time: 6/17/2013 10:00:00AM
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1132382 [XXX29178]
Blank Spike Lab ID: 1153088
Date Analyzed: 06/18/2013 11:25

Spike Duplicate ID: LCSD for HBN 1132382 [XXX29178]
Spike Duplicate Lab ID: 1153089
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1132382001, 1132382002, 1132382003, 1132382004

Results by **AK103**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	5	4.66	93	5	4.49	90	(60-120)	3.70	(< 20)
Surrogates									
n-Triacontane-d62	0.1	94.5	95	0.1	95.3	95	(60-120)	0.84	

Batch Information

Analytical Batch: **XFC10929**
Analytical Method: **AK103**
Instrument: **HP 7890A FID SV E R**
Analyst: **HM**

Prep Batch: **XXX29178**
Prep Method: **SW3520C**
Prep Date/Time: **06/17/2013 10:00**
Spike Init Wt./Vol.: 5 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 5 mg/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1455292 [XXX/29186]
Blank Lab ID: 1153375

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1132382003, 1132382004

Results by **8270D SIMS (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	0.0300U	0.0500	0.0150	ug/L
2-Methylnaphthalene	0.0300U	0.0500	0.0150	ug/L
Acenaphthene	0.0300U	0.0500	0.0150	ug/L
Acenaphthylene	0.0300U	0.0500	0.0150	ug/L
Anthracene	0.0300U	0.0500	0.0150	ug/L
Benzo(a)Anthracene	0.0300U	0.0500	0.0150	ug/L
Benzo[a]pyrene	0.0300U	0.0500	0.0150	ug/L
Benzo[b]Fluoranthene	0.0300U	0.0500	0.0150	ug/L
Benzo[g,h,i]perylene	0.0300U	0.0500	0.0150	ug/L
Benzo[k]fluoranthene	0.0300U	0.0500	0.0150	ug/L
Chrysene	0.0300U	0.0500	0.0150	ug/L
Dibenzo[a,h]anthracene	0.0300U	0.0500	0.0150	ug/L
Fluoranthene	0.0300U	0.0500	0.0150	ug/L
Fluorene	0.0300U	0.0500	0.0150	ug/L
Indeno[1,2,3-c,d] pyrene	0.0300U	0.0500	0.0150	ug/L
Naphthalene	0.0620U	0.100	0.0310	ug/L
Phenanthrene	0.0300U	0.0500	0.0150	ug/L
Pyrene	0.0300U	0.0500	0.0150	ug/L
Surrogates				
2-Fluorobiphenyl	82.9	50-110		%
Terphenyl-d14	98.4	50-135		%

Batch Information

Analytical Batch: XMS7378
Analytical Method: 8270D SIMS (PAH)
Instrument: HP 6890/5973 MS SVQA
Analyst: RTS
Analytical Date/Time: 6/18/2013 7:30:00PM

Prep Batch: XXX29186
Prep Method: SW3520C
Prep Date/Time: 6/18/2013 9:35:00AM
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1132382 [XXX29186]
Blank Spike Lab ID: 1153376
Date Analyzed: 06/18/2013 19:46

Spike Duplicate ID: LCSD for HBN 1132382 [XXX29186]
Spike Duplicate Lab ID: 1153377
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1132382003, 1132382004

Results by **8270D SIMS (PAH)**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	0.5	0.428	86	0.5	0.366	73	(47-107)	15.80	(< 30)
2-Methylnaphthalene	0.5	0.371	74	0.5	0.319	64	(45-105)	15.10	(< 30)
Acenaphthene	0.5	0.394	79	0.5	0.356	71	(45-110)	10.20	(< 30)
Acenaphthylene	0.5	0.406	81	0.5	0.376	75	(50-105)	7.80	(< 30)
Anthracene	0.5	0.460	92	0.5	0.420	84	(55-110)	9.00	(< 30)
Benzo(a)Anthracene	0.5	0.483	97	0.5	0.456	91	(55-110)	5.70	(< 30)
Benzo[a]pyrene	0.5	0.466	93	0.5	0.444	89	(55-110)	5.00	(< 30)
Benzo[b]Fluoranthene	0.5	0.476	95	0.5	0.452	90	(45-120)	5.10	(< 30)
Benzo[g,h,i]perylene	0.5	0.509	102	0.5	0.470	94	(40-125)	7.90	(< 30)
Benzo[k]fluoranthene	0.5	0.537	107	0.5	0.509	102	(45-125)	5.30	(< 30)
Chrysene	0.5	0.511	102	0.5	0.477	95	(55-110)	6.90	(< 30)
Dibenzo[a,h]anthracene	0.5	0.503	101	0.5	0.446	89	(40-125)	11.90	(< 30)
Fluoranthene	0.5	0.500	100	0.5	0.462	92	(55-115)	7.80	(< 30)
Fluorene	0.5	0.439	88	0.5	0.411	82	(50-110)	6.50	(< 30)
Indeno[1,2,3-c,d] pyrene	0.5	0.511	102	0.5	0.484	97	(45-125)	5.50	(< 30)
Naphthalene	0.5	0.377	75	0.5	0.331	66	(40-100)	13.00	(< 30)
Phenanthrene	0.5	0.444	89	0.5	0.394	79	(50-115)	12.00	(< 30)
Pyrene	0.5	0.474	95	0.5	0.452	90	(50-130)	4.60	(< 30)
Surrogates									
2-Fluorobiphenyl	0.5	79.2	79	0.5	71.5	72	(50-110)	10.30	
Terphenyl-d14	0.5	95.3	95	0.5	88.3	88	(50-135)	7.70	

Batch Information

Analytical Batch: **XMS7378**
Analytical Method: **8270D SIMS (PAH)**
Instrument: **HP 6890/5973 MS SVQA**
Analyst: **RTS**

Prep Batch: **XXX29186**
Prep Method: **SW3520C**
Prep Date/Time: **06/18/2013 09:35**
Spike Init Wt./Vol.: 0.5 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 0.5 ug/L Extract Vol: 1 mL

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Matrix Spike Summary

Original Sample ID: 1132396005
MS Sample ID: 1153378 MS
MSD Sample ID: 1153379 MSD

Analysis Date: 06/18/2013 22:05
Analysis Date: 06/18/2013 22:21
Analysis Date: 06/18/2013 22:36
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1132382003, 1132382004

Results by **8270D SIMS (PAH)**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	0.0300U	0.500	.402	80	0.500	0.389	78	47-107	3.20	(< 30)
2-Methylnaphthalene	0.0300U	0.500	.327	66	0.500	0.324	65	45-105	0.99	(< 30)
Acenaphthene	0.0300U	0.500	.375	75	0.500	0.356	71	45-110	5.00	(< 30)
Acenaphthylene	0.0300U	0.500	.377	75	0.500	0.374	75	50-105	0.88	(< 30)
Anthracene	0.0300U	0.500	.383	77	0.500	0.395	79	55-110	3.10	(< 30)
Benzo(a)Anthracene	0.0300U	0.500	.349	70	0.500	0.394	79	55-110	12.10	(< 30)
Benzo[a]pyrene	0.0300U	0.500	.317	63	0.500	0.385	77	55-110	19.40	(< 30)
Benzo[b]Fluoranthene	0.0300U	0.500	.333	67	0.500	0.389	78	45-120	15.40	(< 30)
Benzo[g,h,i]perylene	0.0300U	0.500	.342	68	0.500	0.419	84	40-125	20.40	(< 30)
Benzo[k]fluoranthene	0.0300U	0.500	.399	80	0.500	0.479	96	45-125	18.10	(< 30)
Chrysene	0.0300U	0.500	.391	78	0.500	0.453	91	55-110	14.70	(< 30)
Dibenzo[a,h]anthracene	0.0300U	0.500	.342	68	0.500	0.411	82	40-125	18.50	(< 30)
Fluoranthene	0.0300U	0.500	.441	88	0.500	0.466	93	55-115	5.30	(< 30)
Fluorene	0.0300U	0.500	.377	75	0.500	0.384	77	50-110	1.80	(< 30)
Indeno[1,2,3-c,d] pyrene	0.0300U	0.500	.327	65	0.500	0.412	82	45-125	23.10	(< 30)
Naphthalene	0.0620U	0.500	.34	68	0.500	0.338	68	40-100	0.60	(< 30)
Phenanthrene	0.0300U	0.500	.363	73	0.500	0.376	75	50-115	3.50	(< 30)
Pyrene	0.0300U	0.500	.422	84	0.500	0.448	90	50-130	5.90	(< 30)
Surrogates										
2-Fluorobiphenyl		0.500	.355	71	0.500	0.339	68	50-110	4.50	
Terphenyl-d14		0.500	.461	92	0.500	0.469	94	50-135	1.60	

Batch Information

Analytical Batch: XMS7378
Analytical Method: 8270D SIMS (PAH)
Instrument: HP 6890/5973 MS SVQA
Analyst: RTS
Analytical Date/Time: 6/18/2013 10:21:00PM

Prep Batch: XXX29186
Prep Method: 3520 Liquid/Liquid Ext for 8270 SIM
Prep Date/Time: 6/18/2013 9:35:00AM
Prep Initial Wt./Vol.: 1,000.00mL
Prep Extract Vol: 1.00mL

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CHAIN OF CUSTODY RECORD

1132382

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

Page 1 of 1

Section 1

CLIENT: BGES

CONTACT: Joshua Bousis PHONE NO: (907)644-2900

PROJECT NAME: Tulkeetna PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Jayne Martin E-MAIL: josh@bgesinc.com

INVOICE TO: BGES QUOTE #: P.O. #:

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	Section 3 # CONTAINERS	Type C = COMP G = GRAB MI = Multi Incremental Soils	Preservative: HCl	HCl								REMARKS/ LOC ID
							GRO by AK101	BTEX by 8021	VOC by 8260	DRO by AK102	RRO by AK103	PAH by 8270				
(1) A-F	MW8-0613	6-13-13	1730	W	6	G	X	X		X	X					
(2) A-F	MW10-0613	"	1530	"	6	"	X	X		X	X					
(3) A-J	MW22-0613	"	1230	"	10	"	X		X	X	X	X				
(4) A-J	MW23-0613	"	1230	"	10	"	X		X	X	X	X				
(5) A-C	Trip Blank	—	—	"			X		X							

Section 5

Relinquished By: (1) Date 6-14-13 Time Received By:

Relinquished By: (2) Date Time Received By:

Relinquished By: (3) Date Time Received By:

Relinquished By: (4) Date 6/14/13 Time 854 Received For Laboratory By:

Section 4

DOD Project? Yes (No)

Cooler ID:

Data Deliverable Requirements: Level 2

Requested Turnaround Time and/or Special Instructions: Standard

Temp Blank °C: 1.8 & 0.3

or Ambient [ ] #238

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle) INTACT BROKEN (ABSENT)

(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

SGS

1132382

SAMPLE RECEIPT FORM

Review Criteria:	Condition:	Comments/Action Taken:
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	Yes No (N/A) (Yes) No N/A	
Temperature blank compliant* (i.e., 0-6°C after CF)? * *Note: Exemption permitted for chilled samples collected less than 8 hours ago.* Cooler ID: 3 of 4 @ 3.1 w/ Therm.ID: 239 Cooler ID: ~~3 of 4~~ @ 0.3 w/ Therm.ID: ~~239~~ 10 Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ *Note: If non-compliant, use form FS-0029 to document affected samples/analyses.* If samples are received without 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." **If temperature(s) <0°C, were all sample containers ice free?**	(Yes) No N/A Yes No (N/A)	
Delivery method (specify all that apply): (Client) USPS Alert Courier C&D Delivery AK Air Lynden Carlile ERA PenAir FedEx UPS NAC Other: → *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?*	Note ABN/ tracking # See Attached or N/A Yes No N/A	
→ For samples received with payment, note amount ($) and cash / check / CC **(circle one)** or note: (N/A) → For samples **received in FBKS**, ANCH staff will verify all criteria are reviewed.	SRF Initiated by: N/A	
Were samples received within hold time? *Note: Refer to form F-083 "Sample Guide" for hold time information.* Do samples **match COC*** (i.e., sample IDs, dates/times collected)? * *Note: Exemption permitted if times differ <1hr; in that case, use times on COC.* Were analyses requested unambiguous?	(Yes) No N/A (Yes) No N/A (Yes) No N/A	
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): ~~Bubble Wrap~~ Separate plastic bags Vermiculite Other:	(Yes) No N/A	
Were all VOA vials **free of headspace** (i.e., bubbles ≤6 mm)? Were all soil VOAs **field extracted** with MeOH+BFB?	(Yes) No N/A Yes No (N/A)	
Were **proper containers** (type/mass/volume/preservative*) used? * *Note: Exemption permitted for waters to be analyzed for metals.* Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	(Yes) No N/A (Yes) No N/A	
For **special handling** (e.g., "MI" or foreign soils, lab filter, limited volume, Ref Lab), were bottles/paperwork flagged (e.g., sticker)?	Yes No (N/A)	
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was **pH verified and compliant**? If pH was adjusted, were bottles flagged (i.e., stickers)?	(Yes) No N/A Yes No (N/A)	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	Yes No (N/A)	
For **SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP**, were containers / paperwork flagged accordingly?	Yes No (N/A)	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	Yes No (N/A)	SRF Completed by: [illegible] 10-14-13 PM = (N/A)
Was **PEER REVIEW** of ***sample numbering/labeling completed?***	(Yes) No N/A	Peer Reviewed by: [illegible] N/A
Additional notes (if applicable):		

Note to Client: *Any "no" circled above indicates non-compliance with standard procedures and may impact data quality.*

Laboratory Report of Analysis

To: BGES Inc.
1042 E 6th Ave
Anchorage, AK 99501
(907)644-2900

Report Number: **1132391**

Report revised to correct sample IDs per change order.

Client Project: **Talkeetna**

Dear Jayne Martin,

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 five 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 Victoria 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.

SGS North America Inc.
Environmental Services – Alaska Division
Quality Service Manager

Heather L. Hall
2013.07.11
11:14:07 -08'00'

Victoria Pennick
Project Manager

Date

Print Date: 07/11/2013 11:07:46AM

Case Narrative

SGS Client: **BGES Inc.**
SGS Project: **1132391**
Project Name/Site: **Talkeetna**
Project Contact: **Jayne Martin**

Refer to sample receipt form for information on sample condition.

SB14-03-0610 (1132391005) PS

8260B - Toluene-d8 and 4-BFB surrogate recoveries do not meet QC criteria (biased high) due to matrix interference.
8260B - Sample was analyzed past hold time for analytes associated with surrogate toluene-d8.

SB15-03-0610 (1132391006) PS

AK103 - Unknown hydrocarbon with several peaks is present.

SB21-04-0610 (1132391013) PS

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.
AK103 - Unknown hydrocarbon with several peaks is present.

SB22-04-0611 (1132391014) PS

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

CCV for HBN 1455881 [VMS/13562 (1153956) CCV

8260B - CCV recoveries for trichlorofluoromethane do not meet QC criteria (biased high). This analyte was not detected above the LOQ in the associated samples.

CCV for HBN 1456459 [VMS/13566 (1154516) CCV

8260B - CCV recovery for dichlorodifluoromethane does not meet QC criteria (biased high). This analyte was not detected above the LOQ in the associated samples.

CCV for HBN 1456691 (VMS/13570 (1154969) CCV

8260B - CCV recoveries for several analytes do not meet QC criteria (biased high). These analytes were not detected above the LOQ in the associated samples.

LCS for HBN 1455559 [XXX/29192 (1153542) LCS

8270D SIM - LCS recovery for benzo(k)fluoranthene is outside of QC criteria (biased high).This analyte was not detected above the LOQ in the associated samples.

GMF-SB07-10(1137867006MS) (1154513) MS

8260B - BFB (surrogate) recovery does not meet QC criteria (biased low). Sample was analyzed twice for confirmation and result was confirmed.

1137896021(1154965MS) (1154966) MS

8260B - MS recoveries for dichlorodifluoromethane and 1,2-dichloropropane do not meet QC criteria. Refer to LCS for accuracy.

1137867013(1153952MSD) (1153954) MSD

8260B - MSD recovery for trichlorofluoromethane does not meet QC criteria. Refer to LCS for accuracy.

GMF-SB07-10(1137867006MSD) (1154514) MSD

8260B - MS/MSD RPD for n-hexane does not meet QC criteria. This analyte was not detected above the LOQ in the original sample.
8260B - BFB (surrogate) recovery does not meet QC criteria (biased low). Sample was analyzed twice for confirmation and result was confirmed.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

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Report of Manual Integrations

Laboratory ID	Client Sample ID	Analytical Batch	Analyte	Reason
SW8260B				
1132391005	SB14-03-0610	VMS13566	4-Isopropyltoluene	SP
1132391014	SB22-04-0611	VMS13570	4-Isopropyltoluene	SP

Manual Integration Reason Code Descriptions

Code	Description
O	Original Chromatogram
M	Modified Chromatogram
SS	Skimmed surrogate
BLG	Closed baseline gap
RP	Reassign peak name
PIR	Pattern integration required
IT	Included tail
SP	Split peak
RSP	Removed split peak
FPS	Forced peak start/stop
BLC	Baseline correction
PNF	Peak not found by software

All DRO/RRO analysis are integrated per SOP.

Print Date: 07/11/2013 11:07:50AM

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. If you have any questions regarding this report, or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343. All work is provided under SGS general terms and conditions (<http://www.sgs.com/terms_and_conditions.htm>), unless other written agreements have been accepted by both parties.

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: 1020A, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035B, 6020, 7470A, 7471B, 8021B, 8082A, 8260B, 8270D, 8270D-SIM, 9040B, 9045C, 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	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., 2xDL)
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.

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
SB10-04-0610	1132391001	06/10/2013	06/14/2013	Soil/Solid (dry weight)
SB11-05-0610	1132391002	06/10/2013	06/14/2013	Soil/Solid (dry weight)
SB12-06-0610	1132391003	06/10/2013	06/14/2013	Soil/Solid (dry weight)
SB13-04-0610	1132391004	06/10/2013	06/14/2013	Soil/Solid (dry weight)
SB14-03-0610	1132391005	06/10/2013	06/14/2013	Soil/Solid (dry weight)
SB15-03-0610	1132391006	06/10/2013	06/14/2013	Soil/Solid (dry weight)
SB16-05-0610	1132391007	06/10/2013	06/14/2013	Soil/Solid (dry weight)
SB17-03-0610	1132391008	06/10/2013	06/14/2013	Soil/Solid (dry weight)
SB18-03-0610	1132391009	06/10/2013	06/14/2013	Soil/Solid (dry weight)
SB19-03-0610	1132391010	06/10/2013	06/14/2013	Soil/Solid (dry weight)
SB19-08-0610	1132391011	06/10/2013	06/14/2013	Soil/Solid (dry weight)
SB20-04-0610	1132391012	06/10/2013	06/14/2013	Soil/Solid (dry weight)
SB21-04-0610	1132391013	06/10/2013	06/14/2013	Soil/Solid (dry weight)
SB22-04-0611	1132391014	06/11/2013	06/14/2013	Soil/Solid (dry weight)
SB22-09-0611	1132391015	06/11/2013	06/14/2013	Soil/Solid (dry weight)
Trip Blank	1132391016	06/10/2013	06/14/2013	Soil/Solid (dry weight)

Method	Method Description
8270D SIMS (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK101	AK101/8021 Combo. (S)
SW8021B	AK101/8021 Combo. (S)
AK102	Diesel/Residual Range Organics
AK103	Diesel/Residual Range Organics
AK101	Gasoline Range Organics (S)
SM21 2540G	Percent Solids SM2540G
SW8260B	VOC 8260 (S) Field Extracted

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Detectable Results Summary

Client Sample ID: **SB13-04-0610**
Lab Sample ID: 1132391004
Volatile Fuels

Parameter	Result	Units
Gasoline Range Organics	4.33	mg/Kg
o-Xylene	50.7	ug/Kg

Client Sample ID: **SB14-03-0610**
Lab Sample ID: 1132391005
Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
Gasoline Range Organics	392	mg/Kg
1,3,5-Trimethylbenzene	68.0	ug/Kg
4-Isopropyltoluene	138	ug/Kg
Isopropylbenzene (Cumene)	30.3	ug/Kg
n-Butylbenzene	137	ug/Kg
n-Propylbenzene	59.9	ug/Kg
sec-Butylbenzene	123	ug/Kg

Client Sample ID: **SB15-03-0610**
Lab Sample ID: 1132391006
Semivolatile Organic Fuels

Parameter	Result	Units
Residual Range Organics	34.3	mg/Kg

Client Sample ID: **SB21-04-0610**
Lab Sample ID: 1132391013
Semivolatile Organic Fuels
Volatile Fuels

Parameter	Result	Units
Residual Range Organics	33.7	mg/Kg
Benzene	45.8	ug/Kg
Ethylbenzene	485	ug/Kg
Gasoline Range Organics	109	mg/Kg
o-Xylene	395	ug/Kg
P & M -Xylene	463	ug/Kg
Toluene	185	ug/Kg

Client Sample ID: **SB22-04-0611**
Lab Sample ID: 1132391014
Volatile Fuels

Parameter	Result	Units
Gasoline Range Organics	90.2	mg/Kg

Client Sample ID: **SB22-09-0611**
Lab Sample ID: 1132391015
Volatile Fuels

Parameter	Result	Units
Gasoline Range Organics	139	mg/Kg

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Results of **SB10-04-0610**

Client Sample ID: **SB10-04-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391001
Lab Project ID: 1132391

Collection Date: 06/10/13 10:20
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 86.0

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	23.1	U	23.1	7.16	mg/Kg	1	06/18/13 18:12
Surrogates							
5a Androstane	87.2		50-150		%	1	06/18/13 18:12

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/18/13 18:12
Container ID: 1132391001-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.176 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	23.1	U	23.1	7.16	mg/Kg	1	06/18/13 18:12
Surrogates							
n-Triacontane-d62	90.9		50-150		%	1	06/18/13 18:12

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK103
Analyst: HM
Analytical Date/Time: 06/18/13 18:12
Container ID: 1132391001-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.176 g
Prep Extract Vol: 1 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB10-04-0610**

Client Sample ID: **SB10-04-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391001
Lab Project ID: 1132391

Collection Date: 06/10/13 10:20
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 86.0

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	2.38	U	2.38	0.713	mg/Kg	1	06/15/13 20:35
Surrogates							
4-Bromofluorobenzene	97.6		50-150		%	1	06/15/13 20:35

Batch Information

Analytical Batch: VFC11466
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/15/13 20:35
Container ID: 1132391001-A

Prep Batch: VXX24817
Prep Method: SW5035A
Prep Date/Time: 06/10/13 10:20
Prep Initial Wt./Vol.: 92.714 g
Prep Extract Vol: 37.9381 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	11.9	U	11.9	3.80	ug/Kg	1	06/15/13 20:35
Ethylbenzene	23.8	U	23.8	7.42	ug/Kg	1	06/15/13 20:35
o-Xylene	23.8	U	23.8	7.42	ug/Kg	1	06/15/13 20:35
P & M -Xylene	47.6	U	47.6	14.3	ug/Kg	1	06/15/13 20:35
Toluene	23.8	U	23.8	7.42	ug/Kg	1	06/15/13 20:35
Surrogates							
1,4-Difluorobenzene	92.7		72-119		%	1	06/15/13 20:35

Batch Information

Analytical Batch: VFC11466
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 06/15/13 20:35
Container ID: 1132391001-A

Prep Batch: VXX24817
Prep Method: SW5035A
Prep Date/Time: 06/10/13 10:20
Prep Initial Wt./Vol.: 92.714 g
Prep Extract Vol: 37.9381 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB11-05-0610**

Client Sample ID: **SB11-05-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391002
Lab Project ID: 1132391

Collection Date: 06/10/13 11:50
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 83.0

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	23.9	U	23.9	7.42	mg/Kg	1	06/18/13 18:32
Surrogates							
5a Androstane	80.6		50-150		%	1	06/18/13 18:32

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/18/13 18:32
Container ID: 1132391002-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.196 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	23.9	U	23.9	7.42	mg/Kg	1	06/18/13 18:32
Surrogates							
n-Triacontane-d62	83.4		50-150		%	1	06/18/13 18:32

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK103
Analyst: HM
Analytical Date/Time: 06/18/13 18:32
Container ID: 1132391002-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.196 g
Prep Extract Vol: 1 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB11-05-0610**

Client Sample ID: **SB11-05-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391002
Lab Project ID: 1132391

Collection Date: 06/10/13 11:50
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 83.0

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	2.27	U	2.27	0.681	mg/Kg	1	06/15/13 20:53
Surrogates							
4-Bromofluorobenzene	122		50-150		%	1	06/15/13 20:53

Batch Information

Analytical Batch: VFC11466
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/15/13 20:53
Container ID: 1132391002-A

Prep Batch: VXX24817
Prep Method: SW5035A
Prep Date/Time: 06/10/13 11:50
Prep Initial Wt./Vol.: 120.387 g
Prep Extract Vol: 45.4064 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	11.4	U	11.4	3.63	ug/Kg	1	06/15/13 20:53
Ethylbenzene	22.7	U	22.7	7.08	ug/Kg	1	06/15/13 20:53
o-Xylene	22.7	U	22.7	7.08	ug/Kg	1	06/15/13 20:53
P & M -Xylene	45.4	U	45.4	13.6	ug/Kg	1	06/15/13 20:53
Toluene	22.7	U	22.7	7.08	ug/Kg	1	06/15/13 20:53
Surrogates							
1,4-Difluorobenzene	92.9		72-119		%	1	06/15/13 20:53

Batch Information

Analytical Batch: VFC11466
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 06/15/13 20:53
Container ID: 1132391002-A

Prep Batch: VXX24817
Prep Method: SW5035A
Prep Date/Time: 06/10/13 11:50
Prep Initial Wt./Vol.: 120.387 g
Prep Extract Vol: 45.4064 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB13-04-0610**

Client Sample ID: **SB13-04-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391004
Lab Project ID: 1132391

Collection Date: 06/10/13 13:15
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 82.9

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	23.8	U	23.8	7.38	mg/Kg	1	06/18/13 18:53
Surrogates							
5a Androstane	78.8		50-150		%	1	06/18/13 18:53

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/18/13 18:53
Container ID: 1132391004-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.405 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	23.8	U	23.8	7.38	mg/Kg	1	06/18/13 18:53
Surrogates							
n-Triacontane-d62	79.5		50-150		%	1	06/18/13 18:53

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK103
Analyst: HM
Analytical Date/Time: 06/18/13 18:53
Container ID: 1132391004-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.405 g
Prep Extract Vol: 1 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB13-04-0610**

Client Sample ID: **SB13-04-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391004
Lab Project ID: 1132391

Collection Date: 06/10/13 13:15
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 82.9

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	4.33		2.48	0.745	mg/Kg	1	06/15/13 21:12
Surrogates							
4-Bromofluorobenzene	132		50-150		%	1	06/15/13 21:12

Batch Information

Analytical Batch: VFC11466
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/15/13 21:12
Container ID: 1132391004-A

Prep Batch: VXX24817
Prep Method: SW5035A
Prep Date/Time: 06/10/13 13:15
Prep Initial Wt./Vol.: 103.618 g
Prep Extract Vol: 42.6766 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	12.4	U	12.4	3.97	ug/Kg	1	06/15/13 21:12
Ethylbenzene	24.8	U	24.8	7.75	ug/Kg	1	06/15/13 21:12
o-Xylene	50.7		24.8	7.75	ug/Kg	1	06/15/13 21:12
P & M -Xylene	49.7	U	49.7	14.9	ug/Kg	1	06/15/13 21:12
Toluene	24.8	U	24.8	7.75	ug/Kg	1	06/15/13 21:12
Surrogates							
1,4-Difluorobenzene	94.2		72-119		%	1	06/15/13 21:12

Batch Information

Analytical Batch: VFC11466
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 06/15/13 21:12
Container ID: 1132391004-A

Prep Batch: VXX24817
Prep Method: SW5035A
Prep Date/Time: 06/10/13 13:15
Prep Initial Wt./Vol.: 103.618 g
Prep Extract Vol: 42.6766 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB14-03-0610**

Client Sample ID: **SB14-03-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391005
Lab Project ID: 1132391

Collection Date: 06/10/13 14:00
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 86.1

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	23.1	U	23.1	7.15	mg/Kg	1	06/18/13 19:13
Surrogates							
5a Androstane	84.5		50-150		%	1	06/18/13 19:13

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/18/13 19:13
Container ID: 1132391005-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.234 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	23.1	U	23.1	7.15	mg/Kg	1	06/18/13 19:13
Surrogates							
n-Triacontane-d62	87.6		50-150		%	1	06/18/13 19:13

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK103
Analyst: HM
Analytical Date/Time: 06/18/13 19:13
Container ID: 1132391005-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.234 g
Prep Extract Vol: 1 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB14-03-0610**

Client Sample ID: **SB14-03-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391005
Lab Project ID: 1132391

Collection Date: 06/10/13 14:00
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 86.1

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	392		20.2	6.05	mg/Kg	10	06/17/13 17:32
Surrogates							
4-Bromofluorobenzene	2440	*	50-150		%	10	06/17/13 17:32

Batch Information

Analytical Batch: VFC11467
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/17/13 17:32
Container ID: 1132391005-A

Prep Batch: VXX24818
Prep Method: SW5035A
Prep Date/Time: 06/10/13 14:00
Prep Initial Wt./Vol.: 120.37 g
Prep Extract Vol: 41.7916 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB14-03-0610**

Client Sample ID: **SB14-03-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391005
Lab Project ID: 1132391

Collection Date: 06/10/13 14:00
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 86.1

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	20.2	U	20.2	6.29	ug/Kg	1	06/25/13 00:13
1,1,1-Trichloroethane	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
1,1,2,2-Tetrachloroethane	40.3	U	40.3	12.1	ug/Kg	1	06/21/13 13:12
1,1,2-Trichloroethane	20.2	U	20.2	6.29	ug/Kg	1	06/25/13 00:13
1,1-Dichloroethane	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
1,1-Dichloroethene	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
1,1-Dichloropropene	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
1,2,3-Trichlorobenzene	40.3	U	40.3	12.1	ug/Kg	1	06/21/13 13:12
1,2,3-Trichloropropane	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
1,2,4-Trichlorobenzene	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
1,2,4-Trimethylbenzene	40.3	U	40.3	12.1	ug/Kg	1	06/21/13 13:12
1,2-Dibromo-3-chloropropane	80.7	U	80.7	25.0	ug/Kg	1	06/21/13 13:12
1,2-Dibromoethane	20.2	U	20.2	6.29	ug/Kg	1	06/25/13 00:13
1,2-Dichlorobenzene	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
1,2-Dichloroethane	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
1,2-Dichloropropane	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
1,3,5-Trimethylbenzene	68.0		20.2	6.29	ug/Kg	1	06/21/13 13:12
1,3-Dichlorobenzene	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
1,3-Dichloropropane	20.2	U	20.2	6.29	ug/Kg	1	06/25/13 00:13
1,4-Dichlorobenzene	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
2,2-Dichloropropane	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
2-Butanone (MEK)	202	U	202	62.9	ug/Kg	1	06/21/13 13:12
2-Chlorotoluene	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
2-Hexanone	202	U	202	62.9	ug/Kg	1	06/25/13 00:13
4-Chlorotoluene	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
4-Isopropyltoluene	138		20.2	6.29	ug/Kg	1	06/21/13 13:12
4-Methyl-2-pentanone (MIBK)	202	U	202	62.9	ug/Kg	1	06/21/13 13:12
Benzene	10.1	U	10.1	3.15	ug/Kg	1	06/21/13 13:12
Bromobenzene	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
Bromochloromethane	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
Bromodichloromethane	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
Bromoform	20.2	U	20.2	6.29	ug/Kg	1	06/25/13 00:13
Bromomethane	161	U	161	50.0	ug/Kg	1	06/21/13 13:12
Carbon disulfide	80.7	U	80.7	25.0	ug/Kg	1	06/21/13 13:12
Carbon tetrachloride	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
Chlorobenzene	20.2	U	20.2	6.29	ug/Kg	1	06/25/13 00:13
Chloroethane	161	U	161	50.0	ug/Kg	1	06/21/13 13:12
Chloroform	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
Chloromethane	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
cis-1,2-Dichloroethene	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
cis-1,3-Dichloropropene	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
Dibromochloromethane	20.2	U	20.2	6.29	ug/Kg	1	06/25/13 00:13
Dibromomethane	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
Dichlorodifluoromethane	40.3	U	40.3	12.1	ug/Kg	1	06/21/13 13:12

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Results of **SB14-03-0610**

Client Sample ID: **SB14-03-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391005
Lab Project ID: 1132391

Collection Date: 06/10/13 14:00
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 86.1

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Ethylbenzene	20.2	U	20.2	6.29	ug/Kg	1	06/25/13 00:13
Hexachlorobutadiene	40.3	U	40.3	12.1	ug/Kg	1	06/21/13 13:12
Isopropylbenzene (Cumene)	30.3		20.2	6.29	ug/Kg	1	06/25/13 00:13
Methyl-t-butyl ether	80.7	U	80.7	25.0	ug/Kg	1	06/21/13 13:12
Methylene chloride	80.7	U	80.7	25.0	ug/Kg	1	06/21/13 13:12
n-Butylbenzene	137		20.2	6.29	ug/Kg	1	06/21/13 13:12
n-Propylbenzene	59.9		20.2	6.29	ug/Kg	1	06/21/13 13:12
Naphthalene	40.3	U	40.3	12.1	ug/Kg	1	06/21/13 13:12
o-Xylene	20.2	U	20.2	6.29	ug/Kg	1	06/25/13 00:13
P & M -Xylene	40.3	U	40.3	12.1	ug/Kg	1	06/25/13 00:13
sec-Butylbenzene	123		20.2	6.29	ug/Kg	1	06/21/13 13:12
Styrene	20.2	U	20.2	6.29	ug/Kg	1	06/25/13 00:13
tert-Butylbenzene	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
Tetrachloroethene	10.1	U	10.1	3.15	ug/Kg	1	06/25/13 00:13
Toluene	20.2	U	20.2	6.29	ug/Kg	1	06/25/13 00:13
trans-1,2-Dichloroethene	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
trans-1,3-Dichloropropene	20.2	U	20.2	6.29	ug/Kg	1	06/25/13 00:13
Trichloroethene	10.1	U	10.1	3.15	ug/Kg	1	06/21/13 13:12
Trichlorofluoromethane	40.3	U	40.3	12.1	ug/Kg	1	06/21/13 13:12
Vinyl chloride	20.2	U	20.2	6.29	ug/Kg	1	06/21/13 13:12
Xylenes (total)	80.7	U	80.7	25.0	ug/Kg	1	06/21/13 13:12
Surrogates							
1,2-Dichloroethane-D4	85.1		79-118		%	1	06/21/13 13:12
4-Bromofluorobenzene	109		67-138		%	1	06/21/13 13:12
Toluene-d8	116	*	85-115		%	1	06/25/13 00:13

Batch Information

Analytical Batch: VMS13566
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 06/21/13 13:12
Container ID: 1132391005-A

Prep Batch: VXX24836
Prep Method: SW5035A
Prep Date/Time: 06/10/13 14:00
Prep Initial Wt./Vol.: 120.37 g
Prep Extract Vol: 41.7916 mL

Analytical Batch: VMS13570
Analytical Method: SW8260B
Analyst: HM
Analytical Date/Time: 06/25/13 00:13
Container ID: 1132391005-A

Prep Batch: VXX24836
Prep Method: SW5035A
Prep Date/Time: 06/10/13 14:00
Prep Initial Wt./Vol.: 120.37 g
Prep Extract Vol: 41.7916 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB15-03-0610**

Client Sample ID: **SB15-03-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391006
Lab Project ID: 1132391

Collection Date: 06/10/13 15:10
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 88.6

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	22.2	U	22.2	6.89	mg/Kg	1	06/18/13 19:34
Surrogates							
5a Androstane	85.6		50-150		%	1	06/18/13 19:34

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/18/13 19:34
Container ID: 1132391006-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.473 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	34.3		22.2	6.89	mg/Kg	1	06/18/13 19:34
Surrogates							
n-Triacontane-d62	85		50-150		%	1	06/18/13 19:34

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK103
Analyst: HM
Analytical Date/Time: 06/18/13 19:34
Container ID: 1132391006-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.473 g
Prep Extract Vol: 1 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB15-03-0610**

Client Sample ID: **SB15-03-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391006
Lab Project ID: 1132391

Collection Date: 06/10/13 15:10
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 88.6

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	2.41	U	2.41	0.724	mg/Kg	1	06/17/13 17:13
Surrogates							
4-Bromofluorobenzene	102		50-150		%	1	06/17/13 17:13

Batch Information

Analytical Batch: VFC11467
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/17/13 17:13
Container ID: 1132391006-A

Prep Batch: VXX24818
Prep Method: SW5035A
Prep Date/Time: 06/10/13 15:10
Prep Initial Wt./Vol.: 79.829 g
Prep Extract Vol: 34.1194 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB15-03-0610**

Client Sample ID: **SB15-03-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391006
Lab Project ID: 1132391

Collection Date: 06/10/13 15:10
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 88.6

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
1,1,1-Trichloroethane	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
1,1,2,2-Tetrachloroethane	48.3	U	48.3	14.5	ug/Kg	1	06/21/13 13:29
1,1,2-Trichloroethane	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
1,1-Dichloroethane	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
1,1-Dichloroethene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
1,1-Dichloropropene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
1,2,3-Trichlorobenzene	48.3	U	48.3	14.5	ug/Kg	1	06/21/13 13:29
1,2,3-Trichloropropane	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
1,2,4-Trichlorobenzene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
1,2,4-Trimethylbenzene	48.3	U	48.3	14.5	ug/Kg	1	06/21/13 13:29
1,2-Dibromo-3-chloropropane	96.5	U	96.5	29.9	ug/Kg	1	06/21/13 13:29
1,2-Dibromoethane	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
1,2-Dichlorobenzene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
1,2-Dichloroethane	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
1,2-Dichloropropane	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
1,3,5-Trimethylbenzene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
1,3-Dichlorobenzene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
1,3-Dichloropropane	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
1,4-Dichlorobenzene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
2,2-Dichloropropane	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
2-Butanone (MEK)	241	U	241	75.3	ug/Kg	1	06/21/13 13:29
2-Chlorotoluene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
2-Hexanone	241	U	241	75.3	ug/Kg	1	06/21/13 13:29
4-Chlorotoluene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
4-Isopropyltoluene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
4-Methyl-2-pentanone (MIBK)	241	U	241	75.3	ug/Kg	1	06/21/13 13:29
Benzene	12.1	U	12.1	3.76	ug/Kg	1	06/21/13 13:29
Bromobenzene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
Bromochloromethane	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
Bromodichloromethane	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
Bromoform	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
Bromomethane	193	U	193	59.8	ug/Kg	1	06/21/13 13:29
Carbon disulfide	96.5	U	96.5	29.9	ug/Kg	1	06/21/13 13:29
Carbon tetrachloride	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
Chlorobenzene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
Chloroethane	193	U	193	59.8	ug/Kg	1	06/21/13 13:29
Chloroform	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
Chloromethane	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
cis-1,2-Dichloroethene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
cis-1,3-Dichloropropene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
Dibromochloromethane	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
Dibromomethane	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
Dichlorodifluoromethane	48.3	U	48.3	14.5	ug/Kg	1	06/21/13 13:29

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Results of **SB15-03-0610**

Client Sample ID: **SB15-03-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391006
Lab Project ID: 1132391

Collection Date: 06/10/13 15:10
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 88.6

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Ethylbenzene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
Hexachlorobutadiene	48.3	U	48.3	14.5	ug/Kg	1	06/21/13 13:29
Isopropylbenzene (Cumene)	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
Methyl-t-butyl ether	96.5	U	96.5	29.9	ug/Kg	1	06/21/13 13:29
Methylene chloride	96.5	U	96.5	29.9	ug/Kg	1	06/21/13 13:29
n-Butylbenzene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
n-Propylbenzene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
Naphthalene	48.3	U	48.3	14.5	ug/Kg	1	06/21/13 13:29
o-Xylene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
P & M -Xylene	48.3	U	48.3	14.5	ug/Kg	1	06/21/13 13:29
sec-Butylbenzene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
Styrene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
tert-Butylbenzene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
Tetrachloroethene	12.1	U	12.1	3.76	ug/Kg	1	06/21/13 13:29
Toluene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
trans-1,2-Dichloroethene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
trans-1,3-Dichloropropene	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
Trichloroethene	12.1	U	12.1	3.76	ug/Kg	1	06/21/13 13:29
Trichlorofluoromethane	48.3	U	48.3	14.5	ug/Kg	1	06/21/13 13:29
Vinyl chloride	24.1	U	24.1	7.53	ug/Kg	1	06/21/13 13:29
Xylenes (total)	96.5	U	96.5	29.9	ug/Kg	1	06/21/13 13:29
Surrogates							
1,2-Dichloroethane-D4	95.1		79-118		%	1	06/21/13 13:29
4-Bromofluorobenzene	103		67-138		%	1	06/21/13 13:29
Toluene-d8	91.5		85-115		%	1	06/21/13 13:29

Batch Information

Analytical Batch: VMS13566
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 06/21/13 13:29
Container ID: 1132391006-A

Prep Batch: VXX24836
Prep Method: SW5035A
Prep Date/Time: 06/10/13 15:10
Prep Initial Wt./Vol.: 79.829 g
Prep Extract Vol: 34.1194 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB16-05-0610**

Client Sample ID: **SB16-05-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391007
Lab Project ID: 1132391

Collection Date: 06/10/13 15:45
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 84.3

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	23.7	U	23.7	7.35	mg/Kg	1	06/18/13 19:54
Surrogates							
5a Androstane	78.3		50-150		%	1	06/18/13 19:54

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/18/13 19:54
Container ID: 1132391007-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.05 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	23.7	U	23.7	7.35	mg/Kg	1	06/18/13 19:54
Surrogates							
n-Triacontane-d62	87.3		50-150		%	1	06/18/13 19:54

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK103
Analyst: HM
Analytical Date/Time: 06/18/13 19:54
Container ID: 1132391007-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.05 g
Prep Extract Vol: 1 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB16-05-0610**

Client Sample ID: **SB16-05-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391007
Lab Project ID: 1132391

Collection Date: 06/10/13 15:45
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 84.3

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	2.29	U	2.29	0.686	mg/Kg	1	06/15/13 22:08
Surrogates							
4-Bromofluorobenzene	103		50-150		%	1	06/15/13 22:08

Batch Information

Analytical Batch: VFC11466
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/15/13 22:08
Container ID: 1132391007-A

Prep Batch: VXX24817
Prep Method: SW5035A
Prep Date/Time: 06/10/13 15:45
Prep Initial Wt./Vol.: 109.685 g
Prep Extract Vol: 42.2595 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	11.4	U	11.4	3.66	ug/Kg	1	06/15/13 22:08
Ethylbenzene	22.9	U	22.9	7.13	ug/Kg	1	06/15/13 22:08
o-Xylene	22.9	U	22.9	7.13	ug/Kg	1	06/15/13 22:08
P & M -Xylene	45.7	U	45.7	13.7	ug/Kg	1	06/15/13 22:08
Toluene	22.9	U	22.9	7.13	ug/Kg	1	06/15/13 22:08
Surrogates							
1,4-Difluorobenzene	93.5		72-119		%	1	06/15/13 22:08

Batch Information

Analytical Batch: VFC11466
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 06/15/13 22:08
Container ID: 1132391007-A

Prep Batch: VXX24817
Prep Method: SW5035A
Prep Date/Time: 06/10/13 15:45
Prep Initial Wt./Vol.: 109.685 g
Prep Extract Vol: 42.2595 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB18-03-0610**

Client Sample ID: **SB18-03-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391009
Lab Project ID: 1132391

Collection Date: 06/10/13 16:50
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 81.2

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	24.6	U	24.6	7.62	mg/Kg	1	06/18/13 20:15
Surrogates							
5a Androstane	80.6		50-150		%	1	06/18/13 20:15

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/18/13 20:15
Container ID: 1132391009-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.052 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	24.6	U	24.6	7.62	mg/Kg	1	06/18/13 20:15
Surrogates							
n-Triacontane-d62	86.7		50-150		%	1	06/18/13 20:15

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK103
Analyst: HM
Analytical Date/Time: 06/18/13 20:15
Container ID: 1132391009-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.052 g
Prep Extract Vol: 1 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB18-03-0610**

Client Sample ID: **SB18-03-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391009
Lab Project ID: 1132391

Collection Date: 06/10/13 16:50
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 81.2

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	2.33	U	2.33	0.698	mg/Kg	1	06/15/13 22:26
Surrogates							
4-Bromofluorobenzene	128		50-150		%	1	06/15/13 22:26

Batch Information

Analytical Batch: VFC11466
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/15/13 22:26
Container ID: 1132391009-A

Prep Batch: VXX24817
Prep Method: SW5035A
Prep Date/Time: 06/10/13 16:50
Prep Initial Wt./Vol.: 131.406 g
Prep Extract Vol: 49.6602 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	11.6	U	11.6	3.72	ug/Kg	1	06/15/13 22:26
Ethylbenzene	23.3	U	23.3	7.26	ug/Kg	1	06/15/13 22:26
o-Xylene	23.3	U	23.3	7.26	ug/Kg	1	06/15/13 22:26
P & M -Xylene	46.5	U	46.5	14.0	ug/Kg	1	06/15/13 22:26
Toluene	23.3	U	23.3	7.26	ug/Kg	1	06/15/13 22:26
Surrogates							
1,4-Difluorobenzene	93.8		72-119		%	1	06/15/13 22:26

Batch Information

Analytical Batch: VFC11466
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 06/15/13 22:26
Container ID: 1132391009-A

Prep Batch: VXX24817
Prep Method: SW5035A
Prep Date/Time: 06/10/13 16:50
Prep Initial Wt./Vol.: 131.406 g
Prep Extract Vol: 49.6602 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB19-03-0610**

Client Sample ID: **SB19-03-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391010
Lab Project ID: 1132391

Collection Date: 06/10/13 17:25
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 82.5

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
1-Methylnaphthalene	6.07	U	6.07	1.82	ug/Kg	1	06/19/13 21:22
2-Methylnaphthalene	6.07	U	6.07	1.82	ug/Kg	1	06/19/13 21:22
Acenaphthene	6.07	U	6.07	1.82	ug/Kg	1	06/19/13 21:22
Acenaphthylene	6.07	U	6.07	1.82	ug/Kg	1	06/19/13 21:22
Anthracene	6.07	U	6.07	1.82	ug/Kg	1	06/19/13 21:22
Benzo(a)Anthracene	6.07	U	6.07	1.82	ug/Kg	1	06/19/13 21:22
Benzo[a]pyrene	6.07	U	6.07	1.82	ug/Kg	1	06/19/13 21:22
Benzo[b]Fluoranthene	6.07	U	6.07	1.82	ug/Kg	1	06/19/13 21:22
Benzo[g,h,i]perylene	6.07	U	6.07	1.82	ug/Kg	1	06/19/13 21:22
Benzo[k]fluoranthene	6.07	U	6.07	1.82	ug/Kg	1	06/19/13 21:22
Chrysene	6.07	U	6.07	1.82	ug/Kg	1	06/19/13 21:22
Dibenzo[a,h]anthracene	6.07	U	6.07	1.82	ug/Kg	1	06/19/13 21:22
Fluoranthene	6.07	U	6.07	1.82	ug/Kg	1	06/19/13 21:22
Fluorene	6.07	U	6.07	1.82	ug/Kg	1	06/19/13 21:22
Indeno[1,2,3-c,d] pyrene	6.07	U	6.07	1.82	ug/Kg	1	06/19/13 21:22
Naphthalene	6.07	U	6.07	1.82	ug/Kg	1	06/19/13 21:22
Phenanthrene	6.07	U	6.07	1.82	ug/Kg	1	06/19/13 21:22
Pyrene	6.07	U	6.07	1.82	ug/Kg	1	06/19/13 21:22
Surrogates							
2-Fluorobiphenyl	85.8		45-105		%	1	06/19/13 21:22
Terphenyl-d14	107		30-125		%	1	06/19/13 21:22

Batch Information

Analytical Batch: XMS7383
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 06/19/13 21:22
Container ID: 1132391010-B

Prep Batch: XXX29192
Prep Method: SW3550C
Prep Date/Time: 06/19/13 07:00
Prep Initial Wt./Vol.: 22.453 g
Prep Extract Vol: 1 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB19-03-0610**

Client Sample ID: **SB19-03-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391010
Lab Project ID: 1132391

Collection Date: 06/10/13 17:25
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 82.5

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	23.9	U	23.9	7.40	mg/Kg	1	06/18/13 20:35
Surrogates							
5a Androstane	86		50-150		%	1	06/18/13 20:35

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/18/13 20:35
Container ID: 1132391010-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.444 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	23.9	U	23.9	7.40	mg/Kg	1	06/18/13 20:35
Surrogates							
n-Triacontane-d62	88.4		50-150		%	1	06/18/13 20:35

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK103
Analyst: HM
Analytical Date/Time: 06/18/13 20:35
Container ID: 1132391010-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.444 g
Prep Extract Vol: 1 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB19-03-0610**

Client Sample ID: **SB19-03-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391010
Lab Project ID: 1132391

Collection Date: 06/10/13 17:25
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 82.5

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	2.93	U	2.93	0.878	mg/Kg	1	06/15/13 23:22
Surrogates							
4-Bromofluorobenzene	97.7		50-150		%	1	06/15/13 23:22

Batch Information

Analytical Batch: VFC11466
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/15/13 23:22
Container ID: 1132391010-A

Prep Batch: VXX24817
Prep Method: SW5035A
Prep Date/Time: 06/10/13 17:25
Prep Initial Wt./Vol.: 81.168 g
Prep Extract Vol: 39.187 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	14.6	U	14.6	4.68	ug/Kg	1	06/15/13 23:22
Ethylbenzene	29.3	U	29.3	9.13	ug/Kg	1	06/15/13 23:22
o-Xylene	29.3	U	29.3	9.13	ug/Kg	1	06/15/13 23:22
P & M -Xylene	58.5	U	58.5	17.6	ug/Kg	1	06/15/13 23:22
Toluene	29.3	U	29.3	9.13	ug/Kg	1	06/15/13 23:22
Surrogates							
1,4-Difluorobenzene	93.3		72-119		%	1	06/15/13 23:22

Batch Information

Analytical Batch: VFC11466
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 06/15/13 23:22
Container ID: 1132391010-A

Prep Batch: VXX24817
Prep Method: SW5035A
Prep Date/Time: 06/10/13 17:25
Prep Initial Wt./Vol.: 81.168 g
Prep Extract Vol: 39.187 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB20-04-0610**

Client Sample ID: **SB20-04-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391012
Lab Project ID: 1132391

Collection Date: 06/10/13 18:00
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 84.2

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	23.5	U	23.5	7.28	mg/Kg	1	06/19/13 00:20
Surrogates							
5a Androstane	88.5		50-150		%	1	06/19/13 00:20

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/19/13 00:20
Container ID: 1132391012-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.346 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	23.5	U	23.5	7.28	mg/Kg	1	06/19/13 00:20
Surrogates							
n-Triacontane-d62	90.5		50-150		%	1	06/19/13 00:20

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK103
Analyst: HM
Analytical Date/Time: 06/19/13 00:20
Container ID: 1132391012-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.346 g
Prep Extract Vol: 1 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB20-04-0610**

Client Sample ID: **SB20-04-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391012
Lab Project ID: 1132391

Collection Date: 06/10/13 18:00
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 84.2

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	2.39	U	2.39	0.716	mg/Kg	1	06/15/13 23:41
Surrogates							
4-Bromofluorobenzene	109		50-150		%	1	06/15/13 23:41

Batch Information

Analytical Batch: VFC11466
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/15/13 23:41
Container ID: 1132391012-A

Prep Batch: VXX24817
Prep Method: SW5035A
Prep Date/Time: 06/10/13 18:00
Prep Initial Wt./Vol.: 102.62 g
Prep Extract Vol: 41.2525 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	11.9	U	11.9	3.82	ug/Kg	1	06/15/13 23:41
Ethylbenzene	23.9	U	23.9	7.45	ug/Kg	1	06/15/13 23:41
o-Xylene	23.9	U	23.9	7.45	ug/Kg	1	06/15/13 23:41
P & M -Xylene	47.8	U	47.8	14.3	ug/Kg	1	06/15/13 23:41
Toluene	23.9	U	23.9	7.45	ug/Kg	1	06/15/13 23:41
Surrogates							
1,4-Difluorobenzene	93.4		72-119		%	1	06/15/13 23:41

Batch Information

Analytical Batch: VFC11466
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 06/15/13 23:41
Container ID: 1132391012-A

Prep Batch: VXX24817
Prep Method: SW5035A
Prep Date/Time: 06/10/13 18:00
Prep Initial Wt./Vol.: 102.62 g
Prep Extract Vol: 41.2525 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB21-04-0610**

Client Sample ID: **SB21-04-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391013
Lab Project ID: 1132391

Collection Date: 06/10/13 18:45
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 82.1

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	24.3	U	24.3	7.52	mg/Kg	1	06/19/13 00:40
Surrogates							
5a Androstane	86.8		50-150		%	1	06/19/13 00:40

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/19/13 00:40
Container ID: 1132391013-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.13 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	33.7		24.3	7.52	mg/Kg	1	06/19/13 00:40
Surrogates							
n-Triacontane-d62	86.4		50-150		%	1	06/19/13 00:40

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK103
Analyst: HM
Analytical Date/Time: 06/19/13 00:40
Container ID: 1132391013-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.13 g
Prep Extract Vol: 1 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB21-04-0610**

Client Sample ID: **SB21-04-0610**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391013
Lab Project ID: 1132391

Collection Date: 06/10/13 18:45
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 82.1

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	109		2.84	0.853	mg/Kg	1	06/16/13 00:00
Surrogates							
4-Bromofluorobenzene	549	*	50-150		%	1	06/16/13 00:00

Batch Information

Analytical Batch: VFC11466
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/16/13 00:00
Container ID: 1132391013-A

Prep Batch: VXX24817
Prep Method: SW5035A
Prep Date/Time: 06/10/13 18:45
Prep Initial Wt./Vol.: 86.81 g
Prep Extract Vol: 40.5404 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	45.8		14.2	4.55	ug/Kg	1	06/16/13 00:00
Ethylbenzene	485		28.4	8.87	ug/Kg	1	06/16/13 00:00
o-Xylene	395		28.4	8.87	ug/Kg	1	06/16/13 00:00
P & M -Xylene	463		56.9	17.1	ug/Kg	1	06/16/13 00:00
Toluene	185		28.4	8.87	ug/Kg	1	06/16/13 00:00
Surrogates							
1,4-Difluorobenzene	102		72-119		%	1	06/16/13 00:00

Batch Information

Analytical Batch: VFC11466
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 06/16/13 00:00
Container ID: 1132391013-A

Prep Batch: VXX24817
Prep Method: SW5035A
Prep Date/Time: 06/10/13 18:45
Prep Initial Wt./Vol.: 86.81 g
Prep Extract Vol: 40.5404 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB22-04-0611**

Client Sample ID: **SB22-04-0611**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391014
Lab Project ID: 1132391

Collection Date: 06/11/13 10:15
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 84.7

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	23.6	U	23.6	7.32	mg/Kg	1	06/19/13 01:01
Surrogates							
5a Androstane	87.5		50-150		%	1	06/19/13 01:01

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/19/13 01:01
Container ID: 1132391014-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.011 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	23.6	U	23.6	7.32	mg/Kg	1	06/19/13 01:01
Surrogates							
n-Triacontane-d62	88.7		50-150		%	1	06/19/13 01:01

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK103
Analyst: HM
Analytical Date/Time: 06/19/13 01:01
Container ID: 1132391014-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.011 g
Prep Extract Vol: 1 mL

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Results of **SB22-04-0611**

Client Sample ID: **SB22-04-0611**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391014
Lab Project ID: 1132391

Collection Date: 06/11/13 10:15
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 84.7

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	90.2		2.57	0.770	mg/Kg	1	06/16/13 00:18
Surrogates							
4-Bromofluorobenzene	621	*	50-150		%	1	06/16/13 00:18

Batch Information

Analytical Batch: VFC11466
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/16/13 00:18
Container ID: 1132391014-A

Prep Batch: VXX24817
Prep Method: SW5035A
Prep Date/Time: 06/11/13 10:15
Prep Initial Wt./Vol.: 88.621 g
Prep Extract Vol: 38.5397 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB22-04-0611**

Client Sample ID: **SB22-04-0611**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391014
Lab Project ID: 1132391

Collection Date: 06/11/13 10:15
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 84.7

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
1,1,1-Trichloroethane	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
1,1,2,2-Tetrachloroethane	51.3	U	51.3	15.4	ug/Kg	1	06/25/13 00:30
1,1,2-Trichloroethane	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
1,1-Dichloroethane	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
1,1-Dichloroethene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
1,1-Dichloropropene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
1,2,3-Trichlorobenzene	51.3	U	51.3	15.4	ug/Kg	1	06/25/13 00:30
1,2,3-Trichloropropane	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
1,2,4-Trichlorobenzene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
1,2,4-Trimethylbenzene	51.3	U	51.3	15.4	ug/Kg	1	06/25/13 00:30
1,2-Dibromo-3-chloropropane	103	U	103	31.8	ug/Kg	1	06/25/13 00:30
1,2-Dibromoethane	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
1,2-Dichlorobenzene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
1,2-Dichloroethane	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
1,2-Dichloropropane	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
1,3,5-Trimethylbenzene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
1,3-Dichlorobenzene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
1,3-Dichloropropane	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
1,4-Dichlorobenzene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
2,2-Dichloropropane	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
2-Butanone (MEK)	257	U	257	80.1	ug/Kg	1	06/25/13 00:30
2-Chlorotoluene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
2-Hexanone	257	U	257	80.1	ug/Kg	1	06/25/13 00:30
4-Chlorotoluene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
4-Isopropyltoluene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
4-Methyl-2-pentanone (MIBK)	257	U	257	80.1	ug/Kg	1	06/25/13 00:30
Benzene	12.8	U	12.8	4.00	ug/Kg	1	06/25/13 00:30
Bromobenzene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
Bromochloromethane	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
Bromodichloromethane	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
Bromoform	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
Bromomethane	205	U	205	63.7	ug/Kg	1	06/25/13 00:30
Carbon disulfide	103	U	103	31.8	ug/Kg	1	06/25/13 00:30
Carbon tetrachloride	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
Chlorobenzene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
Chloroethane	205	U	205	63.7	ug/Kg	1	06/25/13 00:30
Chloroform	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
Chloromethane	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
cis-1,2-Dichloroethene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
cis-1,3-Dichloropropene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
Dibromochloromethane	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
Dibromomethane	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
Dichlorodifluoromethane	51.3	U	51.3	15.4	ug/Kg	1	06/25/13 00:30

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Results of **SB22-04-0611**

Client Sample ID: **SB22-04-0611**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391014
Lab Project ID: 1132391

Collection Date: 06/11/13 10:15
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 84.7

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Ethylbenzene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
Hexachlorobutadiene	51.3	U	51.3	15.4	ug/Kg	1	06/25/13 00:30
Isopropylbenzene (Cumene)	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
Methyl-t-butyl ether	103	U	103	31.8	ug/Kg	1	06/25/13 00:30
Methylene chloride	103	U	103	31.8	ug/Kg	1	06/25/13 00:30
n-Butylbenzene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
n-Propylbenzene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
Naphthalene	51.3	U	51.3	15.4	ug/Kg	1	06/25/13 00:30
o-Xylene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
P & M -Xylene	51.3	U	51.3	15.4	ug/Kg	1	06/25/13 00:30
sec-Butylbenzene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
Styrene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
tert-Butylbenzene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
Tetrachloroethene	12.8	U	12.8	4.00	ug/Kg	1	06/25/13 00:30
Toluene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
trans-1,2-Dichloroethene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
trans-1,3-Dichloropropene	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
Trichloroethene	12.8	U	12.8	4.00	ug/Kg	1	06/25/13 00:30
Trichlorofluoromethane	51.3	U	51.3	15.4	ug/Kg	1	06/25/13 00:30
Vinyl chloride	25.7	U	25.7	8.01	ug/Kg	1	06/25/13 00:30
Xylenes (total)	103	U	103	31.8	ug/Kg	1	06/25/13 00:30
Surrogates							
1,2-Dichloroethane-D4	98		79-118		%	1	06/25/13 00:30
4-Bromofluorobenzene	133		67-138		%	1	06/25/13 00:30
Toluene-d8	91.2		85-115		%	1	06/25/13 00:30

Batch Information

Analytical Batch: VMS13570
Analytical Method: SW8260B
Analyst: HM
Analytical Date/Time: 06/25/13 00:30
Container ID: 1132391014-A

Prep Batch: VXX24836
Prep Method: SW5035A
Prep Date/Time: 06/11/13 10:15
Prep Initial Wt./Vol.: 88.621 g
Prep Extract Vol: 38.5397 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB22-09-0611**

Client Sample ID: **SB22-09-0611**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391015
Lab Project ID: 1132391

Collection Date: 06/11/13 10:15
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 83.3

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Diesel Range Organics	23.9	U	23.9	7.42	mg/Kg	1	06/19/13 01:22
Surrogates							
5a Androstane	87.1		50-150		%	1	06/19/13 01:22

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/19/13 01:22
Container ID: 1132391015-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.095 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Residual Range Organics	23.9	U	23.9	7.42	mg/Kg	1	06/19/13 01:22
Surrogates							
n-Triacontane-d62	88.8		50-150		%	1	06/19/13 01:22

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK103
Analyst: HM
Analytical Date/Time: 06/19/13 01:22
Container ID: 1132391015-B

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 06/17/13 16:30
Prep Initial Wt./Vol.: 30.095 g
Prep Extract Vol: 1 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB22-09-0611**

Client Sample ID: **SB22-09-0611**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391015
Lab Project ID: 1132391

Collection Date: 06/11/13 10:15
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 83.3

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	139		27.1	8.14	mg/Kg	10	06/17/13 18:10
Surrogates							
4-Bromofluorobenzene	77.4		50-150		%	10	06/17/13 18:10

Batch Information

Analytical Batch: VFC11467
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/17/13 18:10
Container ID: 1132391015-A

Prep Batch: VXX24818
Prep Method: SW5035A
Prep Date/Time: 06/11/13 10:15
Prep Initial Wt./Vol.: 87.711 g
Prep Extract Vol: 39.6641 mL

Print Date: 07/11/2013 11:07:55AM

Results of **SB22-09-0611**

Client Sample ID: **SB22-09-0611**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391015
Lab Project ID: 1132391

Collection Date: 06/11/13 10:15
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 83.3

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
1,1,1-Trichloroethane	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
1,1,2,2-Tetrachloroethane	54.3	U	54.3	16.3	ug/Kg	1	06/25/13 00:47
1,1,2-Trichloroethane	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
1,1-Dichloroethane	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
1,1-Dichloroethene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
1,1-Dichloropropene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
1,2,3-Trichlorobenzene	54.3	U	54.3	16.3	ug/Kg	1	06/25/13 00:47
1,2,3-Trichloropropane	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
1,2,4-Trichlorobenzene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
1,2,4-Trimethylbenzene	54.3	U	54.3	16.3	ug/Kg	1	06/25/13 00:47
1,2-Dibromo-3-chloropropane	109	U	109	33.7	ug/Kg	1	06/25/13 00:47
1,2-Dibromoethane	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
1,2-Dichlorobenzene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
1,2-Dichloroethane	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
1,2-Dichloropropane	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
1,3,5-Trimethylbenzene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
1,3-Dichlorobenzene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
1,3-Dichloropropane	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
1,4-Dichlorobenzene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
2,2-Dichloropropane	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
2-Butanone (MEK)	271	U	271	84.7	ug/Kg	1	06/25/13 00:47
2-Chlorotoluene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
2-Hexanone	271	U	271	84.7	ug/Kg	1	06/25/13 00:47
4-Chlorotoluene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
4-Isopropyltoluene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
4-Methyl-2-pentanone (MIBK)	271	U	271	84.7	ug/Kg	1	06/25/13 00:47
Benzene	13.6	U	13.6	4.24	ug/Kg	1	06/25/13 00:47
Bromobenzene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
Bromochloromethane	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
Bromodichloromethane	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
Bromoform	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
Bromomethane	217	U	217	67.3	ug/Kg	1	06/25/13 00:47
Carbon disulfide	109	U	109	33.7	ug/Kg	1	06/25/13 00:47
Carbon tetrachloride	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
Chlorobenzene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
Chloroethane	217	U	217	67.3	ug/Kg	1	06/25/13 00:47
Chloroform	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
Chloromethane	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
cis-1,2-Dichloroethene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
cis-1,3-Dichloropropene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
Dibromochloromethane	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
Dibromomethane	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
Dichlorodifluoromethane	54.3	U	54.3	16.3	ug/Kg	1	06/25/13 00:47

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Results of **SB22-09-0611**

Client Sample ID: **SB22-09-0611**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391015
Lab Project ID: 1132391

Collection Date: 06/11/13 10:15
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%): 83.3

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Ethylbenzene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
Hexachlorobutadiene	54.3	U	54.3	16.3	ug/Kg	1	06/25/13 00:47
Isopropylbenzene (Cumene)	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
Methyl-t-butyl ether	109	U	109	33.7	ug/Kg	1	06/25/13 00:47
Methylene chloride	109	U	109	33.7	ug/Kg	1	06/25/13 00:47
n-Butylbenzene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
n-Propylbenzene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
Naphthalene	54.3	U	54.3	16.3	ug/Kg	1	06/25/13 00:47
o-Xylene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
P & M -Xylene	54.3	U	54.3	16.3	ug/Kg	1	06/25/13 00:47
sec-Butylbenzene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
Styrene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
tert-Butylbenzene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
Tetrachloroethene	13.6	U	13.6	4.24	ug/Kg	1	06/25/13 00:47
Toluene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
trans-1,2-Dichloroethene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
trans-1,3-Dichloropropene	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
Trichloroethene	13.6	U	13.6	4.24	ug/Kg	1	06/25/13 00:47
Trichlorofluoromethane	54.3	U	54.3	16.3	ug/Kg	1	06/25/13 00:47
Vinyl chloride	27.1	U	27.1	8.47	ug/Kg	1	06/25/13 00:47
Xylenes (total)	109	U	109	33.7	ug/Kg	1	06/25/13 00:47
Surrogates							
1,2-Dichloroethane-D4	103		79-118		%	1	06/25/13 00:47
4-Bromofluorobenzene	130		67-138		%	1	06/25/13 00:47
Toluene-d8	95.5		85-115		%	1	06/25/13 00:47

Batch Information

Analytical Batch: VMS13570
Analytical Method: SW8260B
Analyst: HM
Analytical Date/Time: 06/25/13 00:47
Container ID: 1132391015-A

Prep Batch: VXX24836
Prep Method: SW5035A
Prep Date/Time: 06/11/13 10:15
Prep Initial Wt./Vol.: 87.711 g
Prep Extract Vol: 39.6641 mL

Print Date: 07/11/2013 11:07:55AM

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391016
Lab Project ID: 1132391

Collection Date: 06/10/13 10:20
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%):

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	2.50	U	2.50	0.751	mg/Kg	1	06/15/13 19:57
Surrogates							
4-Bromofluorobenzene	96.3		50-150		%	1	06/15/13 19:57

Batch Information

Analytical Batch: VFC11466
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/15/13 19:57
Container ID: 1132391016-A

Prep Batch: VXX24817
Prep Method: SW5035A
Prep Date/Time: 06/10/13 10:20
Prep Initial Wt./Vol.: 49.923 g
Prep Extract Vol: 25 mL

Print Date: 07/11/2013 11:07:55AM

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391016
Lab Project ID: 1132391

Collection Date: 06/10/13 10:20
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%):

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
1,1,1-Trichloroethane	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
1,1,2,2-Tetrachloroethane	50.1	U	50.1	15.0	ug/Kg	1	06/19/13 18:59
1,1,2-Trichloroethane	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
1,1-Dichloroethane	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
1,1-Dichloroethene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
1,1-Dichloropropene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
1,2,3-Trichlorobenzene	50.1	U	50.1	15.0	ug/Kg	1	06/19/13 18:59
1,2,3-Trichloropropane	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
1,2,4-Trichlorobenzene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
1,2,4-Trimethylbenzene	50.1	U	50.1	15.0	ug/Kg	1	06/19/13 18:59
1,2-Dibromo-3-chloropropane	100	U	100	31.0	ug/Kg	1	06/19/13 18:59
1,2-Dibromoethane	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
1,2-Dichlorobenzene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
1,2-Dichloroethane	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
1,2-Dichloropropane	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
1,3,5-Trimethylbenzene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
1,3-Dichlorobenzene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
1,3-Dichloropropane	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
1,4-Dichlorobenzene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
2,2-Dichloropropane	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
2-Butanone (MEK)	250	U	250	78.1	ug/Kg	1	06/19/13 18:59
2-Chlorotoluene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
2-Hexanone	250	U	250	78.1	ug/Kg	1	06/19/13 18:59
4-Chlorotoluene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
4-Isopropyltoluene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
4-Methyl-2-pentanone (MIBK)	250	U	250	78.1	ug/Kg	1	06/19/13 18:59
Benzene	12.5	U	12.5	3.91	ug/Kg	1	06/19/13 18:59
Bromobenzene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
Bromochloromethane	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
Bromodichloromethane	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
Bromoform	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
Bromomethane	200	U	200	62.1	ug/Kg	1	06/19/13 18:59
Carbon disulfide	100	U	100	31.0	ug/Kg	1	06/19/13 18:59
Carbon tetrachloride	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
Chlorobenzene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
Chloroethane	200	U	200	62.1	ug/Kg	1	06/19/13 18:59
Chloroform	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
Chloromethane	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
cis-1,2-Dichloroethene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
cis-1,3-Dichloropropene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
Dibromochloromethane	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
Dibromomethane	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
Dichlorodifluoromethane	50.1	U	50.1	15.0	ug/Kg	1	06/19/13 18:59

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Talkeetna**
Lab Sample ID: 1132391016
Lab Project ID: 1132391

Collection Date: 06/10/13 10:20
Received Date: 06/14/13 08:54
Matrix: Soil/Solid (dry weight)
Solids (%):

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Ethylbenzene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
Hexachlorobutadiene	50.1	U	50.1	15.0	ug/Kg	1	06/19/13 18:59
Isopropylbenzene (Cumene)	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
Methyl-t-butyl ether	100	U	100	31.0	ug/Kg	1	06/19/13 18:59
Methylene chloride	100	U	100	31.0	ug/Kg	1	06/19/13 18:59
n-Butylbenzene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
n-Propylbenzene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
Naphthalene	50.1	U	50.1	15.0	ug/Kg	1	06/19/13 18:59
o-Xylene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
P & M -Xylene	50.1	U	50.1	15.0	ug/Kg	1	06/19/13 18:59
sec-Butylbenzene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
Styrene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
tert-Butylbenzene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
Tetrachloroethene	12.5	U	12.5	3.91	ug/Kg	1	06/19/13 18:59
Toluene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
trans-1,2-Dichloroethene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
trans-1,3-Dichloropropene	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
Trichloroethene	12.5	U	12.5	3.91	ug/Kg	1	06/19/13 18:59
Trichlorofluoromethane	50.1	U	50.1	15.0	ug/Kg	1	06/19/13 18:59
Vinyl chloride	25.0	U	25.0	7.81	ug/Kg	1	06/19/13 18:59
Xylenes (total)	100	U	100	31.0	ug/Kg	1	06/19/13 18:59
Surrogates							
1,2-Dichloroethane-D4	90		79-118		%	1	06/19/13 18:59
4-Bromofluorobenzene	104		67-138		%	1	06/19/13 18:59
Toluene-d8	98.8		85-115		%	1	06/19/13 18:59

Batch Information

Analytical Batch: VMS13562
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 06/19/13 18:59
Container ID: 1132391016-A

Prep Batch: VXX24827
Prep Method: SW5035A
Prep Date/Time: 06/10/13 10:20
Prep Initial Wt./Vol.: 49.923 g
Prep Extract Vol: 25 mL

Print Date: 07/11/2013 11:07:55AM

Method Blank

Blank ID: MB for HBN 1455167 [SPT/9047]
Blank Lab ID: 1153098

Matrix: Soil/Solid (dry weight)

QC for Samples:
1132391001, 1132391002, 1132391004, 1132391005, 1132391006, 1132391007, 1132391009, 1132391010, 1132391012, 1132391013, 1132391014, 1132391015

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT9047
Analytical Method: SM21 2540G
Instrument:
Analyst: KRL
Analytical Date/Time: 6/14/2013 5:00:00PM

Print Date: 07/11/2013 11:08:02AM

Duplicate Sample Summary

Original Sample ID: 1132380001
Duplicate Sample ID: 1153099

Analysis Date: 06/14/2013 17:00
Matrix: Soil/Solid (dry weight)

QC for Samples:

1132391001, 1132391002, 1132391004, 1132391005, 1132391006, 1132391007, 1132391009, 1132391010, 1132391012, 1132391013, 1132391014, 1132391015

Results by **SM21 2540G**

NAME	Original (15.00)	Duplicate (15.00)	RPD (%)	RPD CL
Total Solids	96.7	96.8	0.14	15.00

Batch Information

Analytical Batch: SPT9047
Analytical Method: SM21 2540G
Instrument:
Analyst: KRL

Print Date: 07/11/2013 11:08:03AM

Method Blank

Blank ID: MB for HBN 1455303 [VXX/24817]
Blank Lab ID: 1153436

Matrix: Soil/Solid (dry weight)

QC for Samples:
1132391001, 1132391002, 1132391004, 1132391007, 1132391009, 1132391010, 1132391012, 1132391013, 1132391014, 1132391016

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.00800U	0.0125	0.00400	mg/Kg
Ethylbenzene	0.0156U	0.0250	0.00780	mg/Kg
Gasoline Range Organics	1.50U	2.50	0.750	mg/Kg
o-Xylene	0.0156U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0300U	0.0500	0.0150	mg/Kg
Toluene	0.0156U	0.0250	0.00780	mg/Kg
Surrogates				
1,4-Difluorobenzene	93.5	72-119		%
4-Bromofluorobenzene	80.9	50-150		%

Batch Information

Analytical Batch: VFC11466
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 6/15/2013 4:32:00PM

Prep Batch: VXX24817
Prep Method: SW5035A
Prep Date/Time: 6/15/2013 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 07/11/2013 11:08:06AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1132391 [VXX24817]
Blank Spike Lab ID: 1153437
Date Analyzed: 06/15/2013 16:51

Spike Duplicate ID: LCSD for HBN 1132391 [VXX24817]
Spike Duplicate Lab ID: 1153438
Matrix: Soil/Solid (dry weight)

QC for Samples: 1132391001, 1132391002, 1132391004, 1132391007, 1132391009, 1132391010, 1132391012, 1132391013, 1132391014, 1132391016

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	1.25	1.13	90	1.25	1.09	87	(75-125)	3.70	(< 20)
Ethylbenzene	1.25	1.16	93	1.25	1.10	88	(75-125)	5.30	(< 20)
o-Xylene	1.25	1.08	87	1.25	1.03	82	(75-125)	5.20	(< 20)
P & M -Xylene	2.50	2.33	93	2.50	2.20	88	(80-125)	5.50	(< 20)
Toluene	1.25	1.16	93	1.25	1.10	88	(70-125)	4.80	(< 20)
Surrogates									
1,4-Difluorobenzene	1.25	98	98	1.25	98.2	98	(72-119)	0.22	

Batch Information

Analytical Batch: **VFC11466**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **ST**

Prep Batch: **VXX24817**
Prep Method: **SW5035A**
Prep Date/Time: **06/15/2013 08:00**
Spike Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1132391 [VXX24817]
Blank Spike Lab ID: 1153439
Date Analyzed: 06/15/2013 17:28

Spike Duplicate ID: LCSD for HBN 1132391 [VXX24817]
Spike Duplicate Lab ID: 1153440
Matrix: Soil/Solid (dry weight)

QC for Samples: 1132391001, 1132391002, 1132391004, 1132391007, 1132391009, 1132391010, 1132391012, 1132391013, 1132391014, 1132391016

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	10.0	8.92	89	10.0	8.28	83	(60-120)	7.40	(< 20)
Surrogates									
4-Bromofluorobenzene	1.25	81	81	1.25	81.4	81	(50-150)	0.49	

Batch Information

Analytical Batch: **VFC11466**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **ST**

Prep Batch: **VXX24817**
Prep Method: **SW5035A**
Prep Date/Time: **06/15/2013 08:00**
Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

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Matrix Spike Summary

Original Sample ID: 1132394002
MS Sample ID: 1153441 MS
MSD Sample ID: 1153442 MSD

Analysis Date: 06/15/2013 18:24
Analysis Date: 06/15/2013 18:43
Analysis Date: 06/15/2013 19:02
Matrix: Soil/Solid (dry weight)

QC for Samples: 1132391001, 1132391002, 1132391004, 1132391007, 1132391009, 1132391010, 1132391012, 1132391013, 1132391014, 1132391016

Results by **AK101**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	0.0299U	1.83	1.97	108	1.83	1.68	92	75-125	16.60	(< 20)
Ethylbenzene	0.0597U	1.83	2.06	113	1.83	1.73	94	75-125	18.20	(< 20)
o-Xylene	0.139	1.83	1.99	101	1.83	1.65	83	75-125	18.20	(< 20)
P & M -Xylene	0.166	3.67	4.15	109	3.67	3.45	90	80-125	18.40	(< 20)
Toluene	0.510	1.83	2.32	99	1.83	2.00	81	70-125	15.20	(< 20)
Surrogates										
1,4-Difluorobenzene		1.83	1.81	99	1.83	1.80	98	72-119	0.47	

Batch Information

Analytical Batch: VFC11466
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 6/15/2013 6:43:00PM

Prep Batch: VXX24817
Prep Method: AK101 Extraction (S)
Prep Date/Time: 6/15/2013 8:00:00AM
Prep Initial Wt./Vol.: 49.86g
Prep Extract Vol: 25.00mL

Print Date: 07/11/2013 11:08:08AM

Method Blank

Blank ID: MB for HBN 1455303 [VXX/24817]
Blank Lab ID: 1153436

Matrix: Soil/Solid (dry weight)

QC for Samples:
1132391001, 1132391002, 1132391004, 1132391007, 1132391009, 1132391010, 1132391012, 1132391013, 1132391014, 1132391016

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	8.00U	12.5	4.00	ug/Kg
Ethylbenzene	15.6U	25.0	7.80	ug/Kg
o-Xylene	15.6U	25.0	7.80	ug/Kg
P & M -Xylene	30.0U	50.0	15.0	ug/Kg
Toluene	15.6U	25.0	7.80	ug/Kg
Surrogates				
1,4-Difluorobenzene	93.5	72-119		%

Batch Information

Analytical Batch: VFC11466
Analytical Method: SW8021B
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 6/15/2013 4:32:00PM

Prep Batch: VXX24817
Prep Method: SW5035A
Prep Date/Time: 6/15/2013 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1132391 [VXX24817]
Blank Spike Lab ID: 1153437
Date Analyzed: 06/15/2013 16:51

Spike Duplicate ID: LCSD for HBN 1132391 [VXX24817]
Spike Duplicate Lab ID: 1153438
Matrix: Soil/Solid (dry weight)

QC for Samples: 1132391001, 1132391002, 1132391004, 1132391007, 1132391009, 1132391010, 1132391012, 1132391013, 1132391014, 1132391016

Results by **SW8021B**

	Blank Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	1250	1130	90	1250	1090	87	(75-125)	3.70	(< 20)
Ethylbenzene	1250	1160	93	1250	1100	88	(75-125)	5.30	(< 20)
o-Xylene	1250	1080	87	1250	1030	82	(75-125)	5.20	(< 20)
P & M -Xylene	2500	2330	93	2500	2200	88	(80-125)	5.50	(< 20)
Toluene	1250	1160	93	1250	1100	88	(70-125)	4.80	(< 20)
Surrogates									
1,4-Difluorobenzene	1250	98	98	1250	98.2	98	(72-119)	0.22	

Batch Information

Analytical Batch: **VFC11466**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890 PID/FID**
Analyst: **ST**

Prep Batch: **VXX24817**
Prep Method: **SW5035A**
Prep Date/Time: **06/15/2013 08:00**
Spike Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL

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Matrix Spike Summary

Original Sample ID: 1132394002
MS Sample ID: 1153441 MS
MSD Sample ID: 1153442 MSD

Analysis Date: 06/15/2013 18:24
Analysis Date: 06/15/2013 18:43
Analysis Date: 06/15/2013 19:02
Matrix: Soil/Solid (dry weight)

QC for Samples: 1132391001, 1132391002, 1132391004, 1132391007, 1132391009, 1132391010, 1132391012, 1132391013, 1132391014, 1132391016

Results by **SW8021B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	29.9U	1827	1974	108	1827	1681	92	75-125	16.60	(< 20)
Ethylbenzene	59.7U	1827	2061	113	1827	1725	94	75-125	18.20	(< 20)
o-Xylene	139	1827	1988	101	1827	1652	83	75-125	18.20	(< 20)
P & M -Xylene	166	3670	4152	109	3670	3450	90	80-125	18.40	(< 20)
Toluene	510	1827	2325	99	1827	2003	81	70-125	15.20	(< 20)
Surrogates										
1,4-Difluorobenzene		1827	1813	99	1827	1798	98	72-119	0.47	

Batch Information

Analytical Batch: VFC11466
Analytical Method: SW8021B
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 6/15/2013 6:43:00PM

Prep Batch: VXX24817
Prep Method: AK101 Extraction (S)
Prep Date/Time: 6/15/2013 8:00:00AM
Prep Initial Wt./Vol.: 49.86g
Prep Extract Vol: 25.00mL

Print Date: 07/11/2013 11:08:11AM

Method Blank

Blank ID: MB for HBN 1455369 [VXX/24818]
Blank Lab ID: 1153481

Matrix: Soil/Solid (dry weight)

QC for Samples:
1132391005, 1132391006, 1132391015

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.50U	2.50	0.750	mg/Kg
Surrogates				
1,4-Difluorobenzene	93.5	72-119		%
4-Bromofluorobenzene	79.7	50-150		%

Batch Information

Analytical Batch: VFC11467
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 6/17/2013 12:30:00PM

Prep Batch: VXX24818
Prep Method: SW5035A
Prep Date/Time: 6/17/2013 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 07/11/2013 11:08:13AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1132391 [VXX24818]
Blank Spike Lab ID: 1153482
Date Analyzed: 06/17/2013 13:26

Spike Duplicate ID: LCSD for HBN 1132391 [VXX24818]
Spike Duplicate Lab ID: 1153483
Matrix: Soil/Solid (dry weight)

QC for Samples: 1132391005, 1132391006, 1132391015

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	10.0	9.44	94	10.0	9.51	95	(60-120)	0.77	(< 20)
Surrogates									
4-Bromofluorobenzene	1.25	82.1	82	1.25	80.7	81	(50-150)	1.70	

Batch Information

Analytical Batch: **VFC11467**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **ST**

Prep Batch: **VXX24818**
Prep Method: **SW5035A**
Prep Date/Time: **06/17/2013 08:00**
Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1455880 [VXX/24827]
Blank Lab ID: 1153950

Matrix: Soil/Solid (dry weight)

QC for Samples:
1132391016

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	15.6U	25.0	7.80	ug/Kg
1,1,1-Trichloroethane	15.6U	25.0	7.80	ug/Kg
1,1,2,2-Tetrachloroethane	30.0U	50.0	15.0	ug/Kg
1,1,2-Trichloroethane	15.6U	25.0	7.80	ug/Kg
1,1-Dichloroethane	15.6U	25.0	7.80	ug/Kg
1,1-Dichloroethene	15.6U	25.0	7.80	ug/Kg
1,1-Dichloropropene	15.6U	25.0	7.80	ug/Kg
1,2,3-Trichlorobenzene	30.0U	50.0	15.0	ug/Kg
1,2,3-Trichloropropane	15.6U	25.0	7.80	ug/Kg
1,2,4-Trichlorobenzene	15.6U	25.0	7.80	ug/Kg
1,2,4-Trimethylbenzene	30.0U	50.0	15.0	ug/Kg
1,2-Dibromo-3-chloropropane	62.0U	100	31.0	ug/Kg
1,2-Dibromoethane	15.6U	25.0	7.80	ug/Kg
1,2-Dichlorobenzene	15.6U	25.0	7.80	ug/Kg
1,2-Dichloroethane	15.6U	25.0	7.80	ug/Kg
1,2-Dichloropropane	15.6U	25.0	7.80	ug/Kg
1,3,5-Trimethylbenzene	15.6U	25.0	7.80	ug/Kg
1,3-Dichlorobenzene	15.6U	25.0	7.80	ug/Kg
1,3-Dichloropropane	15.6U	25.0	7.80	ug/Kg
1,4-Dichlorobenzene	15.6U	25.0	7.80	ug/Kg
2,2-Dichloropropane	15.6U	25.0	7.80	ug/Kg
2-Butanone (MEK)	156U	250	78.0	ug/Kg
2-Chlorotoluene	15.6U	25.0	7.80	ug/Kg
2-Hexanone	156U	250	78.0	ug/Kg
4-Chlorotoluene	15.6U	25.0	7.80	ug/Kg
4-Isopropyltoluene	15.6U	25.0	7.80	ug/Kg
4-Methyl-2-pentanone (MIBK)	156U	250	78.0	ug/Kg
Benzene	7.80U	12.5	3.90	ug/Kg
Bromobenzene	15.6U	25.0	7.80	ug/Kg
Bromochloromethane	15.6U	25.0	7.80	ug/Kg
Bromodichloromethane	15.6U	25.0	7.80	ug/Kg
Bromoform	15.6U	25.0	7.80	ug/Kg
Bromomethane	124U	200	62.0	ug/Kg
Carbon disulfide	62.0U	100	31.0	ug/Kg
Carbon tetrachloride	15.6U	25.0	7.80	ug/Kg
Chlorobenzene	15.6U	25.0	7.80	ug/Kg
Chloroethane	124U	200	62.0	ug/Kg
Chloroform	15.6U	25.0	7.80	ug/Kg

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Method Blank

Blank ID: MB for HBN 1455880 [VXX/24827]
Blank Lab ID: 1153950

Matrix: Soil/Solid (dry weight)

QC for Samples:
1132391016

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	15.6U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	15.6U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	15.6U	25.0	7.80	ug/Kg
Dibromochloromethane	15.6U	25.0	7.80	ug/Kg
Dibromomethane	15.6U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	30.0U	50.0	15.0	ug/Kg
Ethylbenzene	15.6U	25.0	7.80	ug/Kg
Hexachlorobutadiene	30.0U	50.0	15.0	ug/Kg
Isopropylbenzene (Cumene)	15.6U	25.0	7.80	ug/Kg
Methylene chloride	62.0U	100	31.0	ug/Kg
Methyl-t-butyl ether	62.0U	100	31.0	ug/Kg
Naphthalene	30.0U	50.0	15.0	ug/Kg
n-Butylbenzene	15.6U	25.0	7.80	ug/Kg
n-Propylbenzene	15.6U	25.0	7.80	ug/Kg
o-Xylene	15.6U	25.0	7.80	ug/Kg
P & M -Xylene	30.0U	50.0	15.0	ug/Kg
sec-Butylbenzene	15.6U	25.0	7.80	ug/Kg
Styrene	15.6U	25.0	7.80	ug/Kg
tert-Butylbenzene	15.6U	25.0	7.80	ug/Kg
Tetrachloroethene	7.80U	12.5	3.90	ug/Kg
Toluene	15.6U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	15.6U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	15.6U	25.0	7.80	ug/Kg
Trichloroethene	7.80U	12.5	3.90	ug/Kg
Trichlorofluoromethane	30.0U	50.0	15.0	ug/Kg
Vinyl chloride	15.6U	25.0	7.80	ug/Kg
Xylenes (total)	62.0U	100	31.0	ug/Kg
Surrogates				
1,2-Dichloroethane-D4	102	79-118		%
4-Bromofluorobenzene	102	67-138		%
Toluene-d8	111	85-115		%

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Method Blank

Blank ID: MB for HBN 1455880 [VXX/24827]
Blank Lab ID: 1153950

Matrix: Soil/Solid (dry weight)

QC for Samples:
1132391016

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS13562
Analytical Method: SW8260B
Instrument: HP 5890 Series II MS3 VNA
Analyst: NRB
Analytical Date/Time: 6/19/2013 12:22:00PM

Prep Batch: VXX24827
Prep Method: SW5035A
Prep Date/Time: 6/19/2013 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 07/11/2013 11:08:18AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1132391 [VXX24827]
Blank Spike Lab ID: 1153951
Date Analyzed: 06/19/2013 13:14

Matrix: Soil/Solid (dry weight)

QC for Samples: 1132391016

Results by **SW8260B**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	750	844	113	(75-125)
1,1,1-Trichloroethane	750	769	103	(70-135)
1,1,2,2-Tetrachloroethane	750	757	101	(55-130)
1,1,2-Trichloroethane	750	776	103	(60-125)
1,1-Dichloroethane	750	761	101	(75-125)
1,1-Dichloroethene	750	827	110	(65-135)
1,1-Dichloropropene	750	800	107	(70-135)
1,2,3-Trichlorobenzene	750	781	104	(60-135)
1,2,3-Trichloropropane	750	763	102	(65-130)
1,2,4-Trichlorobenzene	750	789	105	(65-130)
1,2,4-Trimethylbenzene	750	802	107	(65-135)
1,2-Dibromo-3-chloropropane	750	851	113	(40-135)
1,2-Dibromoethane	750	787	105	(70-125)
1,2-Dichlorobenzene	750	758	101	(75-120)
1,2-Dichloroethane	750	770	103	(70-135)
1,2-Dichloropropane	750	785	105	(70-120)
1,3,5-Trimethylbenzene	750	806	107	(65-135)
1,3-Dichlorobenzene	750	778	104	(70-125)
1,3-Dichloropropane	750	781	104	(75-125)
1,4-Dichlorobenzene	750	768	102	(70-125)
2,2-Dichloropropane	750	745	99	(65-135)
2-Butanone (MEK)	2250	2270	101	(30-160)
2-Chlorotoluene	750	778	104	(70-130)
2-Hexanone	2250	2380	106	(45-145)
4-Chlorotoluene	750	777	104	(75-125)
4-Isopropyltoluene	750	817	109	(75-135)
4-Methyl-2-pentanone (MIBK)	2250	2300	102	(45-145)
Benzene	750	750	100	(75-125)
Bromobenzene	750	798	106	(65-120)
Bromochloromethane	750	831	111	(70-125)
Bromodichloromethane	750	812	108	(70-130)
Bromoform	750	860	115	(55-135)
Bromomethane	750	813	108	(30-160)
Carbon disulfide	1130	1290	114	(45-160)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1132391 [VXX24827]
Blank Spike Lab ID: 1153951
Date Analyzed: 06/19/2013 13:14

Matrix: Soil/Solid (dry weight)

QC for Samples: 1132391016

Results by **SW8260B**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Carbon tetrachloride	750	817	109	(65-135)
Chlorobenzene	750	773	103	(75-125)
Chloroethane	750	826	110	(40-155)
Chloroform	750	755	101	(70-125)
Chloromethane	750	712	95	(50-130)
cis-1,2-Dichloroethene	750	766	102	(65-125)
cis-1,3-Dichloropropene	750	789	105	(70-125)
Dibromochloromethane	750	854	114	(65-130)
Dibromomethane	750	802	107	(75-130)
Dichlorodifluoromethane	750	809	108	(35-135)
Ethylbenzene	750	821	109	(75-125)
Hexachlorobutadiene	750	800	107	(55-140)
Isopropylbenzene (Cumene)	750	817	109	(75-130)
Methyl-t-butyl ether	1130	1130	100	(63-149)
Methylene chloride	750	778	104	(55-140)
n-Butylbenzene	750	836	111	(65-140)
n-Propylbenzene	750	806	107	(65-135)
Naphthalene	750	798	106	(40-125)
o-Xylene	750	790	105	(75-125)
P & M -Xylene	1500	1600	107	(80-125)
sec-Butylbenzene	750	803	107	(65-130)
Styrene	750	824	110	(75-125)
tert-Butylbenzene	750	795	106	(65-130)
Tetrachloroethene	750	804	107	(65-140)
Toluene	750	767	102	(70-125)
trans-1,2-Dichloroethene	750	787	105	(65-135)
trans-1,3-Dichloropropene	750	813	108	(65-125)
Trichloroethene	750	789	105	(75-125)
Trichlorofluoromethane	750	1200	160	(25-185)
Vinyl chloride	750	779	104	(60-125)
Xylenes (total)	2250	2390	106	(80-125)
Surrogates				
1,2-Dichloroethane-D4	750	104	104	(79-118)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1132391 [VXX24827]
Blank Spike Lab ID: 1153951
Date Analyzed: 06/19/2013 13:14

Matrix: Soil/Solid (dry weight)

QC for Samples: 1132391016

Results by **SW8260B**

Blank Spike (%)

Parameter	Spike	Result	Rec (%)	CL
4-Bromofluorobenzene	750	105	105	(67-138)
Toluene-d8	750	108	108	(85-115)

Batch Information

Analytical Batch: **VMS13562**
Analytical Method: **SW8260B**
Instrument: **HP 5890 Series II MS3 VNA**
Analyst: **NRB**

Prep Batch: **VXX24827**
Prep Method: **SW5035A**
Prep Date/Time: **06/19/2013 08:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1153952
MS Sample ID: 1153953 MS
MSD Sample ID: 1153954 MSD

Analysis Date: 06/19/2013 20:43
Analysis Date: 06/19/2013 21:00
Analysis Date: 06/19/2013 21:18
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1132391016

Results by **SW8260B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	83.2U	4000	3840	96	4000	4200	105	75-125	9.00	(< 20)
1,1,1-Trichloroethane	83.2U	4000	3750	94	4000	3760	94	70-135	0.39	(< 20)
1,1,2,2-Tetrachloroethane	160U	4000	4080	102	4000	4070	102	55-130	0.26	(< 20)
1,1,2-Trichloroethane	83.2U	4000	4100	103	4000	4100	103	60-125	0.10	(< 20)
1,1-Dichloroethane	83.2U	4000	4070	102	4000	3850	96	75-125	5.70	(< 20)
1,1-Dichloroethene	83.2U	4000	4510	113	4000	4120	103	65-135	9.00	(< 20)
1,1-Dichloropropene	83.2U	4000	4180	105	4000	3960	99	70-135	5.50	(< 20)
1,2,3-Trichlorobenzene	160U	4000	3950	99	4000	4010	100	60-135	1.40	(< 20)
1,2,3-Trichloropropane	83.2U	4000	4160	104	4000	4160	104	65-130	0.03	(< 20)
1,2,4-Trichlorobenzene	83.2U	4000	4020	101	4000	3990	100	65-130	0.86	(< 20)
1,2,4-Trimethylbenzene	569	4000	4760	105	4000	4580	100	65-135	3.80	(< 20)
1,2-Dibromo-3-chloropropane	330U	4000	3750	94	4000	4400	110	40-135	16.00	(< 20)
1,2-Dibromoethane	83.2U	4000	4020	101	4000	4080	102	70-125	1.40	(< 20)
1,2-Dichlorobenzene	83.2U	4000	3960	99	4000	3920	98	75-120	0.95	(< 20)
1,2-Dichloroethane	83.2U	4000	4260	107	4000	4010	100	70-135	6.00	(< 20)
1,2-Dichloropropane	83.2U	4000	4200	105	4000	3980	100	70-120	5.50	(< 20)
1,3,5-Trimethylbenzene	124J	4000	4310	105	4000	4180	102	65-135	2.90	(< 20)
1,3-Dichlorobenzene	83.2U	4000	4080	102	4000	3970	100	70-125	2.60	(< 20)
1,3-Dichloropropane	83.2U	4000	4150	104	4000	4090	102	75-125	1.40	(< 20)
1,4-Dichlorobenzene	83.2U	4000	4030	101	4000	3930	98	70-125	2.40	(< 20)
2,2-Dichloropropane	83.2U	4000	3350	84	4000	3520	88	65-135	5.00	(< 20)
2-Butanone (MEK)	832U	12000	12600	105	12000	12700	106	30-160	1.30	(< 20)
2-Chlorotoluene	83.2U	4000	4100	103	4000	4050	101	70-130	1.00	(< 20)
2-Hexanone	832U	12000	12800	107	12000	12900	107	45-145	0.37	(< 20)
4-Chlorotoluene	83.2U	4000	4090	102	4000	4020	101	75-125	1.90	(< 20)
4-Isopropyltoluene	83.2U	4000	4200	105	4000	4150	104	75-135	1.10	(< 20)
4-Methyl-2-pentanone (MIBK)	832U	12000	13000	109	12000	12200	102	45-145	6.20	(< 20)
Benzene	1270	4000	5170	98	4000	4840	90	75-125	6.50	(< 20)
Bromobenzene	83.2U	4000	4240	106	4000	4060	102	65-120	4.20	(< 20)
Bromochloromethane	83.2U	4000	4480	112	4000	4280	107	70-125	4.60	(< 20)
Bromodichloromethane	83.2U	4000	3870	97	4000	4040	101	70-130	4.40	(< 20)
Bromoform	83.2U	4000	3900	98	4000	4440	111	55-135	12.80	(< 20)
Bromomethane	660U	4000	3610	90	4000	3810	95	30-160	5.30	(< 20)
Carbon disulfide	330U	5990	6830	114	5990	6550	109	45-160	4.20	(< 20)
Carbon tetrachloride	83.2U	4000	3420	86	4000	3850	96	65-135	11.70	(< 20)
Chlorobenzene	83.2U	4000	4040	101	4000	3910	98	75-125	3.50	(< 20)
Chloroethane	660U	4000	4520	113	4000	4370	109	40-155	3.40	(< 20)

Print Date: 07/11/2013 11:08:21AM

Matrix Spike Summary

Original Sample ID: 1153952
MS Sample ID: 1153953 MS
MSD Sample ID: 1153954 MSD

Analysis Date: 06/19/2013 20:43
Analysis Date: 06/19/2013 21:00
Analysis Date: 06/19/2013 21:18
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1132391016

Results by **SW8260B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroform	83.2U	4000	4000	100	4000	3780	95	70-125	5.50	(< 20)
Chloromethane	83.2U	4000	3400	85	4000	3060	77	50-130	10.60	(< 20)
cis-1,2-Dichloroethene	83.2U	4000	4120	103	4000	3850	96	65-125	6.80	(< 20)
cis-1,3-Dichloropropene	83.2U	4000	3850	96	4000	3890	97	70-125	1.20	(< 20)
Dibromochloromethane	83.2U	4000	3880	97	4000	4390	110	65-130	12.50	(< 20)
Dibromomethane	83.2U	4000	4370	109	4000	4200	105	75-130	4.00	(< 20)
Dichlorodifluoromethane	160U	4000	3450	86	4000	3200	80	35-135	7.40	(< 20)
Ethylbenzene	1700	4000	5850	104	4000	5710	100	75-125	2.50	(< 20)
Hexachlorobutadiene	160U	4000	3850	96	4000	3750	94	55-140	2.50	(< 20)
Isopropylbenzene (Cumene)	51.9J	4000	4280	106	4000	4200	104	75-130	2.10	(< 20)
Methyl-t-butyl ether	330U	5990	6160	103	5990	5930	99	63-149	3.80	(< 20)
Methylene chloride	330U	4000	4270	107	4000	3990	100	55-140	6.90	(< 20)
n-Butylbenzene	83.2U	4000	4180	105	4000	4200	105	65-140	0.44	(< 20)
n-Propylbenzene	123J	4000	4300	105	4000	4170	101	65-135	3.00	(< 20)
Naphthalene	160U	4000	4370	109	4000	4280	107	40-125	2.10	(< 20)
o-Xylene	3130	4000	7190	102	4000	6870	94	75-125	4.60	(< 20)
P & M -Xylene	5560	7990	13800	103	7990	13400	98	80-125	3.10	(< 20)
sec-Butylbenzene	83.2U	4000	4040	101	4000	4010	100	65-130	0.69	(< 20)
Styrene	83.2U	4000	4320	108	4000	4260	107	75-125	1.50	(< 20)
tert-Butylbenzene	83.2U	4000	4070	102	4000	3980	100	65-130	2.40	(< 20)
Tetrachloroethene	41.6U	4000	4110	103	4000	3910	98	65-140	5.00	(< 20)
Toluene	178	4000	4080	98	4000	3790	90	70-125	7.40	(< 20)
trans-1,2-Dichloroethene	83.2U	4000	3930	99	4000	3950	99	65-135	0.30	(< 20)
trans-1,3-Dichloropropene	83.2U	4000	3720	93	4000	4040	101	65-125	8.30	(< 20)
Trichloroethene	41.6U	4000	4220	106	4000	3950	99	75-125	6.60	(< 20)
Trichlorofluoromethane	160U	4000	7260	182	4000	8060	202 *	25-185	10.40	(< 20)
Vinyl chloride	83.2U	4000	3370	84	4000	3150	79	60-125	6.90	(< 20)
Xylenes (total)	8690	12000	21000	103	12000	20300	97	80-125	3.60	(< 20)
Surrogates										
1,2-Dichloroethane-D4		4000	4220	106	4000	4010	100	79-118	5.10	
4-Bromofluorobenzene		4660	4340	93	4660	4250	91	67-138	2.30	
Toluene-d8		4000	4110	103	4000	3940	99	85-115	4.10	

Print Date: 07/11/2013 11:08:21AM

Matrix Spike Summary

Original Sample ID: 1153952
MS Sample ID: 1153953 MS
MSD Sample ID: 1153954 MSD

QC for Samples: 1132391016

Analysis Date:
Analysis Date: 06/19/2013 21:00
Analysis Date: 06/19/2013 21:18
Matrix: Solid/Soil (Wet Weight)

Results by **SW8260B**

		Matrix Spike (%)			Spike Duplicate (%)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

Analytical Batch: VMS13562
Analytical Method: SW8260B
Instrument: HP 5890 Series II MS3 VNA
Analyst: NRB
Analytical Date/Time: 6/19/2013 9:00:01PM

Prep Batch: VXX24827
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 6/19/2013 8:00:00AM
Prep Initial Wt./Vol.: 93.85g
Prep Extract Vol: 25.00mL

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Method Blank

Blank ID: MB for HBN 1456458 [VXX/24836]
Blank Lab ID: 1154511

Matrix: Soil/Solid (dry weight)

QC for Samples:
1132391005, 1132391006, 1132391014, 1132391015

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	15.6U	25.0	7.80	ug/Kg
1,1,1-Trichloroethane	15.6U	25.0	7.80	ug/Kg
1,1,2,2-Tetrachloroethane	30.0U	50.0	15.0	ug/Kg
1,1,2-Trichloroethane	15.6U	25.0	7.80	ug/Kg
1,1-Dichloroethane	15.6U	25.0	7.80	ug/Kg
1,1-Dichloroethene	15.6U	25.0	7.80	ug/Kg
1,1-Dichloropropene	15.6U	25.0	7.80	ug/Kg
1,2,3-Trichlorobenzene	30.0U	50.0	15.0	ug/Kg
1,2,3-Trichloropropane	15.6U	25.0	7.80	ug/Kg
1,2,4-Trichlorobenzene	15.6U	25.0	7.80	ug/Kg
1,2,4-Trimethylbenzene	30.0U	50.0	15.0	ug/Kg
1,2-Dibromo-3-chloropropane	62.0U	100	31.0	ug/Kg
1,2-Dibromoethane	15.6U	25.0	7.80	ug/Kg
1,2-Dichlorobenzene	15.6U	25.0	7.80	ug/Kg
1,2-Dichloroethane	15.6U	25.0	7.80	ug/Kg
1,2-Dichloropropane	15.6U	25.0	7.80	ug/Kg
1,3,5-Trimethylbenzene	15.6U	25.0	7.80	ug/Kg
1,3-Dichlorobenzene	15.6U	25.0	7.80	ug/Kg
1,3-Dichloropropane	15.6U	25.0	7.80	ug/Kg
1,4-Dichlorobenzene	15.6U	25.0	7.80	ug/Kg
2,2-Dichloropropane	15.6U	25.0	7.80	ug/Kg
2-Butanone (MEK)	156U	250	78.0	ug/Kg
2-Chlorotoluene	15.6U	25.0	7.80	ug/Kg
2-Hexanone	156U	250	78.0	ug/Kg
4-Chlorotoluene	15.6U	25.0	7.80	ug/Kg
4-Isopropyltoluene	15.6U	25.0	7.80	ug/Kg
4-Methyl-2-pentanone (MIBK)	156U	250	78.0	ug/Kg
Benzene	7.80U	12.5	3.90	ug/Kg
Bromobenzene	15.6U	25.0	7.80	ug/Kg
Bromochloromethane	15.6U	25.0	7.80	ug/Kg
Bromodichloromethane	15.6U	25.0	7.80	ug/Kg
Bromoform	15.6U	25.0	7.80	ug/Kg
Bromomethane	124U	200	62.0	ug/Kg
Carbon disulfide	62.0U	100	31.0	ug/Kg
Carbon tetrachloride	15.6U	25.0	7.80	ug/Kg
Chlorobenzene	15.6U	25.0	7.80	ug/Kg
Chloroethane	124U	200	62.0	ug/Kg
Chloroform	15.6U	25.0	7.80	ug/Kg

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Method Blank

Blank ID: MB for HBN 1456458 [VXX/24836]
Blank Lab ID: 1154511

Matrix: Soil/Solid (dry weight)

QC for Samples:
1132391005, 1132391006, 1132391014, 1132391015

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	15.6U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	15.6U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	15.6U	25.0	7.80	ug/Kg
Dibromochloromethane	15.6U	25.0	7.80	ug/Kg
Dibromomethane	15.6U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	30.0U	50.0	15.0	ug/Kg
Ethylbenzene	15.6U	25.0	7.80	ug/Kg
Hexachlorobutadiene	30.0U	50.0	15.0	ug/Kg
Isopropylbenzene (Cumene)	15.6U	25.0	7.80	ug/Kg
Methylene chloride	62.0U	100	31.0	ug/Kg
Methyl-t-butyl ether	62.0U	100	31.0	ug/Kg
Naphthalene	30.0U	50.0	15.0	ug/Kg
n-Butylbenzene	15.6U	25.0	7.80	ug/Kg
n-Propylbenzene	15.6U	25.0	7.80	ug/Kg
o-Xylene	15.6U	25.0	7.80	ug/Kg
P & M -Xylene	30.0U	50.0	15.0	ug/Kg
sec-Butylbenzene	15.6U	25.0	7.80	ug/Kg
Styrene	15.6U	25.0	7.80	ug/Kg
tert-Butylbenzene	15.6U	25.0	7.80	ug/Kg
Tetrachloroethene	7.80U	12.5	3.90	ug/Kg
Toluene	15.6U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	15.6U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	15.6U	25.0	7.80	ug/Kg
Trichloroethene	7.80U	12.5	3.90	ug/Kg
Trichlorofluoromethane	30.0U	50.0	15.0	ug/Kg
Vinyl chloride	15.6U	25.0	7.80	ug/Kg
Xylenes (total)	62.0U	100	31.0	ug/Kg
Surrogates				
1,2-Dichloroethane-D4	93.1	79-118		%
4-Bromofluorobenzene	93	67-138		%
Toluene-d8	96.6	85-115		%

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Method Blank

Blank ID: MB for HBN 1456458 [VXX/24836]
Blank Lab ID: 1154511

Matrix: Soil/Solid (dry weight)

QC for Samples:
1132391005, 1132391006, 1132391014, 1132391015

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS13566
Analytical Method: SW8260B
Instrument: HP 5890 Series II MS3 VNA
Analyst: NRB
Analytical Date/Time: 6/21/2013 10:53:00AM

Prep Batch: VXX24836
Prep Method: SW5035A
Prep Date/Time: 6/21/2013 10:17:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 07/11/2013 11:08:22AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1132391 [VXX24836]
Blank Spike Lab ID: 1154512
Date Analyzed: 06/21/2013 11:11

Matrix: Soil/Solid (dry weight)

QC for Samples: 1132391005, 1132391006, 1132391014, 1132391015

Results by **SW8260B**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	750	794	106	(75-125)
1,1,1-Trichloroethane	750	738	98	(70-135)
1,1,2,2-Tetrachloroethane	750	698	93	(55-130)
1,1,2-Trichloroethane	750	753	100	(60-125)
1,1-Dichloroethane	750	737	98	(75-125)
1,1-Dichloroethene	750	758	101	(65-135)
1,1-Dichloropropene	750	790	105	(70-135)
1,2,3-Trichlorobenzene	750	705	94	(60-135)
1,2,3-Trichloropropane	750	763	102	(65-130)
1,2,4-Trichlorobenzene	750	724	97	(65-130)
1,2,4-Trimethylbenzene	750	742	99	(65-135)
1,2-Dibromo-3-chloropropane	750	850	113	(40-135)
1,2-Dibromoethane	750	756	101	(70-125)
1,2-Dichlorobenzene	750	701	94	(75-120)
1,2-Dichloroethane	750	713	95	(70-135)
1,2-Dichloropropane	750	752	100	(70-120)
1,3,5-Trimethylbenzene	750	760	101	(65-135)
1,3-Dichlorobenzene	750	729	97	(70-125)
1,3-Dichloropropane	750	750	100	(75-125)
1,4-Dichlorobenzene	750	734	98	(70-125)
2,2-Dichloropropane	750	697	93	(65-135)
2-Butanone (MEK)	2250	2010	90	(30-160)
2-Chlorotoluene	750	731	98	(70-130)
2-Hexanone	2250	2180	97	(45-145)
4-Chlorotoluene	750	750	100	(75-125)
4-Isopropyltoluene	750	766	102	(75-135)
4-Methyl-2-pentanone (MIBK)	2250	2090	93	(45-145)
Benzene	750	737	98	(75-125)
Bromobenzene	750	733	98	(65-120)
Bromochloromethane	750	778	104	(70-125)
Bromodichloromethane	750	741	99	(70-130)
Bromoform	750	902	120	(55-135)
Bromomethane	750	737	98	(30-160)
Carbon disulfide	1130	1040	92	(45-160)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1132391 [VXX24836]
Blank Spike Lab ID: 1154512
Date Analyzed: 06/21/2013 11:11

Matrix: Soil/Solid (dry weight)

QC for Samples: 1132391005, 1132391006, 1132391014, 1132391015

Results by **SW8260B**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Carbon tetrachloride	750	750	100	(65-135)
Chlorobenzene	750	747	100	(75-125)
Chloroethane	750	757	101	(40-155)
Chloroform	750	705	94	(70-125)
Chloromethane	750	789	105	(50-130)
cis-1,2-Dichloroethene	750	754	101	(65-125)
cis-1,3-Dichloropropene	750	727	97	(70-125)
Dibromochloromethane	750	865	115	(65-130)
Dibromomethane	750	687	92	(75-130)
Dichlorodifluoromethane	750	954	127	(35-135)
Ethylbenzene	750	776	103	(75-125)
Hexachlorobutadiene	750	753	100	(55-140)
Isopropylbenzene (Cumene)	750	786	105	(75-130)
Methyl-t-butyl ether	1130	1050	94	(63-149)
Methylene chloride	750	662	88	(55-140)
n-Butylbenzene	750	790	105	(65-140)
n-Propylbenzene	750	756	101	(65-135)
Naphthalene	750	728	97	(40-125)
o-Xylene	750	751	100	(75-125)
P & M -Xylene	1500	1540	102	(80-125)
sec-Butylbenzene	750	747	100	(65-130)
Styrene	750	783	104	(75-125)
tert-Butylbenzene	750	755	101	(65-130)
Tetrachloroethene	750	770	103	(65-140)
Toluene	750	714	95	(70-125)
trans-1,2-Dichloroethene	750	743	99	(65-135)
trans-1,3-Dichloropropene	750	785	105	(65-125)
Trichloroethene	750	758	101	(75-125)
Trichlorofluoromethane	750	792	106	(25-185)
Vinyl chloride	750	835	111	(60-125)
Xylenes (total)	2250	2290	102	(80-125)
Surrogates				
1,2-Dichloroethane-D4	750	91.3	91	(79-118)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1132391 [VXX24836]
Blank Spike Lab ID: 1154512
Date Analyzed: 06/21/2013 11:11

Matrix: Soil/Solid (dry weight)

QC for Samples: 1132391005, 1132391006, 1132391014, 1132391015

Results by **SW8260B**

	Blank Spike (%)			
Parameter	Spike	Result	Rec (%)	CL
4-Bromofluorobenzene	750	94.2	94	(67-138)
Toluene-d8	750	96.3	96	(85-115)

Batch Information

Analytical Batch: **VMS13566**
Analytical Method: **SW8260B**
Instrument: **HP 5890 Series II MS3 VNA**
Analyst: **NRB**

Prep Batch: **VXX24836**
Prep Method: **SW5035A**
Prep Date/Time: **06/21/2013 10:17**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1154517
MS Sample ID: 1154513 MS
MSD Sample ID: 1154514 MSD

Analysis Date: 06/21/2013 17:56
Analysis Date: 06/21/2013 18:14
Analysis Date: 06/21/2013 18:31
Matrix: Soil/Solid (dry weight)

QC for Samples: 1132391005, 1132391006, 1132391014, 1132391015

Results by **SW8260B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	7.08U	340	320	94	340	347	102	75-125	8.00	(< 20)
1,1,1-Trichloroethane	7.08U	340	325	95	340	321	94	70-135	1.20	(< 20)
1,1,2,2-Tetrachloroethane	13.6U	340	333	98	340	346	102	55-130	3.90	(< 20)
1,1,2-Trichloroethane	7.08U	340	356	104	340	362	106	60-125	1.60	(< 20)
1,1-Dichloroethane	7.08U	340	354	104	340	329	97	75-125	7.30	(< 20)
1,1-Dichloroethene	7.08U	340	356	104	340	321	94	65-135	10.30	(< 20)
1,1-Dichloropropene	7.08U	340	370	109	340	343	101	70-135	7.60	(< 20)
1,2,3-Trichlorobenzene	13.6U	340	319	94	340	322	95	60-135	0.71	(< 20)
1,2,3-Trichloropropane	7.08U	340	374	110	340	380	112	65-130	1.60	(< 20)
1,2,4-Trichlorobenzene	7.08U	340	322	95	340	318	93	65-130	1.30	(< 20)
1,2,4-Trimethylbenzene	12.5J	340	366	104	340	351	99	65-135	4.30	(< 20)
1,2-Dibromo-3-chloropropane	28.2U	340	350	103	340	398	117	40-135	12.70	(< 20)
1,2-Dibromoethane	7.08U	340	349	103	340	363	107	70-125	3.80	(< 20)
1,2-Dichlorobenzene	7.08U	340	335	99	340	329	97	75-120	1.80	(< 20)
1,2-Dichloroethane	7.08U	340	355	104	340	331	97	70-135	7.10	(< 20)
1,2-Dichloropropane	7.08U	340	370	109	340	343	101	70-120	7.60	(< 20)
1,3,5-Trimethylbenzene	4.77J	340	364	106	340	355	103	65-135	2.50	(< 20)
1,3-Dichlorobenzene	7.08U	340	348	102	340	342	101	70-125	1.60	(< 20)
1,3-Dichloropropane	7.08U	340	358	105	340	358	105	75-125	0.19	(< 20)
1,4-Dichlorobenzene	7.08U	340	348	102	340	341	100	70-125	2.00	(< 20)
2,2-Dichloropropane	7.08U	340	310	91	340	301	89	65-135	3.00	(< 20)
2-Butanone (MEK)	70.8U	1020	1060	103	1020	1030	101	30-160	2.10	(< 20)
2-Chlorotoluene	7.08U	340	355	104	340	347	102	70-130	2.40	(< 20)
2-Hexanone	70.8U	1020	1090	107	1020	1150	113	45-145	5.00	(< 20)
4-Chlorotoluene	7.08U	340	364	107	340	354	104	75-125	3.00	(< 20)
4-Isopropyltoluene	7.08U	340	355	104	340	340	100	75-135	4.10	(< 20)
4-Methyl-2-pentanone (MIBK)	70.8U	1020	1090	107	1020	1080	105	45-145	1.60	(< 20)
Benzene	4.54J	340	356	103	340	331	96	75-125	7.30	(< 20)
Bromobenzene	7.08U	340	360	106	340	352	103	65-120	2.20	(< 20)
Bromochloromethane	7.08U	340	377	111	340	348	102	70-125	7.80	(< 20)
Bromodichloromethane	7.08U	340	307	90	340	316	93	70-130	2.90	(< 20)
Bromoform	7.08U	340	332	98	340	374	110	55-135	12.00	(< 20)
Bromomethane	56.2U	340	343	101	340	409	120	30-160	17.50	(< 20)
Carbon disulfide	28.2U	511	451	88	511	430	84	45-160	4.80	(< 20)
Carbon tetrachloride	7.08U	340	292	86	340	318	93	65-135	8.40	(< 20)
Chlorobenzene	7.08U	340	354	104	340	347	102	75-125	2.20	(< 20)
Chloroethane	56.2U	340	364	107	340	394	116	40-155	7.80	(< 20)

Print Date: 07/11/2013 11:08:25AM

Matrix Spike Summary

Original Sample ID: 1154517
MS Sample ID: 1154513 MS
MSD Sample ID: 1154514 MSD

Analysis Date: 06/21/2013 17:56
Analysis Date: 06/21/2013 18:14
Analysis Date: 06/21/2013 18:31
Matrix: Soil/Solid (dry weight)

QC for Samples: 1132391005, 1132391006, 1132391014, 1132391015

Results by **SW8260B**

		Matrix Spike (ug/Kg)				Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		RPD (%)	RPD CL
Chloroform	7.08U	340	331	97		340	318	93	70-125	4.30	(< 20)
Chloromethane	7.08U	340	370	109		340	340	100	50-130	8.60	(< 20)
cis-1,2-Dichloroethene	7.08U	340	357	105		340	335	98	65-125	6.50	(< 20)
cis-1,3-Dichloropropene	7.08U	340	316	93		340	318	94	70-125	0.82	(< 20)
Dibromochloromethane	7.08U	340	335	98		340	368	108	65-130	9.50	(< 20)
Dibromomethane	7.08U	340	336	99		340	327	96	75-130	2.80	(< 20)
Dichlorodifluoromethane	13.6U	340	409	120		340	364	107	35-135	11.60	(< 20)
Ethylbenzene	7.08U	340	364	107		340	356	105	75-125	2.00	(< 20)
Hexachlorobutadiene	13.6U	340	306	90		340	304	89	55-140	0.56	(< 20)
Isopropylbenzene (Cumene)	7.08U	340	372	109		340	358	105	75-130	3.90	(< 20)
Methyl-t-butyl ether	28.2U	511	519	102		511	448	88	63-149	14.70	(< 20)
Methylene chloride	28.2U	340	298	87		340	282	83	55-140	5.50	(< 20)
n-Butylbenzene	7.08U	340	353	104		340	345	101	65-140	2.40	(< 20)
n-Propylbenzene	4.31J	340	361	105		340	355	103	65-135	1.60	(< 20)
Naphthalene	13.6U	340	355	104		340	356	105	40-125	0.29	(< 20)
o-Xylene	34.4	340	382	102		340	373	99	75-125	2.50	(< 20)
P & M -Xylene	58.1	681	763	103		681	749	101	80-125	1.80	(< 20)
sec-Butylbenzene	7.08U	340	346	102		340	336	99	65-130	2.90	(< 20)
Styrene	7.08U	340	373	109		340	371	109	75-125	0.58	(< 20)
tert-Butylbenzene	7.08U	340	349	102		340	339	100	65-130	2.70	(< 20)
Tetrachloroethene	3.54U	340	362	106		340	347	102	65-140	4.30	(< 20)
Toluene	7.08U	340	336	99		340	330	97	70-125	1.90	(< 20)
trans-1,2-Dichloroethene	7.08U	340	342	101		340	291	85	65-135	16.30	(< 20)
trans-1,3-Dichloropropene	7.08U	340	335	99		340	370	109	65-125	9.80	(< 20)
Trichloroethene	3.54U	340	364	107		340	329	97	75-125	10.00	(< 20)
Trichlorofluoromethane	13.6U	340	457	134		340	464	136	25-185	1.50	(< 20)
Vinyl chloride	7.08U	340	362	106		340	308	91	60-125	16.00	(< 20)
Xylenes (total)	92.5	1020	1140	103		1020	1120	101	80-125	2.00	(< 20)
Surrogates											
1,2-Dichloroethane-D4		340	325	95		340	305	90	79-118	6.30	
4-Bromofluorobenzene		908	543	60	*	908	520	57	* 67-138	4.40	
Toluene-d8		340	323	95		340	319	94	85-115	1.30	

Print Date: 07/11/2013 11:08:25AM

Matrix Spike Summary

Original Sample ID: 1154517
MS Sample ID: 1154513 MS
MSD Sample ID: 1154514 MSD

Analysis Date:
Analysis Date: 06/21/2013 18:14
Analysis Date: 06/21/2013 18:31
Matrix: Soil/Solid (dry weight)

QC for Samples: 1132391005, 1132391006, 1132391014, 1132391015

Results by **SW8260B**

		Matrix Spike (%)			Spike Duplicate (%)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

Analytical Batch: VMS13566
Analytical Method: SW8260B
Instrument: HP 5890 Series II MS3 VNA
Analyst: NRB
Analytical Date/Time: 6/21/2013 6:14:00PM

Prep Batch: VXX24836
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 6/21/2013 10:17:00AM
Prep Initial Wt./Vol.: 110.15g
Prep Extract Vol: 25.00mL

Print Date: 07/11/2013 11:08:25AM

Method Blank

Blank ID: MB for HBN 1455261 [XXX/29182]
Blank Lab ID: 1153240

Matrix: Soil/Solid (dry weight)

QC for Samples:
1132391001, 1132391002, 1132391004, 1132391005, 1132391006, 1132391007, 1132391009, 1132391010, 1132391012, 1132391013, 1132391014, 1132391015

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	12.4U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane	101	60-120		%

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK102
Instrument: HP 7890A FID SV E R
Analyst: HM
Analytical Date/Time: 6/18/2013 3:50:00PM

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 6/17/2013 4:30:00PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

Print Date: 07/11/2013 11:08:26AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1132391 [XXX29182]
Blank Spike Lab ID: 1153241
Date Analyzed: 06/18/2013 16:10

Spike Duplicate ID: LCSD for HBN 1132391 [XXX29182]
Spike Duplicate Lab ID: 1153242
Matrix: Soil/Solid (dry weight)

QC for Samples: 1132391001, 1132391002, 1132391004, 1132391005, 1132391006, 1132391007, 1132391009, 1132391010, 1132391012, 1132391013, 1132391014, 1132391015

Results by **AK102**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	167	163	98	167	159	95	(75-125)	2.50	(< 20)
Surrogates									
5a Androstane	3.33	105	105	3.33	101	101	(60-120)	3.90	

Batch Information

Analytical Batch: **XFC10929**
Analytical Method: **AK102**
Instrument: **HP 7890A FID SV E R**
Analyst: **HM**

Prep Batch: **XXX29182**
Prep Method: **SW3550C**
Prep Date/Time: **06/17/2013 16:30**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1455261 [XXX/29182]
Blank Lab ID: 1153240

Matrix: Soil/Solid (dry weight)

QC for Samples:
1132391001, 1132391002, 1132391004, 1132391005, 1132391006, 1132391007, 1132391009, 1132391010, 1132391012, 1132391013, 1132391014, 1132391015

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	12.4U	20.0	6.20	mg/Kg
Surrogates				
n-Triacontane-d62	116	60-120		%

Batch Information

Analytical Batch: XFC10929
Analytical Method: AK103
Instrument: HP 7890A FID SV E R
Analyst: HM
Analytical Date/Time: 6/18/2013 3:50:00PM

Prep Batch: XXX29182
Prep Method: SW3550C
Prep Date/Time: 6/17/2013 4:30:00PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1132391 [XXX29182]
Blank Spike Lab ID: 1153241
Date Analyzed: 06/18/2013 16:10

Spike Duplicate ID: LCSD for HBN 1132391 [XXX29182]
Spike Duplicate Lab ID: 1153242
Matrix: Soil/Solid (dry weight)

QC for Samples: 1132391001, 1132391002, 1132391004, 1132391005, 1132391006, 1132391007, 1132391009, 1132391010, 1132391012, 1132391013, 1132391014, 1132391015

Results by **AK103**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	167	174	104	167	171	103	(60-120)	1.60	(< 20)
Surrogates									
n-Triacontane-d62	3.33	104	104	3.33	102	102	(60-120)	1.90	

Batch Information

Analytical Batch: **XFC10929**
Analytical Method: **AK103**
Instrument: **HP 7890A FID SV E R**
Analyst: **HM**

Prep Batch: **XXX29182**
Prep Method: **SW3550C**
Prep Date/Time: **06/17/2013 16:30**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1455559 [XXX/29192]
Blank Lab ID: 1153541

Matrix: Soil/Solid (dry weight)

QC for Samples:
1132391010

Results by **8270D SIMS (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	3.00U	5.00	1.50	ug/Kg
2-Methylnaphthalene	3.00U	5.00	1.50	ug/Kg
Acenaphthene	3.00U	5.00	1.50	ug/Kg
Acenaphthylene	3.00U	5.00	1.50	ug/Kg
Anthracene	3.00U	5.00	1.50	ug/Kg
Benzo(a)Anthracene	3.00U	5.00	1.50	ug/Kg
Benzo[a]pyrene	3.00U	5.00	1.50	ug/Kg
Benzo[b]Fluoranthene	3.00U	5.00	1.50	ug/Kg
Benzo[g,h,i]perylene	3.00U	5.00	1.50	ug/Kg
Benzo[k]fluoranthene	3.00U	5.00	1.50	ug/Kg
Chrysene	3.00U	5.00	1.50	ug/Kg
Dibenzo[a,h]anthracene	3.00U	5.00	1.50	ug/Kg
Fluoranthene	3.00U	5.00	1.50	ug/Kg
Fluorene	3.00U	5.00	1.50	ug/Kg
Indeno[1,2,3-c,d] pyrene	3.00U	5.00	1.50	ug/Kg
Naphthalene	3.00U	5.00	1.50	ug/Kg
Phenanthrene	3.00U	5.00	1.50	ug/Kg
Pyrene	3.00U	5.00	1.50	ug/Kg
Surrogates				
2-Fluorobiphenyl	73	45-105		%
Terphenyl-d14	112	30-125		%

Batch Information

Analytical Batch: XMS7383
Analytical Method: 8270D SIMS (PAH)
Instrument: HP 6890/5973 MS SVQA
Analyst: RTS
Analytical Date/Time: 6/19/2013 8:51:00PM

Prep Batch: XXX29192
Prep Method: SW3550C
Prep Date/Time: 6/19/2013 7:00:00AM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 1 mL

Print Date: 07/11/2013 11:08:32AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1132391 [XXX29192]
Blank Spike Lab ID: 1153542
Date Analyzed: 06/19/2013 21:06

Matrix: Soil/Solid (dry weight)

QC for Samples: 1132391010

Results by **8270D SIMS (PAH)**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)		CL
1-Methylnaphthalene	22.2	21.8	98		(44-107)
2-Methylnaphthalene	22.2	17.8	80		(45-105)
Acenaphthene	22.2	20.3	92		(45-110)
Acenaphthylene	22.2	19.4	87		(45-105)
Anthracene	22.2	19.1	86		(55-105)
Benzo(a)Anthracene	22.2	21.3	96		(50-110)
Benzo[a]pyrene	22.2	18.4	83		(50-110)
Benzo[b]Fluoranthene	22.2	21.3	96		(45-115)
Benzo[g,h,i]perylene	22.2	23.3	105		(40-125)
Benzo[k]fluoranthene	22.2	28.0	126	*	(45-125)
Chrysene	22.2	23.8	107		(55-110)
Dibenzo[a,h]anthracene	22.2	23.4	105		(40-125)
Fluoranthene	22.2	22.8	103		(55-115)
Fluorene	22.2	20.7	93		(50-110)
Indeno[1,2,3-c,d] pyrene	22.2	23.9	107		(40-120)
Naphthalene	22.2	18.8	85		(40-105)
Phenanthrene	22.2	19.7	89		(50-110)
Pyrene	22.2	21.9	98		(45-125)
Surrogates					
2-Fluorobiphenyl	22.2	93.3	93		(45-105)
Terphenyl-d14	22.2	99.6	100		(30-125)

Batch Information

Analytical Batch: **XMS7383**
Analytical Method: **8270D SIMS (PAH)**
Instrument: **HP 6890/5973 MS SVQA**
Analyst: **RTS**

Prep Batch: **XXX29192**
Prep Method: **SW3550C**
Prep Date/Time: **06/19/2013 07:00**
Spike Init Wt./Vol.: 22.2 ug/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: Extract Vol:

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Matrix Spike Summary

Original Sample ID: 1132391010
MS Sample ID: 1153543 MS
MSD Sample ID: 1153544 MSD

Analysis Date: 06/19/2013 21:22
Analysis Date: 06/19/2013 21:37
Analysis Date: 06/19/2013 21:53
Matrix: Soil/Solid (dry weight)

QC for Samples: 1132391010

Results by **8270D SIMS (PAH)**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	6.07U	27.3	26.1	96	27.0	21.2	79	44-107	20.30	(< 30)
2-Methylnaphthalene	6.07U	27.3	19.9	73	27.0	17.8	66	45-105	11.30	(< 30)
Acenaphthene	6.07U	27.3	22.8	84	27.0	20.0	74	45-110	13.00	(< 30)
Acenaphthylene	6.07U	27.3	22.3	82	27.0	19.6	72	45-105	12.90	(< 30)
Anthracene	6.07U	27.3	22.7	83	27.0	21.5	79	55-105	5.60	(< 30)
Benzo(a)Anthracene	6.07U	27.3	25.0	91	27.0	24.7	92	50-110	0.57	(< 30)
Benzo[a]pyrene	6.07U	27.3	22.5	83	27.0	21.2	78	50-110	6.00	(< 30)
Benzo[b]Fluoranthene	6.07U	27.3	25.3	93	27.0	24.2	90	45-115	4.50	(< 30)
Benzo[g,h,i]perylene	6.07U	27.3	27.5	101	27.0	25.7	95	40-125	7.00	(< 30)
Benzo[k]fluoranthene	6.07U	27.3	32.7	120	27.0	32.6	120	45-125	0.35	(< 30)
Chrysene	6.07U	27.3	29.0	106	27.0	28.0	103	55-110	3.40	(< 30)
Dibenzo[a,h]anthracene	6.07U	27.3	28.6	105	27.0	25.0	92	40-125	13.50	(< 30)
Fluoranthene	6.07U	27.3	28.0	103	27.0	26.8	99	55-115	4.40	(< 30)
Fluorene	6.07U	27.3	23.2	85	27.0	20.6	76	50-110	11.50	(< 30)
Indeno[1,2,3-c,d] pyrene	6.07U	27.3	29.0	106	27.0	27.5	102	40-120	5.10	(< 30)
Naphthalene	6.07U	27.3	21.1	77	27.0	19.3	71	40-105	9.40	(< 30)
Phenanthrene	6.07U	27.3	21.9	80	27.0	19.2	71	50-110	13.40	(< 30)
Pyrene	6.07U	27.3	26.7	98	27.0	26.3	97	45-125	1.40	(< 30)
Surrogates										
2-Fluorobiphenyl		27.3	22.5	83	27.0	20.4	75	45-105	10.60	
Terphenyl-d14		27.3	26.8	98	27.0	26.3	97	30-125	1.40	

Batch Information

Analytical Batch: XMS7383
Analytical Method: 8270D SIMS (PAH)
Instrument: HP 6890/5973 MS SVQA
Analyst: RTS
Analytical Date/Time: 6/19/2013 9:37:00PM

Prep Batch: XXX29192
Prep Method: Sonication Extraction Soil 8270 PAH SIM
Prep Date/Time: 6/19/2013 7:00:00AM
Prep Initial Wt./Vol.: 22.23g
Prep Extract Vol: 1.00mL

Print Date: 07/11/2013 11:08:34AM

Hall, Heather (Anchorage)

1132391

Change Order

From: Josh [Josh@bgesinc.com]
Sent: Monday, July 08, 2013 12:02 PM
To: Hall, Heather (Anchorage)
Subject: 1132391

Hi Heather,

Can you make the following changes to the Work Order 1132391 please?

Add a "-0610" to the end of every soil boring except for SB22 (add a "-0611). For example SB14-03 should be changed to SB14-03-0610.

Thanks,

Joshua Barsis
Environmental Scientist
BGES, Inc
josh@bgesinc.com
(907) 274-0035 work
(907) 398-6153 cell
(907) 644-2901 (fax)

SGS

SGS NORTH AMERICA INC.
CHAIN OF CUSTODY RECORD

1132391

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

1

CLIENT: BGES

CONTACT: Joshua Bassis PHONE NO: (907) 644-2900

PROJECT NAME: Talkeetna PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Jayne Martin E-MAIL: josh@bgesinc.com

INVOICE TO: BGES QUOTE #: P.O. #:

2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Preservative Used: 3	TYPE C = COMP G = GRAB MI = Multi Incremental Soils		GRO by AK101	BTEX by 8021	VOC by 8260	DRO by AK102	RRO by AK103	PAH by 8270				REMARKS/ LOC ID
(1) A-B	SB10-04	6-10-13	1020	So:1	2	G			X	X		X	X					
(2) A-B	SB11-05		1150						X	X		X	X					
(3) A-B	SB12-06		1240															HOLD
(4) A-B	SB13-04		1315						X	X		X	X					
(5) A-B	SB14-03		1400						X		X	X	X					
(6) A-B	SB15-03		1510						X		X	X	X					
(7) A-B	SB16-05		1545						X	X		X	X					
(8) A-B	SB1703		1610															HOLD
(9) A-B	SB18-03		1650						X	X		X	X					
(10) A-B	SB19-03		1725						X	X		X	X	X				

5

Relinquished By:	Date	Time	Received By:
(1)	6/13/13	854	
(2)			
(3)			
(4)	6/14/13	854	Received For Laboratory By: E Secrest

4

DOD Project? YES (NO)

Cooler ID:

Data Deliverable Requirements: Level 2

Requested Turnaround Time and-or Special Instructions:
Standard 10-day
Please dispose of jars not listed on COC.

Temp Blank °C: 1.8 ± 0.3
or Ambient [ ] #238
(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)
INTACT BROKEN (ABSENT)
(See attached Sample Receipt Form)

SGS-00082 (6/12)

[ ] 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

SGS

SGS NORTH AMERICA INC.
CHAIN OF CUSTODY RECORD

1132391

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

1

CLIENT: BGES

CONTACT: PHONE NO:

PROJECT NAME: PROJECT/ PWSID/ PERMIT#:

REPORTS TO: E-MAIL:

INVOICE TO: QUOTE #: P.O. #:

2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Preservative Used: 3 TYPE C = COMP G = GRAB MI = Multi Incremental Soils		GRO by AK101 MeOH	BTEX by 8021 MeOH	VOC by 8260 MeOH	DRO by AK102 -	RRO by AK103 J	PAH by 8270 J				REMARKS/ LOC ID
(11) A-B	SB19-08	6-10-13	1725	Soil	2	G											Dispose Hold
(12) A-B	SB20-04	↓	1800	↓	↓	↓		X	X		X	X					
(13) A-B	SB21-04	↓	1845	↓	↓	↓		X	X		X	X					
(14) A-B	SB22-04	6-11-13	1015	↓	↓	↓		X		X	X	X					
(15) A-B	SB22-09	6-11-13	1015	↓	↓	↓		X		X	X	X					
(16) A	Trip Blank	–	–	↓	1	–		X		X							

5

Relinquished By: (1)	Date 6-14-13	Time	Received By:
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date 6/14/13	Time 854	Received For Laboratory By: E Secrest

4

DOD Project? YES NO

Cooler ID: _____

Data Deliverable Requirements:

Requested Turnaround Time and-or Special Instructions:

Temp Blank °C: 1.8 ± 0.3

or Ambient [ ] #238

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)

INTACT BROKEN (ABSENT)

(See attached Sample Receipt Form)

SGS-00082 (6/12)

[ ] 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

SGS

1132391

SAMPLE RECEIPT FORM

MD

Review Criteria:	Condition:	Comments/Action Taken:
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	(Yes) No (N/A) (Yes) No N/A	Absent
Temperature blank compliant* (i.e., 0-6°C after CF)? ** Note: Exemption permitted for chilled samples collected less than 8 hours ago.* Cooler ID: 2 of 4 @ 0-3 w/ Therm.ID: 238 Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ *Note: If non-compliant, use form FS-0029 to document affected samples/analyses.* If samples are received without 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." **If temperature(s) <0°C, were all sample containers ice free?**	(Yes) No N/A Yes No (N/A)	
Delivery method (specify all that apply): (Client) USPS Alert Courier C&D Delivery AK Air Lynden Carlile ERA PenAir FedEx UPS NAC Other: → *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?*	Note ABN/ tracking # See Attached or (N/A) Yes No (N/A)	
→ For samples received with payment, note amount ($) and cash / check / CC **(circle one)** or note: → For samples **received in FBKS**, ANCH staff will verify all criteria are reviewed.		(N/A) SRF Initiated by: MD N/A
Were samples received within hold time? *Note: Refer to form F-083 "Sample Guide" for hold time information.* Do samples **match COC*** (i.e., sample IDs, dates/times collected)? ** Note: Exemption permitted if times differ <1hr; in that case, use times on COC.* Were analyses requested unambiguous?	(Yes) No N/A (Yes) No N/A (Yes) No N/A	
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): Bubble Wrap Separate plastic bags Vermiculite Other: Boxes	(Yes) No N/A	
Were all VOA vials **free of headspace** (i.e., bubbles ≤6 mm)? Were all soil VOAs **field extracted** with MeOH+BFB?	Yes No (N/A) (Yes) No N/A	
Were **proper containers** (type/mass/volume/preservative*) used? ** Note: Exemption permitted for waters to be analyzed for metals.* Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	(Yes) No N/A (Yes) No N/A	
For **special handling** (e.g., "MI" or foreign soils, lab filter, limited volume, Ref Lab), were bottles/paperwork flagged (e.g., sticker)?	Yes No (N/A)	
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was **pH verified and compliant**? If pH was adjusted, were bottles flagged (i.e., stickers)?	Yes No (N/A) Yes No (N/A)	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	Yes No N/A	
For **SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP**, were containers / paperwork flagged accordingly?	Yes No (N/A)	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	Yes No (N/A)	SRF Completed by: MD 06/14/13 PM = N/A
Was **PEER REVIEW** of ***sample numbering/labeling completed?***	Yes No (N/A)	Peer Reviewed by: N/A

Additional notes (if applicable):

29, 4 oz. matrix 2 extra jars were received for disposal MD 06/17/13

Note to Client: *Any "no" circled above indicates non-compliance with standard procedures and may impact data quality.*

APPENDIX D
LABORATORY ANALYTICAL DATA
QUALITY CONTROL CHECKLISTS

Laboratory Data Review Checklist

Completed by: Joshua Barsis

Title: Environmental Scientist Date: October 16, 2013

CS Report Name: 2013 Site Characterization Report Report Date: October 2013

Consultant Firm: BGES, Inc.

Laboratory Name: SGS Laboratory Report Number: 1131014

ADEC File Number: 2258.38.016 ADEC RecKey Number: N/A

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:

      Samples were not transferred to a network laboratory.

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° ± 2° C)?
      (Yes) No NA (Please explain.) Comments:

      The temperature of the sample cooler was measured at the laboratory at the time of receipt to be 5.2 degrees C. This temperature is within the prescribed optimal temperature range of 4 degrees +/- 2 degrees C.

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

(Yes) No NA (Please explain.) Comments:

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

(Yes) No NA (Please explain.) Comments:

No irregularities or abnormalities with respect to sample containers were reported.

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:

No irregularities were reported or observed.

e. Data quality or usability affected? (Please explain.)

Comments:

N/A

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 percent recovery for the surrogate 1,4-difluorobenzene was above the laboratory acceptance limit (77 to 115 percent) in Sample TW2 at 140 percent, indicating a potential for the reported benzene, toluene, ethylbenzene, and total xylenes (BTEX) concentrations within this sample to be biased high. For this reason, the BTEX concentrations qualified "J" and are considered estimated values. The laboratory stated that the high surrogate recovery was caused by matrix interference. Because several other analytes exceeded Alaska Department of Environmental Conservation (ADEC) cleanup criteria for this field sample, it is our opinion that this quality control (QC) failure does not affect the interpretation of the data.

The percent recovery for the surrogate 2-fluorophenyl was below the laboratory acceptance limit (50 to 110 percent) in Field Sample TW2 at 45.9 percent, indicating a potential for the reported concentrations of polynuclear aromatic hydrocarbons (PAH) analytes within this sample to be biased low. For this reason, all of the PAH concentrations are considered estimates. The laboratory indicated that low surrogate recovery was caused by matrix interference. However, because the percent recovery of surrogate terphenyl-d14 was within the laboratory acceptance range of 50 to 135 percent for this field sample and because none of the PAH analytes exceeded their laboratory limits of quantitation (LOQs) or ADEC cleanup criteria; it is our opinion that this QC failure does not affect the interpretation of the data.

c. Were all corrective actions documented?
(Yes) No NA (Please explain.) Comments:

d. What is the effect on data quality/usability according to the case narrative?
Comments:

See 4b, above.

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:

Only water samples were analyzed for this laboratory data package.

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:

e. Data quality or usability affected?
Comments:

N/A

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:

iii. If above PQL, what samples are affected?

Comments:

N/A

iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?

Yes No (NA) (Please explain.) Comments:

N/A

v. Data quality or usability affected? (Please explain.)

Comments:

N/A

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:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes No (NA) (Please explain.) Comments:

The samples were not submitted for metals analyses.

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:

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:

N/A

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes No (NA) (Please explain.) Comments:

vii. Data quality or usability affected? (Use comment box to explain.)
Comments:

N/A

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:

See 4b, above.

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:

See 4b, above.

iv. Data quality or usability affected? (Use the comment box to explain.)
Comments:

See 4b, above.

d. Trip blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): <u>Water and Soil</u>

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:

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:

iii. All results less than PQL?

(Yes) No NA (Please explain.) Comments:

iv. If above PQL, what samples are affected?

Comments:

N/A

v. Data quality or usability affected? (Please explain.)

Comments:

N/A

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes No (NA) (Please explain.) Comments:

Not applicable. A field duplicate blank was not collected because it was not part of our approved scope of work.

ii. Submitted blind to lab?

Yes No (NA) (Please explain.) Comments:

Not applicable. A field duplicate blank was not collected because it was not part of our approved scope of work.

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:

Not applicable. A field duplicate blank was not collected because it was not part of our approved scope of work.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

N/A

f. Decontamination or Equipment Blank (If not used explain why).

Yes No (NA) (Please explain.) Comments:

Not applicable. A decontamination or equipment blank was not collected because it was not part of our approved scope of work.

i. All results less than PQL?

Yes No (NA) (Please explain.) Comments:

Not applicable. A decontamination or equipment blank was not collected because it was not part of our approved scope of work.

ii. If above PQL, what samples are affected?

Comments:

N/A

iii. Data quality or usability affected? (Please explain.)

Comments:

N/A

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes No (NA) (Please explain.) Comments:

Not applicable for this project.

Laboratory Data Review Checklist

Completed by: Joshua Barsis

Title: Environmental Scientist Date: October 16, 2013

CS Report Name: 2013 Site Characterization Report Report Date: October 2013

Consultant Firm: BGES, Inc.

Laboratory Name: SGS Laboratory Report Number: 1131015

ADEC File Number: 2258.38.016 ADEC RecKey Number: N/A

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:

      Samples were not transferred to a network laboratory.

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° ± 2° C)?
      (Yes) No NA (Please explain.) Comments:

      The temperature of the sample cooler was measured at the laboratory at the time of receipt to be 5.7 degrees Celsius (C). This temperature is within the prescribed optimal temperature range of 4 degrees +/- 2 degrees C.

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

(Yes) No NA (Please explain.) Comments:

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

(Yes) No NA (Please explain.) Comments:

No irregularities or abnormalities with respect to sample containers were reported.

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:

No irregularities were reported.

e. Data quality or usability affected? (Please explain.)

Comments:

N/A

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:

According to the laboratory, Field Sample SB2-11 was diluted because of matrix interference with the internal standards; therefore, the limits of quantitation (LOQs) were elevated for the 8270D SIMS analytes. Because the LOQs were well below Alaska Department of Environmental Conservation (ADEC) cleanup criteria and because this sample exhibited polynuclear aromatic hydrocarbon (PAH) concentrations well below their respective ADEC cleanup criteria, it is our opinion that this quality control (QC) failure does not affect the acceptability of these data for their intended use.

The percent recovery of the surrogate 4-bromofluorobenzene (BFB) was above the laboratory acceptance range (50 to 150 percent) in Field Samples SB2-4 and SB2-11 (duplicate of SB2-4) at 3,580 percent and 2,470 percent, respectively, which indicates a potential for the reported concentrations of gasoline range organics (GRO) in these samples to be biased high. According to the laboratory, the high percent recovery of BFB was because BFB was accidently spiked into Field Sample SB2-4 and because of matrix interference for both field samples. Therefore, the GRO concentrations for these samples are qualified with a "J" in Table 2, and should be considered estimated values. However, because the Field Samples SB2-4 and SB2-11 exhibited concentrations of GRO that were well above the ADEC cleanup criterion and benzene concentrations were also well above the ADEC cleanup criterion in these samples, it is our opinion that this QC failure does not affect the interpretation of the data for their intended use.

The percent recovery of the surrogate 2-fluorobiphenyl was below the laboratory acceptance range (45 to 105 percent) in Field Sample SB2-11 at 19.5 percent, which indicates a potential for the reported PAH concentrations in this field sample to be biased low. Therefore, the reported PAH concentrations for Field Sample SB2-11 are qualified with a "J" in Table 2, and should be considered estimates. However, because Field Sample SB2-11 exhibited concentrations of PAHs that were at least one order of magnitude below the ADEC cleanup criteria, it is our opinion that this QC failure does not affect the interpretation of the data for their intended use.

The percent recovery of the surrogate 1,4-difluorobenzene was measured above the laboratory acceptance range (72 to 119 percent) in the Field Sample SB2-11 at 122 percent, which indicates a potential for the reported benzene, toluene, ethylbenzene, and total xylenes (BTEX) concentrations within this field sample to be biased high. According to the laboratory, the poor recovery of this surrogate was because of matrix interference. Therefore, the reported concentrations for BTEX for Field Sample SB2-11 are qualified with a "J" in Table 2, and should be considered estimated values. However, because Field Sample SB2-11 exhibited a benzene concentration that was two orders of magnitude above the ADEC cleanup criterion and all other analytes were well below the ADEC cleanup criteria, it is our opinion that this QC failure does not affect the interpretation of the data for their intended use.

The percent recovery of the surrogate BFB was below the laboratory acceptance range (50 to 150 percent) in Field Samples SB3-4 and SB4-4 at 0 percent for both samples, which indicates a potential for the reported concentrations of GRO within these field samples to be biased low. Therefore, the reported concentrations for GRO for Field Samples SB3-4 and SB4-4 are qualified with a "J" in Table 2, and should be considered estimated values. According to the laboratory, the poor recovery of this surrogate was because of matrix interference. However, because the Field Samples SB3-4 and SB4-4 exhibited GRO concentrations that were one order of magnitude above the applicable ADEC cleanup criterion; it is our opinion that this QC failure does not affect the interpretation of the data for their intended use.

The percent recovery of the surrogate BFB was slightly above the laboratory acceptance range (50 to 150 percent) in Field Samples SB5-4 and SB7-5 at 163 percent and 151 percent, respectively, which indicates a potential for the reported concentrations of GRO within these field samples to be biased high. According to the laboratory, this was likely caused by an over-compensation to the result because of the non-homogeneity of the unpreserved aliquot which was used for Total Solids determination. Therefore, the reported concentrations for GRO for Field Samples SB5-4 and SB7-5 are qualified with a "J" in Table 2, and should be considered estimated values. However, because the reported concentrations of GRO within these field samples were an order of magnitude below the ADEC cleanup criterion; it is our opinion that this QC failure does not affect the interpretation of the data for their intended use.

The percent recovery of the surrogate BFB was above the laboratory acceptance range (50 to 150 percent) in the Field Sample SB8-4 at 401 percent, which indicates a potential for the reported GRO concentration in this field sample to be biased high. According to the laboratory, the poor recovery of this surrogated was because of matrix interference. Therefore, the reported concentration for GRO for Field Sample SB8-4 was qualified with a "J" in Table 2, and should be considered an estimated value. However, because the reported concentration of GRO within this field sample was well above the applicable ADEC cleanup criterion; it is our opinion that this QC failure does not affect the interpretation of the datum

for its intended use.

According to the laboratory, Field Samples SB4-4, SB5-4, SB6-4, SB7-5, and SB8-4 were reanalyzed outside of hold times for BTEX analysis by Method 8021B because of laboratory error. SGS was contacted to determine why the samples were analyzed outside of hold times. Reportedly, some of the field samples exhibited extremely high contaminant concentrations, and therefore had to be reanalyzed. The samples were analyzed approximately one week out of hold times, which indicates a potential for the reported BTEX concentrations for Field Samples SB4-4, SB5-4, SB6-4, SB7-5, and SB8-4 to be biased low. Therefore, the reported concentrations for BTEX for Field Samples SB4-4, SB5-4, SB6-4, SB7-5, and SB8-4 are qualified with a "J" in Table 2, and should be considered estimated values. Because Field Samples SB4-4, SB5-4, SB6-4, SB7-5, and SB8-4 exhibited BTEX concentrations that were well below ADEC cleanup criteria with the exception of benzene in SB4-4, which exceed the ADEC cleanup criterion, it is our opinion that this QC failure does not affect the acceptability of these data for their intended use.

The percent recovery of chrysene and fluoranthene exceeded the laboratory's acceptance limit for the laboratory control sample (LCS), Laboratory Sample Number 1142737, indicating a potential for the reported concentrations of chrysene and fluoranthene to be biased high in Field Samples SB2-4 and SB2-11 (duplicate of Sample SB2-4). Chrysene and fluoranthene were not detected above the LOQs and the LOQs were well below the ADEC cleanup criteria in the associated Field Samples SB2-4 and SB2-11; therefore, it is our opinion that this QC failure does not affect the interpretation of the data.

The percent recoveries for 2-methylnaphthalene, acenaphthene, and naphthalene in the matrix spike (MS) and matrix spike duplicate (MSD) samples (Laboratory Sample Numbers 1142738 and 1142739, respectively) were above their laboratory's acceptance limits. However, because the percent recoveries for these analytes were within their acceptance limit ranges for the LCS, because Field Samples SB2-4 and SB2-11 exhibited concentrations of 2-methylnaphthalene, that are more than two orders of magnitude below the ADEC cleanup criterion, and because these field samples exhibited non-detectable concentrations of acenaphthene, and naphthalene, it is our opinion that this QC failure does not affect the interpretation of the data.

The percent recovery for 1-methylnaphthalene in a MSD sample (Laboratory Sample Number 1142739) was above the laboratory acceptance limit range of 44 to 107 percent. However, because the percent recovery for this analyte was within the acceptance limit range for the LCS and because Filed Samples SB2-4 and SB2-11 exhibited a concentration of 1-methylnaphthalene which was two orders of magnitude below the ADEC cleanup criterion it is our opinion that this QC failure does not affect the interpretation of the data.

c. Were all corrective actions documented?
(Yes) No NA (Please explain.) Comments:

See 4b, above.

d. What is the effect on data quality/usability according to the case narrative?
Comments:

See 4b, above.

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:

      See 4b, above.

   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:

      See 4b, above.

   e. Data quality or usability affected?
      Comments:

      See 4b, 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:

      iii. If above PQL, what samples are affected?
      Comments:

      N/A

      iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?
      Yes No (NA) (Please explain.) Comments:

      N/A

v. Data quality or usability affected? (Please explain.)
Comments:

N/A

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:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?
Yes (No) NA (Please explain.) Comments:

The field samples were not analyzed for metals for this project.

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:

See 4b, above.

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:

N/A

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes No (NA) (Please explain.) Comments:

vii. Data quality or usability affected? (Use comment box to explain.)
Comments:

N/A

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:

See 4b, above.

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:

See 4b, above.

iv. Data quality or usability affected? (Use the comment box to explain.)
Comments:

See 4b, above.

d. Trip blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): <u>Water and Soil</u>

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:

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:

iii. All results less than PQL?
(Yes) No NA (Please explain.) Comments:

iv. If above PQL, what samples are affected?
Comments:

N/A

v. Data quality or usability affected? (Please explain.)

Comments:

N/A

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:

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:

Soil Sample SB2-11 was a duplicate of Soil Sample SB2-4 and was collected to evaluate sampling precision. The calculated relative percent differences (RPD's) between the reported concentrations of analytes within these samples were below the acceptable limit of 50 percent for GRO and DRO (23.73 percent and 30.53 percent, respectively), which indicates a fairly good measure of field sampling precision. The analytes that did not have acceptable RPD's included BTEX, 1-methylnaphthalene, and 2-methylnaphthalene. The RPD's for these analytes ranged from 57.69 percent to 109.43 percent. These nonconforming RPDs are likely because of the heterogeneity of the soils. Because the reported concentration of benzene was two orders of magnitude above the ADEC cleanup criterion and the other analytes were below their respective ADEC cleanup criteria, it is our opinion that the data are acceptable for their intended use. The RPDs between the reported concentrations of numerous analytes could not be calculated, because they were not detected above the laboratory LOQs.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

See 4b, above.

f. Decontamination or Equipment Blank (If not used explain why).

Yes No (NA) (Please explain.) Comments:

Not applicable. A decontamination or equipment blank was not collected because it was not part of our approved scope of work.

i. All results less than PQL?

Yes No (NA) (Please explain.) Comments:

Not applicable. A decontamination or equipment blank was not collected because it was not part of our approved scope of work.

ii. If above PQL, what samples are affected?

Comments:

N/A

iii. Data quality or usability affected? (Please explain.)

Comments:

N/A

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes No (NA) (Please explain.) Comments:

Not applicable for this project.

Laboratory Data Review Checklist

Completed by: Joshua Barsis

Title: Environmental Scientist Date: October 16, 2013

CS Report Name: 2013 Site Characterization Report Report Date: October 2013

Consultant Firm: BGES, Inc.

Laboratory Name: SGS Laboratory Report Number: 1132382

ADEC File Number: 2258.38.016 ADEC RecKey Number: N/A

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:

      Samples were not transferred to a network laboratory.

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° ± 2° C)?
      Yes (No) NA (Please explain.) Comments:

      The temperatures of the sample coolers were measured at the laboratory at the time of receipt to be 1.8 degrees C and 0.3 degrees C, which are below the recommended temperature range of 4 degrees +/- 2 degrees C. However, because the recorded temperatures were slightly below the acceptance range, there is a reduced potential for contaminant loss within the samples due to natural attenuation. For this reason, it is our opinion that this QC failure does not affect the acceptability of the data for their intended use.

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

(Yes) No NA (Please explain.) Comments:

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

(Yes) No NA (Please explain.) Comments:

No irregularities or abnormalities with respect to sample containers were reported.

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:

No irregularities were reported.

e. Data quality or usability affected? (Please explain.)

Comments:

N/A

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 percent recovery of the surrogate 4-bromofluorobenzene (BFB) was above the laboratory acceptance range (50 to 150 percent) in Field Sample MW8 at 169 percent, indicating a potential for the reported concentration of gasoline range organics (GRO) to be biased high. According to the laboratory, the high surrogate recovery was caused by matrix interference. For this reason, the GRO concentration for Field Sample MW8 was qualified with a "J" in Table 3, and should be considered an estimated value. However, because the reported concentration of GRO within this field sample was above the applicable Alaska Department of Environmental Conservation (ADEC) cleanup criterion and because the reported concentration of diesel range organics (DRO) in this field sample exceeded the ADEC cleanup criterion, it is our opinion that this QC failure does not affect our interpretation of the datum for its intended use.

The percent recovery of the surrogate 1,4-difluorobenzene was above the laboratory acceptance range (77 to 115 percenet) in the Sample MW8 at 124 percent, indicating a potential for the reported benzene, toluene, ethylbenzene, and total xylenes (BTEX) concentrations to be biased high. According to the laboratory, the high surrogate recovery was likely caused by matrix interference. For this reason, the reported BTEX concentrations for Field Sample MW8 are qualified with a "J" in Table 3, and should be considered an estimated value. However, because the Field Sample MW8 exhibited BTEX concentrations well below

ADEC cleanup criteria, it is our opinion that this QC failure does not affect our interpretation of the data.

The limits of quantitation (LOQs) for 1,2,3-trichloropropane and ethylene dibromide (EDB) exceeded the ADEC cleanup criteria in Field Samples MW22 and MW23 (duplicate of MW22). Therefore, it cannot be determined if actual concentrations of these analytes within these field samples exceed their respective ADEC cleanup criteria.

c. Were all corrective actions documented?
(Yes) No NA (Please explain.) Comments:

d. What is the effect on data quality/usability according to the case narrative?
Comments:

See 4b, above.

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:

Only water samples were submitted for this laboratory data package.

   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:

See 4b, above.

   e. Data quality or usability affected?
   Comments:

See 4b, 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:

iii. If above PQL, what samples are affected?

Comments:

N/A

iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?

Yes No (NA) (Please explain.) Comments:

N/A

v. Data quality or usability affected? (Please explain.)

Comments:

N/A

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:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes (No) NA (Please explain.) Comments:

The water samples were not submitted for analysis of metals.

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:

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:

N/A

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No (NA) (Please explain.) Comments:

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

N/A

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:

See 4b, above.

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:

iv. Data quality or usability affected? (Use the comment box to explain.)

Comments:

See 4b, above.

d. Trip blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): <u>Water and Soil</u>

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:

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:

iii. All results less than PQL?

(Yes) No NA (Please explain.) Comments:

iv. If above PQL, what samples are affected?

Comments:

N/A

v. Data quality or usability affected? (Please explain.)

Comments:

N/A

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:

iii. Precision – All relative percent differences (RPD) less than specified DQOs? (Recommended: 30% water, 50% soil)

$$RPD\ (\%) = \text{Absolute value of: } \frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Yes (No) NA (Please explain.) Comments:

Water Sample MW23 was a duplicate of MW22 and was collected to evaluate sampling precision. The relative percent differences (RPD's) for GRO and 4-isopropyltoluene in this sample and duplicate sample were less than the acceptable limit of 30 percent (2.68 percent and 1.63 percent, respectively); which indicates acceptable field sampling precision. The RPD for chloromethane (62.14 percent) was greater than the acceptable limit of 30 percent. Because the water sample and associated duplicate sample both exhibited chloromethane concentrations that were more than one order of magnitude below the ADEC cleanup criterion, and because numerous other analytes exhibited concentrations that were one or more magnitudes below ADEC cleanup criteria, it is our opinion that this lack of precision does not affect the interpretation of the data for their intended use. Chloromethane is not a contaminant of concern at this site. However, because of the poor precision, this analyte is qualified with a "J" in Table 3 as an estimated concentration. The RPDs between the reported concentrations of several analytes could not be calculated, as they were not detected above the laboratory LOQs.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

See 6, e, iii, above.

f. Decontamination or Equipment Blank (If not used explain why).

Yes No (NA) (Please explain.) Comments:

Not applicable. A decontamination or equipment blank was not collected because it was not part of our approved scope of work.

i. All results less than PQL?

Yes No (NA) (Please explain.) Comments:

Not applicable. A decontamination or equipment blank was not collected because it was not part of our approved scope of work.

ii. If above PQL, what samples are affected?

Comments:

N/A

iii. Data quality or usability affected? (Please explain.)

Comments:

N/A

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)
   a. Defined and appropriate?
      Yes No (NA) (Please explain.) Comments:

Not applicable for this project.

Laboratory Data Review Checklist

Completed by: Joshua Barsis

Title: Environmental Scientist Date: October 16, 2013

CS Report Name: 2013 Site Characterization Report Report Date: October 2013

Consultant Firm: BGES, Inc.

Laboratory Name: SGS Laboratory Report Number: 1132391

ADEC File Number: 2258.38.016 ADEC RecKey Number: N/A

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:

      Samples were not transferred to a network laboratory.

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° ± 2° C)?
      Yes (No) NA (Please explain.) Comments:

      The temperatures of the sample coolers were measured at the laboratory at the time of receipt to be 1.8 degrees Celsius (C) and 0.3 degrees C, which are below the recommended temperature range of 4 degrees +/- 2 degrees C. However, because the recorded temperatures were slightly below the acceptance range, there is a reduced potential for contaminant loss within the samples due to natural attenuation. For this reason, it is our opinion that this QC failure does not affect the acceptability of the data for their intended use.

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

(Yes) No NA (Please explain.) Comments:

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

(Yes) No NA (Please explain.) Comments:

No irregularities or abnormalities with respect to sample containers were reported.

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:

No irregularities were reported.

e. Data quality or usability affected? (Please explain.)

Comments:

N/A

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 percent recovery of the surrogate 4-bromofluorobenzene (BFB) was significantly above the laboratory acceptance range (50 to 150 percent) in Field Sample SB14-03 at 2,440 percent, indicating a potential for the reported gasoline range organics (GRO) concentration in Field Sample SB14-03 to be biased high. For this reason, the GRO concentration is qualified with "J" in Table 2 and should be considered an estimated value. According to the laboratory, the high surrogate recovery was caused by matrix interference. However, because Field Sample SB14-03 exhibited a GRO concentration above the Alaska Department of Environmental Conservation (ADEC) cleanup criterion; it is our opinion that this quality control (QC) failure does not affect our interpretation of the data for their intended use.

The percent recovery of the surrogate toluene-d8 was slightly above the laboratory acceptance range (85 to 115 percent) in the Field Sample SB14-03 at 116 percent, indicating a potential for the reported volatile organic compound (VOC) concentrations in Field Sample SB14-03 to be biased high. For this reason, the VOC concentrations are qualified with "J" in Table 2 and should be considered estimated values. According to the laboratory, the slightly high surrogate recovery was caused by matrix interference. However, because Field Sample SB14-03 exhibited VOC concentrations well below the laboratory's limits of quantitation (LOQs) and ADEC cleanup criteria, it is our opinion that this QC failure does not affect the interpretation of the data.

According to the laboratory, Field Sample SB14-03 was analyzed outside of the holding time for the VOC analytes associated with the surrogate toluene-d8. Because this sample was not analyzed within the prescribed holding time, there is a potential that the VOC concentrations exhibited by Field Sample SB14-03 are biased low. Therefore, the VOC concentrations are qualified with "J" in Table 2, and are considered estimated values. SGS was contacted to determine why Field Sample SB14-03 was analyzed outside of holding time. According to the laboratory, the first VOC run was performed on June 21, 2013 and the recovery of surrogate Toluene d-8 was reported to be 12 percent, which is below the laboratory acceptance range (85 to 115 percent), and all of the analytes associated with this surrogate were non-detectable. Based on these results, the laboratory scheduled this field sample to be reanalyzed. However, the sample was not reanalyzed until after the holding time expired. The sample was reanalyzed on June 25, 2013, approximately 10 hours past expiration of the holding time, and the surrogate recovery was 116 percent, which is slightly above the laboratory acceptance range (85 to 115 percent). According to SGS, this relatively short exceedance of the holding time should not materially affect the results. Because the sample was reanalyzed only several hours beyond expiration of the holding time, and because the sample was properly stored and chilled by the laboratory; it is our opinion that this QC failure does not affect the acceptability of these data for their intended use.

The percent recovery of the surrogate BFB was significantly above the laboratory acceptance range (50 to 150 percent) in Field Samples SB21-04 at 549 percent and SB22-04 at 621 percent; indicating a potential for the reported GRO concentrations to biased high. For this reason, the GRO concentrations are qualified with "J" in Table 2, and should be considered estimated values. However, because Field Samples SB21-04 and SB22-04 exhibited GRO concentrations well below the applicable ADEC cleanup criterion; it is our opinion that this QC failure does not affect the interpretation of the data.

The Continuing Calibration Verification (CCV) recoveries for trichlorofluoromethane, dichlorodifluoromethane, and several other analytes in Laboratory Samples 1153956, 1154516, 1154969, did not meet the QC criteria and were considered to be biased high by the laboratory, indicating a potential for these analytes in the field samples to be biased high. However, because these analytes were not reported at concentrations above the applicable LOQs and the ADEC cleanup criteria in any of the field samples, it is our opinion that this QC failure does not affect the interpretation of the data.

The percent recovery for benzo(k)fluoranthene exceeded the laboratory's acceptance limit of 45 to 125 percent for the laboratory control sample (LCS), Blank Spike Identification Number 1153542, indicating a potential for the reported concentration of benzo(k)fluoranthene to be biased high in Field Sample SB19-03. Because benzo(k)fluoranthene was not detected above the LOQ in the associated Field Sample SB19-03, it is our opinion that this QC failure does not affect the interpretation of the data.

The percent recoveries for the surrogate BFB in the matrix spike (MS) sample and matrix spike duplicate (MSD) sample pair (Laboratory Sample Numbers 1154513 and 1154514, respectively) were below the laboratory acceptance limit range of 67 to 138 percent, indicating a potential for VOCs in the associated Field Samples SB14-03, SB15-03, SB22-04, and SB22-09 to be biased low. For this reason, the VOC concentrations are qualified with "J" in Table 2, and should be considered estimated values. However, because Field Samples SB14-03, SB15-03, SB22-04, and SB22-09 exhibited VOC concentrations well below ADEC cleanup criteria; it is our opinion that this QC failure does not affect the interpretation of the data.

The percent recovery for trichlorofluoromethane in the MSD sample (Laboratory Sample Number 1153952) exceeded the laboratory acceptance limit range of 25 to 185 percent. The percent recovery for this analyte was with its acceptance limit range for the LCS. Because the MSD sample was derived from a sample that was collected as part of another project; it is our opinion that there is a potential for the data QC failure to be caused by matrix effects associated with soils different than those at this site. For this reason, it is our opinion that this QC failure does not affect the acceptability of the data for their intended use.

The LOQs for 1,1,2,2-tetrachloroethane, 1,1,2-trichloroethane, 1,2,3-trichloropropane, ethylene dibromide (EDB), 1,2-dichloroethane, 1,2-dichloropropane, and vinyl chloride exceeded the ADEC cleanup criteria in Field Samples SB14-03, SB15-03, SB22-04, and SB22-09 (duplicate of SB22-04). Therefore, it cannot be determined if actual concentrations of these VOCs within these field samples exceed their respective ADEC cleanup criteria.

c. Were all corrective actions documented?
(Yes) No NA (Please explain.) Comments:

d. What is the effect on data quality/usability according to the case narrative?
Comments:

See 4b, above.

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:

See 4b, above.

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:

See 4b, above.

e. Data quality or usability affected?
Comments:

See 4b, 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:

iii. If above PQL, what samples are affected?

Comments:

N/A

iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?

Yes No (NA) (Please explain.) Comments:

N/A

v. Data quality or usability affected? (Please explain.)

Comments:

N/A

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:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes No (NA) (Please explain.) Comments:

The samples were not analyzed for metals in this laboratory data package.

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:

See 4b, above.

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:

See 4b, above.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

See 4b, above.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

(Yes) No NA (Please explain.) Comments:

See 4b, above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

See 4b, 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:

See 4b, above.

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:

See 4b, above.

iv. Data quality or usability affected? (Use the comment box to explain.)

Comments:

See 4b, 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:

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:

iii. All results less than PQL?

(Yes) No NA (Please explain.) Comments:

iv. If above PQL, what samples are affected?

Comments:

N/A

v. Data quality or usability affected? (Please explain.)

Comments:

N/A

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:

iii. Precision – All relative percent differences (RPD) less than specified DQOs? (Recommended: 30% water, 50% soil)

RPD (%) = 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:

Soil Sample SB22-09 was a duplicate of SB22-04 and was collected to evaluate sampling precision. The relative percent differences (RPD's) between the reported concentrations for GRO in this sample and duplicate sample were below the acceptable limit of 50 percent (42.58 percent). This indicates a good measure of field sampling precision for the soil sample duplicate pair. The RPDs between the reported concentrations of numerous analytes could not be calculated, as they were not detected above the laboratory's LOQs.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

N/A

f. Decontamination or Equipment Blank (If not used explain why).

Yes No (NA) (Please explain.) Comments:

Not applicable. A decontamination or equipment blank was not collected because it was not part of our approved scope of work.

i. All results less than PQL?

Yes No (NA) (Please explain.) Comments:

Not applicable. A decontamination or equipment blank was not collected because it was not part of our approved scope of work.

ii. If above PQL, what samples are affected?

Comments:

N/A

iii. Data quality or usability affected? (Please explain.)

Comments:

N/A

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)
   a. Defined and appropriate?
      Yes No (NA) (Please explain.) Comments:

Not applicable for this project.

APPENDIX E
CONCEPTUAL SITE MODEL

HUMAN HEALTH CONCEPTUAL SITE MODEL

Site: Tract 3, Talkeetna Library Subdivision
Talkeetna, Alaska

Follow the directions below. Do not consider engineering or land use controls when describing pathways.

Completed By: Joshua Barsis
Date Completed: July 2013

(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. Briefly list other mechanisms or reference the report for details.

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

(4)
Check exposure pathways that are complete or need further evaluation. The pathways identified must agree with Sections 2 and 3 of the CSM Scoping Form.

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

Media	Transport Mechanisms	Exposure Media	Exposure Pathways	Current & Future Receptors: Residents (adults or children)	Commercial or industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other
☐ Surface Soil (0-2 ft bgs)	☐ Direct release to surface soil — check soil									
	☐ Migration or leaching to subsurface — check soil									
	☐ Migration or leaching to groundwater — check groundwater									
	☐ Volatilization — check air									
	☐ Runoff or erosion — check surface water									
	☐ Uptake by plants or animals — check biota									
	☐ Other (*list*):									
☑ Subsurface Soil (2-15 ft bgs)	☑ Direct release to subsurface soil — check soil									
	☑ *Migration to groundwater* — check groundwater									
	☑ *Volatilization* — check air									
	☐ *Other (list):*									
☑ Ground-water	☑ Direct release to groundwater — check groundwater	☑ soil	☑ Incidental Soil Ingestion		F	F	F			
	☑ *Volatilization* — check air		☑ Dermal Absorption of Contaminants from Soil		F	F	F			
	☑ *Flow to surface water body* — check surface water	☑ groundwater	☑ Ingestion of Groundwater		F	F				
	☐ *Flow to sediment* — check sediment		☑ Dermal Absorption of Contaminants in Groundwater		F	F	F			
	☐ *Uptake by plants or animals* — check biota		☐ Inhalation of Volatile Compounds in Tap Water							
	☐ *Other (list):*	☑ air	☑ Inhalation of Outdoor Air		F	C/F	F			
☐ Surface Water	☐ Direct release to surface water — check surface water		☐ Inhalation of Indoor Air							
	☐ *Volatilization* — check air		☐ Inhalation of Fugitive Dust							
	☐ *Sedimentation* — check sediment	☑ surface water	☑ Ingestion of Surface Water			C/F				
	☐ *Uptake by plants or animals* — check biota		☑ Dermal Absorption of Contaminants in Surface Water			C/F				
	☐ *Other (list):*		☐ Inhalation of Volatile Compounds in Tap Water							
☐ Sediment	☐ Direct release to sediment — check sediment	☐ sediment	☐ Direct Contact with Sediment							
	☐ *Resuspension, runoff, or erosion* — check surface water	☐ biota	☐ Ingestion of Wild Foods							
	☐ *Uptake by plants or animals* — check biota									
	☐ *Other (list):*									

Revised 3/21/06